



Course 1301

Slaughter Inspection Refresher Course

Student Notebook

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HUMANE HANDLING VERIFICATION FOR LIVESTOCK AND GOOD COMMERCIAL PRACTICES FOR POULTRY

Objectives

Upon completion of this module, you will be able to accomplish the following without the aid of references:

1. Name the two approved methods of slaughter in the Humane Methods of Slaughter Act (HMSA).
2. Describe the Humane Activities Tracking System (HATS) categories and give one example of a requirement in each.
3. Be able to identify regulatory noncompliance, whether it is egregious or non-egregious, and what action to take, if any.
4. List the steps in performing the Poultry Good Commercial Practices (GCP) task.
5. Identify regulatory noncompliance with Good Commercial Practices or mistreatment of birds and actions to take in each case.

References

1. 9 CFR 313: Humane Slaughter of Livestock
2. 9 CFR 352.10: Exotic Animals; Voluntary Inspection
3. Humane Methods of Livestock Slaughter Act of 1978
4. Federal Meat Inspection Act Section 603
5. FSIS Directive 6900.2 Rev. 3, *Humane Handling and Slaughter*
6. FSIS Directive 6100.1. Rev.3, *Antemortem Livestock Inspection*
7. Poultry Products Inspection Act Section 453(g)(5)
8. 9 CFR 381.65(b): Poultry Products Inspection Regulations
9. FSIS Directive 6100.3 Rev. 1, *Antemortem and Postmortem Poultry Inspection*
10. FSIS Directive 6110.1, *Verification of Poultry Good Commercial Practices*

Livestock Humane Handling Verification

Introduction

The Humane Methods of Livestock Slaughter Act (HMSA) of 1978 is the current law requiring the humane slaughter of livestock. The 1978 Act made mandatory the humane slaughter and handling of livestock in connection with slaughter of all food animals slaughtered in USDA inspected establishments. This includes cattle, calves, horses, mules, sheep, goats, swine, and other livestock.

Two methods of slaughter are humane according to the HMSA. The first method requires that livestock be rendered insensible to pain on the first application of the **stunning** device before being shackled, hoisted, cast, or cut. This means that the animal must be unconscious and unable to feel pain before it is “stuck” (veins and arteries severed so it bleeds out) before it is shackled and hoisted into the air, or before it is dropped onto a table/floor.

The second method is in accordance with the ritual requirements of any religious faith that prescribes a method of slaughter where the animal suffers loss of consciousness by anemia of the brain caused by the simultaneous and instantaneous severance of the carotid arteries with a sharp instrument. This method is known as ritual slaughter. In **ritual slaughter**, the animal’s throat is cut from side to side with a sharp knife, deeply enough for the major arteries and veins to be severed. Examples of ritual slaughter include Jewish (Kosher) slaughter and Islamic (halal) slaughter.

Additionally, Section 1906 of the HMSA exempts the handling or other preparation of ritually slaughtered livestock from the terms of the Act. This means that the statutory requirement that livestock be rendered insensible to pain prior to shackling, hoisting, casting, or cutting does not apply to the handling or restraint that is immediately associated with the ritual slaughter cut.

The regulations for humane slaughter are in the Title 9 Code of Federal Regulations (CFR) Part 313, titled Humane Slaughter of Livestock. Additional Agency guidance is detailed in the “References” section above.

Inspection program personnel (IPP) will verify that establishments are meeting regulatory requirements by performing the Livestock Humane Handling Verification task during every slaughter shift, or during any shift when animals are on the premises, even if no slaughter is scheduled.

Currently, the HMSA of 1978 does not cover poultry. However, welfare practices for poultry are covered by the regulatory requirement for good commercial practices (GCP). The regulations for poultry good commercial practices are in 9 CFR Part 381.65. GCP for poultry will be discussed later in this section.

Performing the Livestock Humane Handling Task

Consumer Safety Inspectors (CSIs) and Public Health Veterinarians (PHVs) are tasked with performing and documenting the Livestock Humane Handling Verification task in PHIS. However, Food Inspectors have the authority to intervene when inhumane handling is observed and therefore must be knowledgeable about the humane handling regulations.

HATS Categories

The Humane Activities Tracking System (HATS) categories covered while performing the Livestock Humane Handling Verification task include the following:

I. Inclement Weather (9 CFR 313.1 and 313.2): Under this category, IPP record their verification of how the establishment adapts its facilities and handling practices to inclement weather to ensure the humane handling of animals. Some things to look for include:

1. Inclement weather (e.g., rain, heat, snow, ice) having adverse effects on facilities and animal handling.
2. Animals slipping or falling because of wet floors or because of a buildup of snow and ice.
3. Animals with no access to water when water buckets or troughs freeze over.
4. Livestock overheated because of a lack of proper shade or because of a lack of water for cooling.
5. Disabled livestock not in a covered pen protected from the elements.

II. Truck Unloading (9 CFR 313.1 and 313.2): Under this category, IPP record their verification of the establishment’s humane handling procedures during livestock unloading activities. Some things to look for include:

1. Facility conditions causing injury to animals.
2. Vehicles or ramps not being properly positioned, leading to the injury of animals.
3. Animals forced to move faster than a normal walking speed.
4. Animals slipping and falling.
5. Disabled or U.S. Suspect animals not being separated from normal ambulatory animals.
6. Animals being prodded excessively or not driven with a minimum of excitement and discomfort.

As a safety matter, Inspectors should use their own judgement as to whether they will inspect animals on a truck. Also, be aware that USDA-APHIS requires that when animals that are hauled long distances, drivers must stop every 28 hours to provide feed, water, and rest. If animals appear exhausted and dehydrated, you may express these concerns through your supervisor.

III. Water and Feed Availability (9 CFR 313.2): Under this category, IPP record their verification of the establishment's compliance with 9 CFR 313.2(e), which requires that water be available to livestock in all holding pens at all times, and that animals held longer than 24 hours have access to feed. Some things to look for include:

1. Water not accessible to livestock in holding pens.
2. Feed not provided to livestock held for longer than 24 hours.
3. Feed provided not appropriate for species and age (e.g., bottle-fed veal cannot be offered hay as an appropriate feed source).

IV. Handling during Antemortem Inspection (9 CFR 313.1 and 313.2): Under this category, while IPP are conducting ante-mortem inspection, they are to record the time spent verifying the establishment's facilities and procedures for humanely handling animals during ante-mortem inspection. Some things to look for include:

1. Livestock being excessively prodded with an electric prod.
2. Livestock being injured because of handling practices.
3. Livestock being moved faster than a normal walking speed.

V. Suspect and Disabled (9 CFR 313.1 and 313.2): Under this category, IPP record their verification of the measures that an establishment takes to ensure that "U.S. Suspect" and disabled livestock (9 CFR 313.2(d)) are handled humanely. Some things to look for include:

1. Conscious animals being dragged.
2. Disabled animals not separated from normal ambulatory animals.
3. U.S. Suspect and disabled livestock are not provided or placed in a covered pen in compliance with 9 CFR 313.1(c) or 313.2(d)(1).

VI. Electric Prod/Alternative Object Use (9 CFR 313.2): Under this category, IPP record their verification of the establishment's procedures for humanely and effectively moving livestock without excessive prodding or the use of sharp objects after ante-mortem inspection has occurred (9 CFR 313.2). Some things to look for include:

1. Livestock being excessively prodded resulting in overexcitement or injury.
2. Livestock being driven with sharp objects or other means which cause pain or injury.
3. Livestock forcibly being pushed or dragged across the floor.

VII. Slips and Falls (9 CFR 313.1 and 313.2): Under this category, IPP record time spent observing whether any animals are slipping and falling as they are handled and moved through the livestock facilities. Some things to look for include:

1. Livestock slip and fall due to inadequate footing or improper handling practices.
2. Livestock slip and fall because of lack of slip-resistant flooring.

VIII. Stunning Effectiveness (9 CFR 313.5, 313.15, 313.16, and 313.30): Under this category, IPP record their verification of the establishment's procedures to appropriately and effectively administer stunning methods that produce unconsciousness in the animal before the animal is shackled, hoisted, thrown, cast, or stuck. IPP will also verify this HATS category when they identify establishments using secondary entrances to move animals into the slaughter area. Some things to look for include:

1. Livestock not rendered unconscious with a single application of the stunning methodology.
2. No records for carbon dioxide gas concentrations.
3. Use of secondary entrances with potential for injury (or actual injury) of livestock.

NOTE: For animals that are ritually slaughtered, the ritual slaughter cut will not be evaluated. But for those establishments that perform ritual slaughter and elect to utilize one of the approved stunning methods (found in 9 CFR 313), the stun effectiveness will be evaluated.

Some establishments may use secondary or alternative entrances, such as alleyways, doorways, or passageways, to move livestock into the facility. Secondary entrances are considered potential routes of movement to slaughter that differ from the route followed by the normal livestock population, which is ante-mortem inspected and passed livestock. While these secondary entrances are not prohibited by regulation, IPP should verify that all animals presented for slaughter receive ante-mortem inspection, and that these secondary entrances are not designed or used in such a way as to cause injury to animals.

IX. Conscious Animals on the Rail (9 CFR 313.5, 313.15, 313.16, and 313.30): Under this category, IPP (usually a Public Health Veterinarian) record their verification that the establishment ensures that animals do not regain consciousness throughout shackling, sticking, and bleeding. This category focuses specifically on the time after stunning and throughout the process of shackling, hoisting, sticking, and bleeding of the animal. Some things to look for include:

1. Processing (e.g., shackle, hoist, cut) livestock not rendered unconscious by the method of stunning.
2. Animals regaining consciousness after being stunned.

PHVs and CSIs will rotate through the various HATS categories as they perform the daily verification task. The time spent observing each category is actually documented in 15-minute intervals in PHIS.

Stunning (9 CFR 313.2, 313.5, 313.15, 313.16, 313.30)

To meet the statutory requirements in the HMSA, all animals must be rendered insensible to pain by a single blow or gunshot or by an electrical, chemical or other means that is rapid and effective, before being shackled, hoisted, thrown, cast, or cut. This requirement includes cattle, calves, horses, mules, sheep, swine, and other livestock.

There are some general principles that apply to all stunning methods

- Stunning equipment must be maintained in good repair. Equipment in poor repair can interfere with the rapid and effective application of the stunning blow. This can result in an incomplete or unsuccessful stun.
- Effective stunning requires effective restraint. If an animal is not effectively restrained, it will be much more difficult to locate the stunning blow with a high degree of accuracy.
- The stunning area should be designed and constructed to limit the free movement of animals.
- A well-trained and experienced establishment employee must operate stunning devices. The employee must be able to accurately and consistently position the stunning devices so that the animal is rendered immediately unconscious.
- Animals need to be delivered to the stunning area with a minimum of excitement or discomfort. It is more difficult to place the stunning device accurately, and the method of stunning may not work as effectively, on an excited or injured animal.

With any stunning method, it is important to observe the amount of time it takes for the animal to begin bleeding out (“sticking”) after being stunned. Although there is no regulatory requirement for this time, if the “stun to stick” interval is prolonged, it could result in animals regaining or beginning to regain sensibility on the bleed rail.

It is also important to perform humane verification at different times of the day. Equipment that may be working well in the morning can malfunction later in the day. Personnel get fatigued, may feel pressure to get a certain number of animals stunned by a particular time, or may be focusing on after-work activities. Animals that have been standing around all day can get restless and more difficult to handle quietly and

calmly. All these things can contribute to careless handling and/or stunning techniques, resulting in ineffective stuns.

The regulations describe four acceptable methods for producing a state of surgical anesthesia (surgical anesthesia is defined as a state where the animal feels no painful sensations). The four acceptable methods are:

- Chemical (carbon dioxide CO₂) (swine, sheep, calves)
- Mechanical (captive bolt) (all species)
- Mechanical (gunshot) (all species)
- Electrical (electrical current) (swine, calves, sheep, goats)

When carbon dioxide is used, establishments are required to maintain records of gas concentrations in the CO₂ chamber.

When using captive bolt or gunshot as the stunning method, be aware that establishment employees may apply the stunning method more than once, provided the animal is rendered unconscious and insensible to pain on the first application. This is commonly referred to as a “security stun” or “security knock.” Also, be aware that when firearms are used, establishments must discard the head, except for the tongue.

When using electrical stunning, be aware that establishments should be mindful of the time interval between stunning and sticking (stun-to-stick interval), as there is a possibility of animals regaining consciousness after electrical stunning.

Ritual Slaughter (HMSA)

Slaughtering is permitted without a stunning device in accordance with ritual requirements, such as with kosher or halal slaughter. The animal is fully conscious when the stick or cut takes place. The cut is made by someone specially trained in Jewish dietary law (kosher) or by any person of the Islamic faith (halal). It is done using a razor-sharp knife that simultaneously cuts the carotid arteries for rapid blood loss, so that the animal dies rapidly by loss of blood supply to the brain.

Many religious authorities will accept stunning either before or after the ritual slaughter cut. If a ritual slaughter establishment does choose to use one of the approved stunning methods, either before or after the ritual cut, IPP will evaluate HATS Category VIII – Stunning Effectiveness.

The ritual slaughter cut and the handling and restraint that immediately precedes that cut is often called the “ritual bubble”. The activities that occur within that “ritual bubble” fall under Section 1906 of the HMSA and are protected as part of the constitutional right of religious freedom. This does not mean that Agency personnel are to ignore completely what happens within the “ritual bubble”. What it means is that Agency personnel do not enforce humane handling regulations within that “ritual bubble”. That said, if you see something during the “ritual bubble” that concerns you, contact your immediate supervisor and the District Veterinary Medical Specialist (DVMS) for guidance on what action can be initiated.

It is important to understand that ritual slaughter establishments are required to meet all the humane handling regulatory requirements except stunning prior to shackling, hoisting, throwing, cutting, or casting. All animals must be unconscious or insensible to pain prior to any dressing procedures such as head removal, skinning, leg removal, ear removal, horn removal, or opening hide patterns.

When you perform your humane verification activities in a ritual slaughter situation, you will observe all HATS categories except stunning effectiveness (unless the establishment chooses to employ one of the approved stunning methods either before or after the ritual cut). For example, you will verify the availability of water, check the condition of pens and ramps and that there is no excessive prodding in any part of the establishment when moving animals. You will also verify that after the ritual cut (and any

additional cuts to facilitate bleeding) no dressing procedure (e.g., head removal, skinning, leg removal, ear removal, horn removal, opening the hide) is performed until the animal is insensible to pain.

Assessing Unconsciousness (9 CFR 313.5, 313.15, 313.16, 313.30)

Livestock must remain insensible to pain (unconscious) from the time they are stunned until they are dead. You can use the following signs to verify that animals are insensible to pain (unconscious):

- The head dangles from a flaccid (limp and flexible) neck. If the animals are suspended from an overhead rail, the head should hang straight down. This can be difficult to see if the animal is lying on its side.
- The tongue may hang straight down and out of the mouth.
- The eyelids should be wide open, and the pupils fully dilated so, at a distance, the eyes appear black.
- There is no vocalization—lowing, bellowing, bleating, or squealing.

You may observe movement of the head and neck. This movement can be because of involuntary reflexes caused by random firing of damaged muscle neurons. It can be associated with movement of equipment. It may also be voluntary movement because the animal is regaining consciousness.

Some of the signs that an animal might be returning to sensibility include:

- Rhythmic breathing.
- Eye reflex in response to touch. This sign is not used for electrically stunned animals. Also, be very aware of safety if using this method to check insensibility.
- Spontaneous natural eye blinks without touching the eye or eye area, or conscious eye movement.
- Tense and moving tongue or lips.

These signs need to be carefully assessed and interpreted, as they are indications that the animal may be returning to consciousness or that the stunning was ineffective. They are not, in and of themselves, a definitive determination that the animal is conscious and able to feel pain.

A previously stunned animal that has regained sensibility (consciousness) may vocalize. It may also show a “righting reflex”. The term “righting reflex” is used to describe the physical actions taken by an animal to move itself into a normal lying, sitting, or standing posture. For example, a conscious cow hanging from a bleed rail will show a contracted back, stiff extended neck and rigid extended forelegs as it tries to pull itself into a normal upright position. An animal lying flat on its side may try to lift its head and may try to roll up onto its chest or stand. On occasion, you may see an animal’s neck flex laterally—that is, to one side—after it has been stunned and hoisted. Do not mistake this sideways spasm for a “righting reflex”; make sure you look at the head to determine if the animal is unconscious. Vocalization and the righting reflex are always signs that the animal is conscious and able to feel pain.

When assessing unconsciousness, you need to observe the animals at different places along the bleed rail. For example, you could perform verification just after stunning when the animal is in the shackle pit. Then, you could observe animals after they have been hanging on the bleed rail for several minutes. Always be aware of your safety when performing verification of unconsciousness.

If you observe an animal regain consciousness after stunning, you must contact your CSI and supervisor immediately, as enforcement action will likely be initiated.

If the establishment has an identified robust systematic approach, verify that the establishment is following its written animal handling program. If the establishment is not following its program, first discuss your observations with establishment management. Document the discussions in a MOI. If the

establishment continues to ineffectively implement its written animal handling program, notify your immediate supervisor and the DVMS of your concerns by email.

Systematic Approach

There is no regulatory requirement for an establishment to use a systematic approach to humane handling and no requirement that such approach, if used, be in writing. However, an establishment may choose to develop what we refer to as a “robust systematic approach” to humane handling. Such a program indicates the establishment is constantly documenting and evaluating its humane handling activities. If an establishment believes it has a robust systematic approach, they will request that the CSI and PHV review its written program (usually in cooperation with the DVMS). If the humane handling program is deemed to be robust, enforcement actions could be mitigated (less severe) in the event of an egregious humane handling incident.

Enforcement

If you observe a humane handling noncompliance, you must take immediate action if animals are being harmed. For example, if you observe an employee driving livestock with an instrument (e.g., the edge of a shovel, a pointed metal prod) that can cause injury, you must stop that action from continuing.

Once that is done, your next step is to decide if the noncompliance is egregious or non-egregious, because the actions you take will be dictated by that determination. An egregious humane handling noncompliance is so serious that it warrants an immediate suspension of the assignment of inspectors under the authority of the Rules of Practice (9 CFR 500.3(b)).

Non-egregious Noncompliances

When a noncompliance is observed, 9 CFR Part 313.50 specifies a progression of enforcement actions allowing for an escalating response by IPP when the establishment does not comply with the humane slaughter of livestock regulations.

As a Food Inspector, you have the authority to stop livestock handling activities if you believe they could result in harm to animals. If necessary, the CSI may take a regulatory control action (RCA) to prevent further injury to animals or to prevent injuries from occurring to other animals. You will also take the appropriate regulatory control action if you do not receive an adequate response or corrective actions to the NR or if the noncompliance observed continues to occur. The appropriate regulatory control action depends on the nature of the noncompliance. Remember that the goals of applying a tag are to control the situation and prevent further injury or distress to animals.

In other cases, say, if you observe that animals are slipping on wet, muddy floors, or notice there is no water in the holding pens, you should promptly notify the CSI or PHV so that they can inform management and document the noncompliance.

If the establishment continues to have noncompliances or does not adequately correct previously documented noncompliances, the IIC will communicate this to the FLS and DVMS. The IIC will work with the FLS and DVMS to determine if a Notice of Intended Enforcement (NOIE) should be issued for multiple noncompliances.

Egregious Noncompliances

Under the Rules of Practice, 9 CFR 500.3(b), FSIS can suspend assignment of inspectors at an establishment without prior notification for humane handling noncompliances. Humane handling noncompliances for which immediate suspension is warranted are termed “egregious.”

So, what is an egregious noncompliance? Webster's Dictionary defines egregious as "conspicuously bad or flagrant." The Agency defines it as any act or condition that results in severe harm to animals, for example:

- *Making cuts on or skinning conscious animals.
- *Excessive beating or prodding of ambulatory or non-ambulatory disabled animals or dragging of conscious animals.
- *Driving animals off semi-trailers over a drop off without providing adequate unloading facilities (animals are falling to the ground).
- *Running equipment over animals.
- *Stunning of animals and then allowing them to regain consciousness.
- *Failing to immediately (or promptly) render an animal unconscious after a failed initial stunning attempt (e.g., no planned corrective actions).
- *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 of 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.
- *Dismembering conscious animals, for example, cutting off ears or removing feet.
- *Leaving disabled livestock exposed to adverse climate conditions while awaiting disposition; or
- *Otherwise causing unnecessary pain and suffering to animals, including situations on trucks.

This is a list of some actions that are considered egregious. Each incident of inhumane slaughter or handling needs to be assessed individually by IPP.

If you observe a violation that you believe is egregious, you have the authority to ask the establishment to stop the activity that is causing harm to animals—that is the first priority! You should then immediately inform the CSI or PHV, so that they may take the appropriate regulatory control action and contact the FLS and District Office to initiate recommending a suspension.

Delayed Implementation – Egregious Noncompliances

The IIC may also recommend the District Office delay implementing the suspension action if immediate action is likely to result in further inhumane treatment of additional animals, until he/she can ensure that animals on-site or in-transit have been handled humanely. An example is a line stoppage that may result in animals having to stay on a truck on an extremely hot day. The IIC should encourage establishment management to redirect as many animals that are en route as possible and to order the stoppage of further loading of animals onto trucks at the source location. The IIC needs to consider:

- What immediate corrective action is the establishment taking?
- How likely is it, given the establishment's history, that the corrective action will be effective in preventing a recurrence of the root cause of the situation?
- How many animals are on premises or en route that will need to be slaughtered?
- What conditions threaten the welfare of the animals if they are not promptly slaughtered?

The IIC needs to let the district office know that the suspension action should be delayed to prevent the further inhumane treatment of animals. Also, a line inspector trained in humane handling must be moved to an appropriate area to directly observe establishment employees handling or slaughtering animals, which may require a line speed adjustment according to staffing standards in 9 CFR 310.1.

The IIC may allow slaughter to continue at a reduced line speed for a limited time on her or his own authority. This is not intended for a “kill-out” of animals at the facility; it is only for a “kill-down” to ensure that the number of animals to be held on-site meets the requirements for holding animals overnight. Contact your supervisor if you are concerned about allowing slaughter to continue at reduced line speeds.

When the IIC determines that animals will not be subjected to inhumane handling, the suspension must be promptly implemented. IICs are to document their observations and actions in a MOI and submit it to the district office.

Exotic Species

Exotic animals (voluntary inspection) are covered under 9 CFR 352.10. This section includes regulations that address humane handling during ante-mortem inspection and stunning practices to render an animal unconscious. The regulation states, “Humane handling of an exotic animal during ante-mortem inspection shall be in accordance with the provisions contained in 9 CFR 313.2”. This cover unloading procedures, methods of moving exotics through the holding facility, handling of disabled animals, access to water and feed if held over 24 hours, and the effective application of stunning methods. 9 CFR Part 352.10(a)(5) states that “Stunning to render the animals unconscious shall be in accordance with 313.15 or 313.16.”, which are the stunning by captive bolt and by gunshot sections of the humane handling regulations, respectively.

Livestock specified by 9 CFR 352 include antelope, bison, buffalo, catalo (cattalo), and deer. Additionally, exotic animals are defined by 9 CFR 352.1(k) as any reindeer, elk, deer, antelope, water buffalo or bison.

If you have questions or concerns about repetitive noncompliances, or possible egregious inhumane handling, with exotic animal humane handling and slaughter, contact the CSI and PHV. Although we cannot act under the Rules of Practice, 9 CFR 500.3(b), these issues can be effectively addressed. If you observe and egregious noncompliance, you may still intervene to stop the activity that is causing harm to animals.

Custom Exempt Operations

The FMIA (21 U.S.C. 610(b)) prohibits slaughter or handling of livestock in connection with slaughter in any manner not in accordance with 7 U.S.C. 1901-1906 (HMSA). This applies to all animals on the premises of a federally inspected establishment, including those designated for slaughter under a custom exempt program.

Establishments are still required to handle animals designated for custom-exempt slaughter in accordance with the humane handling regulations (9 CFR 313). If you have concerns about the handling of these animals, you are still to promptly notify the CSI or PHV so the concerns can be addressed.

Poultry Good Commercial Practices (GCP) Verification

There is no statute requiring humane handling for poultry (including ratite birds, such as ostriches, emus, and rheas). However, there is a regulatory requirement that poultry be slaughtered using Good Commercial Practices (GCP). While GCPs are technically voluntary, by regulation, establishments still need to follow them to demonstrate control of their slaughter process.

In the PPIA Section 453(g)(5), a poultry product is adulterated if, among other circumstances, it is in whole, or in part, the product of any poultry which has died otherwise than by slaughter. The regulations require that poultry be slaughtered in accordance with good commercial practices, in a manner that will result in thorough bleeding of the poultry carcass and will ensure that breathing has stopped before scalding (9 CFR 381.65(b)). Poultry that are still breathing on entering the scald die from drowning, not from slaughter, and are considered adulterated and unfit for human food. These “cadavers” are automatically condemned on post-mortem inspection per 9 CFR 381.90.

GCP Verification Activities

IPP assigned to poultry slaughter facilities are expected on a daily, per shift basis when the establishment slaughters, to perform a Poultry Good Commercial Practices Verification task.

To perform the task, IPP with the receiving through pre-scald areas of the establishment to systematically observe whether establishment employees are mistreating birds or handling them in a way that will cause death or injury or prevent thorough bleeding or result in excessive bruising. The CSI or PHV will document their findings in PHIS under the Poultry Good Commercial Practices task.

Some things to look for include:

- Establishment employees breaking birds' legs to hold them in the shackles,
- Birds frozen inside cages or frozen to the cages in cold weather,
- Birds dead from heat exhaustion—you would primarily see heavy panting in poultry suffering from heat stress, or
- Establishment employees driving over live birds with equipment or trucks in the unloading or live hang area.

If the poultry are stunned prior to bleeding, check the stunning equipment to ensure it is functioning properly. Poultry that have been effectively stunned will have an arched neck and tucked-in wings posture.

Check in the bleeding area to determine if the bleeding equipment is functioning properly. One way that you might be alerted to problems with the bleeding equipment is if the line inspectors report increased number or clusters of cadavers at inspection stations or increased numbers of bruised wings or legs.

Enforcement

Remember that from a regulatory perspective, adherence to GCP is a process control issue and not a bird-by-bird performance standard issue.

If the establishment is not following good commercial practices, and birds are dying other than by slaughter, you will notice a higher number of birds presenting as cadavers at the inspection stations. This indicates a loss of slaughter process control and may result in documentation of a noncompliance.

Poultry Mistreatment MOIs are primarily issued when the establishment is mistreating birds at any point prior to the kill step, but the mistreatment event does not demonstrate that the establishment's process is out of control (typically isolated or sporadic incidents).

Things to look for include:

- Isolated instance of a bird still breathing when entering the scald.

- Unusually high number of injuries to birds such as broken legs, wings, but no evidence of intentional mistreatment.

LIVESTOCK ANTEMORTEM INSPECTION

Objectives

Upon completion of the Antemortem Inspection module the trainee will be able to:

1. Describe the following:
 - a. Antemortem inspection
 - b. Delayed slaughter
 - c. Voluntary establishment segregation procedure for swine and sheep
 - d. U.S. Suspect
 - e. U.S. Condemned
 - f. Non-ambulatory disabled
 - g. Purpose of antemortem inspection
2. Identify the establishment's responsibilities for:
 - a. Livestock pens
 - b. U.S. Suspect pen for livestock
 - c. Floors in livestock pens
 - d. Assistance for antemortem inspection
3. Identify the equipment and supplies that are needed to perform livestock antemortem inspection.
4. Describe the appropriate methods for conducting antemortem inspection.
5. Complete, given a list of information, the following in livestock inspection:
 - a. A pen card
 - b. FSIS Form 6150-1
6. Given a list describing methods used to dispose of a livestock carcass condemned on Antemortem, select those methods that are approved by FSIS.

Antemortem Inspection

The term antemortem means "before death." Antemortem inspection is the inspection of live animals prior to being slaughtered. All livestock presented for slaughter by the establishment to which you are assigned must receive antemortem inspection. This inspection is performed by an FSIS veterinarian (PHV) or by a Food Inspector under veterinary supervision. If it is performed by a Food Inspector, the PHV must be notified of any disease conditions that are observed.

Authorities

The Agency's authority for conducting antemortem inspection can be traced to the Statutes. The authority for conducting antemortem inspection in livestock is found in 21 U.S. Code (USC), Chapter 12, Section 603, of the Federal Meat Inspection Act (FMIA).

The regulations covering antemortem inspection of livestock are found in Title 9 - Animals and Animal Products, Chapter III - Food Safety and Inspection Service, Department of Agriculture of the Code of Federal Regulations. Part 307.2 addresses the requirements for facilities for inspection. Part 309 covers antemortem inspection. Part 313 addresses the requirement for humane slaughter of livestock. Although we will cover the requirements for humane handling briefly, they are covered more extensively in the humane handling module of this training.

There are some FSIS Directives related to antemortem inspection. These are instructions to inspection personnel. They include the FSIS Directive 6000.1, Rev.1, *Responsibilities Related to Foreign Animal Diseases (FADs) and Reportable Conditions*, FSIS Directive 6100.1, Revision 2, *Antemortem Livestock Inspection*, FSIS Directive 6240.1, Revision 2, *Inspection, Sampling, and Disposition of Animals for Tuberculosis*, and FSIS Directive 6900.2, Revision 3, *Humane Handling and Slaughter of Livestock*. There is also a Questions and Answers issuance associated with FSIS Directive 6100.1, Revision 2.

Establishment Responsibilities for Facilities and Conditions

The regulations identify requirements that the establishment must meet for maintaining facilities where antemortem inspection is to be conducted. You are responsible for verifying that the establishment has met the regulatory requirements for maintaining the facilities where antemortem inspection is to be conducted. Let us review each of the requirements.

The establishment's responsibilities for maintaining the premises where antemortem inspection is to be conducted for livestock are outlined in 9 CFR 307, which covers facilities for inspection, and in 9 CFR 313, the humane handling regulations. Let us review each of them.

The pens must be satisfactory for conducting antemortem inspection and maintained in a sanitary condition (307.2(a)). Pens must be kept clean and be well-drained (307.2(a)). The pens, driveways, and ramps must be maintained in good repair and free from sharp objects that may cause injury or pain to animals (313.1(a)). The floors of pens, driveways, and ramps must be well constructed and maintained and provide good footing for animals (313.1(b)).

The lighting must be sufficient for inspection (307.2(b)). You will need to use your judgment in determining whether the light is adequate or not. The regulations do not specify any measurement or level of light that the establishment is required to provide. Suspect pens and restraining devices require more light, because these are places where animals are more closely examined during inspection. The establishment must provide adequate areas for holding animals that are identified by FSIS as suspect and condemned (307.2(a)). These are typically designated as the suspect and condemned pens. Pens where suspect animals are held must be covered to protect them from adverse weather conditions (313.1(c)). Although it is not required by the regulations, it is customary for the establishment to provide a weather-tight roof area for proper inspection during inclement weather. The establishment typically also provides a restraining device such as a chute or squeeze gate for restraining animals and taking temperatures during the examination of animals.

The establishment must provide an adequate system for the identification of animals (307.2(a)). Establishment identification cards are commonly used. They are referred to by establishment personnel as "pen cards" or "drive sheets." These must be presented to the inspector before antemortem inspection is performed. The purpose of these cards is to account for all animals in the pen prior to antemortem inspection, and to ensure that every animal that comes to slaughter has received antemortem inspection. The regulations also require that establishments identify the carcass and parts with the animal from which they come (9 CFR 310.2(a)), and that the establishment maintain records of the buyer and seller of livestock (9 CFR 320.1(b)(1)(iv)). Tags are typically used to maintain the identity of the carcass and its parts. Pen cards may be used to maintain a record of the buyer and seller of the livestock. There are spaces on the pen card for the date, the pen and lot number, the species, the breed,

the number of animals, the inspector's signature, and the time of the day the animals were inspected. In most instances, the establishment will record the information directly on the card for you. You should, however, check to see that the information is correct.

It is the responsibility of the establishment to provide adequate, competent employees to move, segregate, restrain, identify, and dispose of animals (307.2(a)). Do not allow yourself to become the establishment foreman in the antemortem areas. You must closely monitor establishment personnel to ensure that they always use humane animal handling practices. You must also observe good safety practices since large animals can be very dangerous.

If the establishment has not met one or more of its responsibilities, you must take action. The action you may take will vary from withholding inspection of a single pen of animals until the pen is properly identified, or to withholding inspection of all animal pens because the establishment has failed to provide an employee to move and restrain the animals.

Supplies for Performing Antemortem Inspection

The antemortem inspection of livestock takes place in the pens. Each animal must be observed. The following equipment and supplies are recommended for performing antemortem inspection for livestock. You should have access to a thermometer, U.S. Suspect and U.S. Condemned tags, tagging pliers and hog rings, and a pencil for writing. You may also want to have a pad of paper and a clipboard for taking notes. Many inspectors keep all these items together in a kit that they keep under lock and key in the antemortem area or in the government office. Some of the items you will be commonly using are:

- A thermometer - This is usually supplied by the establishment management. If you do not have one, or if the one you have is broken, request one from establishment management.
- Tagging Pliers - The tagging pliers, commonly called "hog ringers"; the hog rings are used to attach the suspect and condemned tags to the animal's ear.
- U.S. Suspect (silver) and U.S. Condemned (red) tags.
- FSIS Form 6150-1 (Identification Tag-Antemortem) is used to record and track suspect and condemned animals.
- FSIS Form 6502-1 (U.S. Rejected/Retained tag) is attached to areas such as livestock pens to show that they are rejected for use because they did not meet FSIS requirements and therefore did not pass inspection.

Following antemortem inspection, you must record your findings using the FSIS Form 6150-1 (Identification Tag-Antemortem), and possibly the FSIS Form 6200-16 (Summary of Antemortem Examination)—use of this latter form is optional, as FSIS now captures all animal disposition data in PHIS.

Antemortem Methodology

Antemortem inspection consists of two steps:

1. Observe animals **at rest**
2. Observe animals **in motion**

It is important to inspect the animals using both steps because certain abnormal signs, such as labored breathing, are easier to detect while the animals are at rest, while other abnormalities, such as lameness, are more easily detected while in motion. Since the regulations do not require in-motion inspection from both sides, you must use your discretion during antemortem. You or your supervisor may determine that in-motion inspection from both sides is necessary to determine if the animals are eligible to be passed for regular slaughter. An example of this may be in high pathology cattle establishments with a greater

incidence of actinobacillosis/actinomycosis (“acti”), epithelioma, or injection site reactions, which all can be unilateral (one-sided) in nature.

When you perform at-rest inspection, position yourself at various locations outside the pen. Observe all the animals and note their general behavior while they are at rest. Determine if any of the animals show abnormal behavior patterns such as excessive excitability or severe depression. Look at the heads, necks, sides, rumps, and legs of as many animals as you can see. Make a note of any abnormalities.

When you perform in-motion inspection of the animals, you should position yourself outside of the pen next to the open gate so that you can easily view the animals as they are driven by you. You should direct the establishment employee to move all the animals slowly and individually out of the pen while you observe them for abnormalities by viewing the visible side of the head, neck, shoulder, flank, legs, and rump. If the pen size permits, you may want to position yourself inside the pen and direct the establishment employee to move the animals past you in the pen. Do this only if it is safe. In general, it is only safe to position yourself inside the pen when inspecting small livestock such as sheep, market-sized hogs (up to 250 lbs.) and calves. It cannot be overemphasized to always be alert and think about safety. Cattle can be surprisingly fast and agile, particularly when agitated or startled. Never go into a pen of large livestock. This is especially true of a pen with a bull or a cow with a calf. Do not make the mistake of performing in-motion inspection immediately behind a loose, swinging gate. As the animals are driven out of the pen, they could push against the swinging gate and force it against you. Also, never position yourself in a corner or in a place that allows no escape to safety should an animal turn aggressive. Do not climb on high, unstable fences to view the animals during antemortem inspection. As in all areas of the establishment, wearing your helmet during antemortem inspection is a good safety practice.

Voluntary Segregation, Delayed Slaughter, and Emergency Slaughter

In addition to the way antemortem inspection has just been described, there are other ways it can be performed. These include establishment (voluntary) segregation procedures, delayed, and emergency antemortem inspection.

The establishment to which you are assigned may be using **voluntary segregation** procedures, formerly known as the “alternative method” of antemortem inspection. Provided the establishment properly presents animals for antemortem inspection and properly follows the Humane Methods of Slaughter Act, FSIS does permit an establishment to voluntarily segregate abnormal animals to facilitate the scheduling of animals for slaughter. FSIS will only permit market classes of swine and sheep (i.e., market hogs and lambs), arriving for regular slaughter (i.e., not arriving for slaughter under any APHIS Veterinary Services permit or certificate) to be voluntarily segregated by the establishment prior to FSIS antemortem inspection activities provided that:

- Market classes of animals comprise the predominant class slaughtered at the establishment.
- The establishment has documented its segregation procedures in a prerequisite program or HACCP plan.
- All animals are presented to inspection program personnel for examination.
- The procedures in the prerequisite program and related records are available to inspection personnel upon request.
- Voluntary segregation is not allowed for any class of cattle.

If the establishment is using voluntary segregation procedures, you will verify that the segregation procedures are only for market classes of swine and lambs. While performing antemortem inspection, you will examine all animals found normal by the establishment while the animals are at rest and select 5 to 10 percent of all animals presented for antemortem inspection from several lots and observe them on each side in motion. You will instruct the establishment to move abnormal animals that may be

condemned under 9 CFR Part 311 to the designated “Suspect” pen for final disposition by the PHV, and you will randomly observe establishment personnel performing segregation procedures.

Delayed slaughter is covered in the regulations (309.1(a)). Basically, delayed slaughter is a method of inspection that allows certain low-volume establishments, with prior approval of the Frontline Supervisor (FLS), to have antemortem inspection done the afternoon of the day before the animals are slaughtered. For example, a low-volume establishment may be planning to slaughter two hogs on Friday morning at a time when you will be conducting inspection duties at another establishment. If the establishment is approved for delayed slaughter, it is permissible for you to perform antemortem inspection late Thursday afternoon when you are at the establishment. Delayed slaughter is not permitted for any class of cattle.

Special provisions have been made to allow the **emergency slaughter** of seriously injured animals during other than normal inspection time. As an example, on a Sunday a truck headed for a slaughtering establishment overturns and several of the animals are seriously injured. As a result, the establishment wants to slaughter the animals immediately rather than have them suffer pain until slaughtering operations begin on Monday morning. The establishment must contact FSIS personnel, explain the situation, and arrangements must be made for the inspection to take place. If the establishment is unable to contact FSIS personnel, the emergency slaughter provision allows establishment personnel to slaughter the animals without antemortem inspection provided the carcass and all parts, including the viscera, are retained for postmortem inspection by FSIS. One very important thing to remember about emergency slaughter: It is NOT intended to cover the slaughter of sick or dying animals, only those that are seriously injured. So, animals that are sick or dying from a disease are not covered by emergency slaughter. In addition, emergency slaughter is not permitted for cattle.

Antemortem Dispositions

There are three possible outcomes, or dispositions, that follow antemortem inspection:

- (1) Passed for slaughter,
- (2) U.S. Suspect, and
- (3) U.S. Condemned

Let us discuss each of these outcomes in more detail. The animal can be passed for slaughter. This means that the animal was determined to be fit for human food. Those animals that clearly exhibit signs of diseases and conditions listed in the regulations must be condemned. This means that they are clearly not fit for human food, and they must be destroyed and not allowed to enter commerce as human food. Then there are those animals that may exhibit signs of the diseases or conditions defined in the regulations, but further confirmation during postmortem inspection is needed before condemning the carcass or a part of the carcass. In each of these three cases, there are certain things that you must do. Let us review each situation for livestock.

Passed for Slaughter

After you complete antemortem inspection and properly record the results, you will then take action based on your findings. You will allow the animals that you have determined to be free of the diseases and conditions described in the regulations, and therefore fit for human food, to be released for slaughter. You will certify this to the establishment by signing, dating, and recording the time of antemortem inspection on the establishment’s pen card.

After you inspect the animals, you sign the card and write the time the animals received inspection. Signing the card indicates that the animals have received antemortem inspection and are ready for slaughter. The pen card is taken from the pen and delivered to the postmortem inspector by an establishment employee prior to or at the time the animals are driven inside the establishment for slaughter. The postmortem inspector collects all the pen cards and compares the number of animals

recorded on the cards with the number of animals being slaughtered. This is done to determine if all animals being slaughtered have received antemortem inspection. The signed pen cards for each day's operation are held in the inspection office for one full week after the end of the previous slaughter week.

Suspect

Some of the animals may exhibit signs that cause you to question whether the animal is affected by a disease or condition described in the regulations (309.2). You will direct the establishment to place a U.S. Suspect tag in the animal's ear and to segregate those animals with abnormal signs into the U.S. Suspect pen for further observation by the PHV after you have completed the antemortem inspection. Non-ambulatory cattle are to be condemned.

Section 309.2(n) states that all animals that are suspect must be set apart and slaughtered separately. When animals are placed in the U.S. Suspect pen, they must be accompanied by FSIS Form 6150-1 (309.2(o)).

After further examination of an animal in the U.S. Suspect pen, the PHV may determine that the animal is not fit for human food according to the regulations and that it must be condemned. Alternately, the PHV may determine that the suspect animal is normal or that the abnormal signs you observed are not severe enough to have the animal suspected or condemned. This animal may be released for slaughter. If the establishment employee moves this animal out of the U.S. Suspect pen and into a different pen, be sure to make the necessary changes on the pen card. A third possibility is to have the suspect animal slaughtered separately and given a thorough postmortem examination by the PHV.

Section 309.2(p) provides for occasions when the establishment requests and receives permission to hold an animal for treatment to improve the animal's condition to the point that it may become eligible for slaughter. This "on-premises treatment" is a relatively rare occurrence, but, if it does occur, the PHV has certain responsibilities. The identity of the animal must be maintained throughout the treatment period. The animal must be placed in a separate pen identified with a pen card.

Another possibility is that the establishment may request and receive permission to have an animal treated off-premises, such as at a local veterinary clinic. These animals must also be kept in an identified pen until they are picked up for treatment. The U.S. Suspect tag is removed just before the animal is shipped. The tag can be removed because a different type of identification system will be used to identify the animal after it leaves the establishment premises. There is an exception to this—non-ambulatory disabled cattle, including veal calves *must* be condemned and promptly humanely euthanized. Non-ambulatory disabled cattle cannot be set aside for treatment either on or off establishment premises.

Condemned

An animal that is condemned during antemortem inspection is not eligible for slaughter because it has been identified as having a disease or condition specified in the regulations that make it unfit for human food. For example, 9 CFR 309.3 states that dead, dying, disabled, or diseased livestock are to be condemned. It is your responsibility to identify the animal so that it is neither slaughtered nor used for human food. This is accomplished by placing a U.S. Condemned tag in the animal's ear. The FSIS Form 6150-1 must also be completed. The number of the U.S. Condemned tag that was placed in the animal's ear is written in the space provided on the form.

The final rule "Requirements for the Disposition of Non-Ambulatory Disabled Veal Calves" (81 FR 46570), prohibiting the slaughter of all non-ambulatory disabled veal calves, will improve compliance with the Humane Methods of Slaughter Act of 1978 (HMSA) and the humane slaughter regulations.

Section 309.13 covers the regulatory requirements for the disposition of condemned livestock. Any animal that is condemned must have a U.S. Condemned tag placed in its ear. The FSIS PHV usually completes FSIS Form 6150-1 and ensures that the establishment properly disposes of the condemned animal.

Since the establishment cannot slaughter a condemned animal nor use it for human food, the establishment usually promptly euthanizes the animal and immediately disposes of the carcass in one of two ways that have been approved by regulation. Many establishments have their own disposal equipment and facilities. When a carcass is disposed of in this way, it is termed "tanking." Establishments that do not have their own disposal equipment and facilities have the carcass sent to some other place. This is called "off-premises disposal." Regardless of the establishment's method of disposal, inspection personnel have certain responsibilities. These responsibilities are detailed in regulations under 9 CFR Part 314, Handling and Disposal of Condemned or Other Inedible Products at Official Establishments. Refer to this regulation when your job assignment requires you to oversee the disposal of a condemned animal.

Special Circumstances

If an animal that has been designated as a U.S. Suspect **dies in the pens**, you must have the U.S. Suspect tag removed and replaced with U.S. Condemned tag and make the necessary changes on the FSIS Form 6150-1.

FSIS Form 6150-1

As indicated earlier, when you perform the antemortem inspection procedure, you observe each animal for abnormal signs. When you find an animal exhibiting signs of the diseases and conditions described in the regulations, you may be called upon to record the signs on the FSIS Form 6150-1. The form has two sections. The upper section contains most of the information that identifies the animal, such as the kind of animal, sex of the animal, and the animal's approximate weight. You will complete the upper section of the card. Under the "kind of animal" section, terms like Hereford, Jersey, Buffalo, Santa Gertrudis, Hampshire, Yorkshire, Duroc, etc., should be used. When you are using a single 6150-1 form to identify more than one animal, be sure to indicate the number in the section "kind of animal": 3 Herefords, 2 Holsteins, etc. Also record all back-tag numbers, ear tag numbers, etc., for each animal. The lower section, the postmortem report, will be completed by the PHV responsible for postmortem inspection.

The FSIS Form 6150-1 contains the following sections:

Slaughter at establishment - Indicate the official establishment number where the animal is to be slaughtered.

Condemned or suspect tag - If you apply a U.S. Suspect tag, enter the number of the tag and cross out the word "condemned."

Sex - Use terms like bull, cow, heifer, shoat, ewe, barrow, etc.

Tagged for - Indicate the condition for which you tagged the animal, (e.g., actinobacillosis*, epithelioma*, non-ambulatory disabled, TB reactor, pneumonia, broken leg, etc.). If you feel it is necessary to add more information, use a phrase like "see back of form" and then write the information on the back of the form. (***Note:** The regulations actually specify that you do *not* apply ear tags to animals with suspected epithelioma or "acti", but you of course still document it on the Form 6150-1)

Temperature - Indicate the temperature in degrees F. You must take the temperature of all non-ambulatory disabled livestock, TB reactors, mastitis elimination cows, and all animals exhibiting signs of an abnormal temperature.

Weight - Estimate the animal's weight in pounds.

Remarks - The PHV will complete the remarks section after determining the antemortem disposition and then sign and date the form. Depending on local policy, the optional postmortem report section may or may not be completed.

FSIS Form 6200-16

The FSIS Form 6200-16 (Summary of Antemortem Examination) is used to record daily antemortem activities. This form is optional, and its use is at the discretion of the Frontline Supervisor.

General Signs of Diseases and Conditions

This section covers some general signs that indicate an animal may have a condition or disease referenced in the regulations, making it unwholesome, adulterated, or unfit for human food. In general, these signs include the following.

- Body movement
- Body condition
- Signs on the body's surface

Abnormal Body Movement

Antemortem signs that indicate an animal may have a condition or disease referenced in the regulations can be associated with body movement and action, body position, condition, function, surfaces, discharges, and body odor. Some examples of the signs associated with body movement, action and position include:

- Lameness or limping—sometimes the cause of lameness is rather obvious; sometimes not.
- Stiffness and pain—lameness may be caused by arthritis in one or more joints.
- Central Nervous System (CNS) diseases—certain diseases such as rabies and listeriosis can affect the brain and CNS. The animal may appear extremely nervous or restless, excessively anxious or upset, or stagger or circle.
- Certain poisons and toxic residues that the animal has been exposed to may cause abnormal movement and action, such as staggering or circling.
- Depression or disinterest may be a sign that the animal is in a dying or moribund state. A moribund animal may not respond to noises or other stimuli. Animals in a moribund condition are not eligible for slaughter.
- It is possible that an animal that is depressed or fails to respond normally to stimuli could be under the influence of a tranquilizer. Tranquilized animals are not eligible for slaughter. Tranquilizers and other drugs have specific withdrawal periods that must elapse before the animal is eligible for slaughter.
- An animal may be disoriented and run into things or butt its head against objects.
- Animals may scratch excessively or rub their hide against objects. Scratching and rubbing associated with hair loss may indicate that the animal has lice or mange infestation. Scabies is a mange condition that is a reportable disease. The PHV must report this condition to other health agencies. These agencies may want to take skin scrapings from the animal to confirm the diagnosis.
- Animals may have muscle tremors or shivering, hold their head to one side, or have any number of abnormal gaits.
- Animals may strain and assume abnormal body positions. For example, urinary or intestinal disorders may cause straining and abnormal positions such as arching of the back, tucking in of the abdomen (stomach), and extending the neck and tail.

An animal may have difficulty in rising or be unable to get up at all or be standing but unable to walk (or ambulate). These animals may be recumbent non-ambulatory or standing non-ambulatory for a variety of reasons ranging from an injury to severe illness or depression. All non-ambulatory livestock must be examined by the PHV. The PHV may choose to examine these animals where they are

rather than move them to the U.S. Suspect pen to avoid unnecessary handling and pain or injury to the animal. All cattle that are non-ambulatory when presented for antemortem must be condemned.

Abnormal Body Condition

You will also see animals with signs associated with abnormal body condition. Examples of abnormal body condition include:

Animals that are extremely thin and weak—you may see animals that are thin and weak due to chronic disease problems such as pericarditis, pneumonia, nephritis, etc. Animals that are in very poor condition and exhibit other signs such as depression, lethargy, respiratory difficulty, etc., should be placed in the U.S. Suspect pen. Remember, though, that animals can be normally thin. So, thinness alone may not be an abnormal sign. For example, some old cows may be very thin, but they may be bright and alert, have a good appetite, and show no other abnormal signs. They should not be placed in the U.S. Suspect pen.

Calves (especially when very young) may be weak, thin, and dehydrated. They may be uncoordinated or barely able to stand. They should be placed in the U.S. Suspect pen.

Conditions you may see are actinomycosis and epithelioma. Actinomycosis (commonly called "acti" or "lumpy jaw") involves the bony structures of the head, particularly the lower jaw (mandible). Epithelioma (commonly referred to as "cancer eye" or "bug eye") is a neoplastic growth involving the eye, eyelids, and the orbital region. The tumor appears to originate in either the cornea, third eyelid, or the eyelids. Herefords are by far the breed most affected.

Abnormalities of the skin and mucous membranes will be observed while performing antemortem inspection. Animals may exhibit a variety of skin lesions including papilloma (warts). They may have a roughened, dry, or dehydrated hair coat or large patches of hair missing. Be on the lookout for superficial ulcers, sores, blisters, or vesicles, particularly around the feet or around the mouth. There are several diseases that may cause these signs, including the dreaded foot-and-mouth disease, which is a reportable disease. If lesions are infested with maggots, notify the PHV because he or she will have to collect samples and send them to the laboratory. The laboratory will examine the maggots to see if they are screwworm larvae. Allied government animal health agencies work vigilantly to ensure that screwworm flies are not reestablished in this country.

The color of exposed membranes of the body, such as the gums or the eyes, may be an indication of a disease condition. The membranes may appear reddened, or very pale, or may have a yellowish color to them.

While observing body surfaces, be on the lookout for injection sites. Abnormal swelling, especially in the round or neck areas, could be an indication that animal was recently given an injection. Approved drugs have a very specific withdrawal period prior to slaughter that, if not followed, can result in potentially harmful residues in the muscle tissue. If you observe an injection site on an animal, you must make it a U.S. Suspect so that the PHV can perform tests to determine if residues are present in the tissues.

Animals may also show signs of abnormal body discharges or abnormal odors. Abnormal discharges can include excessive salivation, diarrhea, blood, and pus. In a broad sense, animals with a retained placenta (afterbirth) can be included in this group. Be sure that animals with a retained placenta are placed in the U.S. Suspect pen as the regulations prohibit the slaughtering of such animals until all the membranes have been passed.

Along with a thorough visual examination of animals, your sense of smell is a very important aspect of performing antemortem inspection. For example, an animal may have a prolapsed rectum or uterus that has become infected and results in a strong, foul odor. At times when looking at a large pen of animals you may not at first see a wound or prolapse, but you may detect the characteristic odor that will alert you

to look more closely at the animals. An epithelioma of the eye that has become infected is another example of an abnormality that may be associated with a very characteristic foul odor.

One of the steps in examining suspect livestock the PHV can perform is to take the temperature of the animal. This chart shows the range of normal body temperatures, as well as the condemnation temperatures, for the various species. The regulations specifically state a certain temperature at which the PHV must condemn the animal. This chart is given as a reference.

Article I. Normal Animal Temperature Ranges

	Cattle	Swine	Sheep	Horses
Maximum	102.5	104.0	104.0	100.5
Average	101.5	102.5	102.5	100.0
Minimum	100.0	100.5	102	99

Veterinarian condemns on Antemortem if:

	105.0	106.0	105.0	105.0
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Vaccine Livestock

9 CFR 309.11 states. "Vaccine (vaccinated?) livestock with unhealed lesions of vaccine, accompanied with fever, which have not been exposed to any other infectious or contagious disease are not required to be slaughtered and may be released for removal from the premises."

Biological Residues

9 CFR 309.16 covers livestock suspected of having biological residues. This includes livestock that have been exposed to any type of substance that would make the carcass or parts unfit for human food or otherwise adulterated. These livestock must be condemned. They may be held under the custody of FSS until the animal's metabolic processes have reduced the residue sufficiently for the carcass or parts to become fit for human food and not adulterated. In these cases, once the holding time period has passed, the animal must be returned for slaughter and be reexamined in antemortem inspection. It is permitted to allow these animals to be slaughtered for the purpose of collecting tissue to conduct an analysis of the residue. The analysis can include in-plant screening tests.

Research Animals

9 CFR 309.17 covers livestock that have been used for research purposes. The regulations prohibit the slaughter of any livestock that have been used in experiments involving biological products, drugs, or chemicals unless the establishment has written documentation of the safety of these animals from an appropriate authority, such as APHIS, EPA, or FDA. Any animals that have been subjected to food additives or pesticide chemicals must demonstrate compliance with the FDA tolerance levels for these substances. The PHV may deny or withdraw slaughter for any suspect animals to ensure that all products that are prepared at the establishment are free from adulteration.

Veterinary Services

Veterinary Services (VS) is an organizational unit of the Animal and Plant Health Inspection Service (APHIS). The overall mission of VS is to control or eradicate specified animal diseases in this country. Your role will be to contact the PHV when you suspect animals of having a reportable disease. Reportable diseases include anthrax, bluetongue, cysticercosis, scabies, tuberculosis, contagious ecthyma, myiasis (screwworm), scrapie, and vesicular diseases. Of these diseases, anthrax, cysticercosis, tuberculosis, and contagious ecthyma are transmissible to humans. Foreign animal diseases (FAD) include bovine spongiform encephalopathy (BSE), foot and mouth disease, African swine fever, hog cholera, contagious bovine pleuropneumonia, and Teschen's disease. In most cases, VS will want the animal held so they can examine it. For example, in the case of livestock, the PHV will first identify the animal with a reportable disease as U.S. Condemned and then have the animal placed in a separate pen identified with a pen card. The establishment employees will be notified that the animal is not to be removed from the pen for any reason without the permission of the PHV or some other animal health official.

POULTRY ANTEMORTEM INSPECTION

Objectives

1. Describe the proper procedure for conducting antemortem inspection on a poultry lot.
2. List at least three reasons why poultry antemortem inspection is conducted differently than red meat antemortem inspection.
3. From a list of responsibilities, determine which are plant management's and which are FSIS's.
4. List the sources of authority for conducting poultry antemortem inspection.
5. List at least five symptoms of disease that might be observed on antemortem inspection.
6. Discuss the good commercial practices regulatory requirements for poultry.
7. Properly execute the antemortem portion of FSIS Form 9061-2 (Poultry Condemnation Certificate).
8. State who may officially perform antemortem inspection.
9. Describe the procedures that must be followed when poultry suspected of having a contagious disease or a biological residue transmissible to humans are detected during antemortem inspection.
10. Describe the procedures that must be followed when poultry affected by a biological residue are detected during antemortem inspection.

Resources

FSIS Directive 6100.3, *Antemortem and Postmortem Poultry Inspection*

FSIS Directive 6110.1, *Verification of Poultry Good Commercial Practices*

FSIS Directive 6020.1 Rev. 1, *Enhanced Inspection of Poultry in Response to a Notification of a Highly Pathogenic Avian Influenza Outbreak*

FSIS Directive 6000.1 Rev. 1, *Responsibilities Related to Foreign Animal Diseases (FADs) and Reportable Conditions*

Title 9 - Animals and Animal Products, Chapter III - Food Safety and Inspection Service, Department of Agriculture of the Code of Federal Regulations. Part 381.36(b) addresses the facilities for inspection. Parts 381.70 through 381.75 cover ante-mortem inspection.

Authorities

The Agency's authority for conducting antemortem inspection can be traced to the statutes. The authority for conducting antemortem inspection in poultry is found in 21 U.S.C., Chapter 10, Section 455(a), of the Poultry Products Inspection Act (PPIA).

The statutes establish our authority to examine birds prior to slaughter. Under the statutes, we are to accept for slaughter as a result of inspection only those birds which are capable of producing products that are acceptable for use as human food. With this goal in mind, the purpose of antemortem inspection is to accept only those animals and birds that are healthy, free from harmful chemical and drug residues, and capable of being converted into wholesome product for the consumer. Inspection of birds is a screening process to remove obviously diseased animals from the food supply prior to slaughter and to identify animals that require a more extensive postmortem examination by an FSIS veterinarian. It is the first line of defense in protecting the public from potentially harmful poultry products. Those birds that exhibit abnormal signs must be withheld from normal slaughter and segregated for closer examination.

Scientific studies have established the basis for conducting antemortem inspection of poultry. The observation of poultry while they are in coops or batteries, before or after their removal from trucks near the point where live poultry are hung on the line, meets the antemortem inspection requirement, with the exception of antemortem inspection of ratites (ostriches, emus, and rheas). By observing several birds from each lot, the FSIS inspector meets this requirement. Such inspections help ensure that only poultry that could be acceptable as human food enter the plant.

If a bird is alive, it will be hung on the line. If it is dead, the bird must be condemned and maintained under positive control until disposed of properly. Positive control means "under direct observation by inspection personnel, denatured or de-characterized by chemical agents, secured in a properly marked container by a government lock or seal."

Poultry Antemortem Inspection

Antemortem means "before death." The Act and Regulations require that antemortem inspection be performed on poultry presented for slaughter.

Antemortem inspection of poultry is performed on a lot basis. The plant or establishment designates the size of the lot. Generally, a lot is made up of birds from a single house of poultry grown on a particular farm, but it may be as large as several houses of poultry. Lot size designation depends upon the criteria used by plant management.

Verification of Good Commercial Practices for Poultry

In poultry operations, methods of handling and slaughtering that are consistent with good commercial practices (GCP) increase the likelihood of producing unadulterated product. FSIS regulations describe the operating procedures that poultry processors must follow to ensure sanitary processing, proper inspection, and the production of poultry products that are not adulterated. Under 9 CFR 381.71, FSIS condemns poultry showing, on antemortem inspection, certain diseases, or conditions. Bruising is one condition that may result in condemnation (9 CFR 381.89). Bruises are likely to result when birds are not treated humanely. Moreover, the PPIA (21 U.S.C. 453(g)(5), as well as agency regulations (9 CFR 381.90), provide that carcasses of poultry showing evidence of having died from causes other than slaughter are considered adulterated and condemned. The regulations also require that poultry be slaughtered in accordance with good commercial practices, in a manner that results in thorough bleeding of the poultry carcass, and ensures that breathing has stopped before scalding so that the birds do not drown (9 CFR 381.65(b)). Compliance with these requirements helps ensure that poultry are treated in a humane manner.

FSIS Directive 6110.1, issued on July 3, 2018, instructs Agency in-plant personnel assigned to poultry slaughter facilities to perform a Good Commercial Practices Verification task on a daily, per shift basis when the establishment slaughters.

During this verification task, the PHV, or designee, is to systematically observe the conditions in the receiving through pre-scald areas. Once a week, Agency in-plant personnel are to review the establishment records documenting its adherence to good commercial practices, if the establishment keeps such records.

Establishments are not required to keep records of good commercial practices. However, if establishments do keep such records and make them available, IPP are to review the records. The Directive also clarifies that video surveillance can be used by the establishment as a form of GCP record.

When verifying good commercial practices in the receiving through pre-scald areas, you are to observe whether establishment employees are mistreating birds or handling them in a way that will cause death or injury or prevent thorough bleeding or result in excessive bruising. For example, observe whether establishment employees are breaking the legs of birds to hold the birds in the shackle or squeezing them into a shackle or otherwise mishandling birds while transferring them from the coops to the shackles. In cold weather, observe if birds are frozen inside the cages or frozen to the cages themselves, or in hot weather, observe if the birds are dead from heat exhaustion. The main observable symptom of heat stress in poultry is heavy panting.

Observe the handling and treatment of loose birds in the unloading and live hang areas. For example, are establishment employees driving over live birds with equipment or trucks? If the birds are stunned before being bled, observe whether stunning equipment is functioning properly. However, stunning birds before bleeding is not a regulatory requirement. For example, a post-stun posture that includes arched neck and wings tucked in is visual evidence of an effective stun. You also want to observe whether the bleeding equipment is functioning properly. For example, check if birds are entering the scalders are still breathing; if there are increased numbers or clusters of cadavers at the inspection station, or if there is other evidence that birds died other than by slaughter. Observe whether there are an increased number of bruised wings or legs, or whether there are any other activities that will interfere with thorough bleeding of the birds, or could result in the birds still breathing at the time they enter the scalders.

If you observe that the establishment is not observing good commercial practices, as evidenced by birds dying other than by slaughter or not being completely bled out before entering the scalders, you are to inform the offline CSI or PHV immediately. They will document the noncompliance on a Noncompliance Record or a Poultry Mistreatment MOI. The District Veterinary Medical Specialist (DVMS) will routinely correlate and review the documentation and observations in the GCP NRs and Poultry Mistreatment MOIs. In specific situations, after DVMS review of a mistreatment MOI, there may be a need for additional notification of the appropriate state officials.

Symptoms of disease that may be observed on antemortem inspection include: Swelling around the head and eyes, edema of the wattles, gasping and sneezing, coughing, off-colored diarrhea, skin lesions, lameness, torticollis or wry neck (neurological), bone or joint enlargement, dermatitis, stumbling and falling down, or sudden increase in bird deaths without clinical signs

Some non-disease factors that may affect the condition of poultry presented for inspection are as follows: season of the year, heat, humidity, freezing rain, distance hauled to the plant, number of birds in a coop, and time withdrawn from feed and water prior to slaughter

Antemortem inspection can be performed officially by either a food inspector or a veterinarian. However, if a food inspector suspects that a live lot of poultry has a contagious disease that might be transmissible to humans, the food inspector must notify a veterinarian. If the veterinarian decides that further handling of the poultry will create a health hazard, such poultry may be released for treatment under the control of

appropriate State or Federal officials. If treatment is not practical, all birds found to be or suspected of being affected with the disease must be condemned on antemortem. Birds condemned on antemortem for any reason may not be brought into any department of the plant but must be disposed of according to regulations.

LIVESTOCK POSTMORTEM INSPECTION

Objectives

1. Identify the purpose(s) of postmortem inspection.
2. List the three main parts of livestock postmortem inspection.
3. List the possible outcomes of postmortem inspection.
4. List the procedures for postmortem inspection of cattle, calves, swine, sheep, lamb, and goats.
5. Describe various abnormalities and conditions that would prompt you to retain heads, carcasses, or viscera for examination by the PHV.

Resources

FSIS Directive 6100.2, Rev. 1, *Post-Mortem Livestock Inspection*
Federal Meat Inspection Act (FMIA), Section 604
9 CFR Parts 310, 311, 312, and 314

Introduction

Postmortem inspection covers the inspection of the carcasses and parts of meat used for human food. It takes place after antemortem inspection, and after the animal has been slaughtered, thus the term postmortem, meaning “after death” in Latin. Postmortem inspection covers the steps in the slaughter process that begin at stunning and end at the step where the carcass is placed in the cooler.

The purpose of postmortem inspection is to protect the public health by ensuring that the carcasses and parts that enter commerce are wholesome, not adulterated, and properly marked, labeled, and packaged. This means that any carcasses or parts that are unwholesome or adulterated, and thereby unfit for human food, do not enter commerce. In performing inspection methods, making regulatory decisions, documenting findings, and taking enforcement actions when appropriate, in relation to postmortem inspection, we are guided by statutes, regulations, directives, and notices.

To perform inspection procedures appropriately, you must be familiar with the anatomy of a livestock carcass and its parts. For example, for swine postmortem, you will need to learn how to locate and identify the mandibular lymph nodes in the head; the mesenteric, hepatic, and tracheobronchial lymph nodes in the viscera; the lungs, heart, and the liver; and the kidneys of a carcass. (See Appendix for diagrams showing livestock anatomy.)

Postmortem Inspection Process

The postmortem inspection process for livestock involves the following steps:

Head inspection, viscera inspection, and carcass inspection.

In general, when abnormalities are observed while performing inspection, the following actions must take place:

1. If the disease or condition of the head, organ, or carcass is localized, have the establishment trim the affected tissues.

2. If the disease or condition is generalized and affects most of the head, organ, or carcass retain it for veterinary disposition.

The specific details for the inspection procedures for each of the livestock species covered by the regulations – cattle, sheep, swine, equine – differ. However, there are similarities. We will walk through the general steps involved in swine postmortem inspection and cattle as examples of postmortem inspection procedures.

Presentation

Based on the severity and the frequency of the improper presentation, certain actions should be taken by inspection.

1. First, direct the designated establishment personnel to immediately remove the condition of improper presentation and delay inspection procedures until the condition is removed.
2. If action in #1 does not result in proper presentation, direct the designated establishment employee to stop the line and remove the condition if it cannot be removed prior to the carcass leaving the inspection area.
3. If conditions exist to the extent that the line must be stopped repeatedly, delay inspection and ask establishment management to correct the problem.
4. The IIC may require the establishment to reduce the line speed until the conditions are favorable.

Online Inspection Duties for the Control of Feces, Ingesta, and Milk

As part of your online postmortem inspection duties you will verify removal of contamination (feces, ingesta, or milk) during the examination of carcasses and parts. FSIS enforces a zero-tolerance standard for visible fecal, ingesta, or milk material on carcasses, head, cheek, and weasand meat at livestock slaughter establishments. The methods by which inspection personnel will verify zero tolerance standards is addressed in FSIS Directive 6420.2.

Swine Inspection

Head Inspection Procedures

The head inspection procedures for swine are as follows:

1. Observe head and cut surfaces – the eyes, fat, cheek muscles, and other tissues for abnormalities.
2. Incise and observe the right and left mandibular lymph nodes.
3. When abnormal conditions are observed, retain the head for veterinary disposition.

Your supervisor and experienced inspectors will show you how to perform these procedures in detail.

If the head contains abnormal or diseased conditions, then the carcass and its parts as well as the head are tagged with retain tags by the inspector indicating that they are to be railed out to the carcass disposition area for examination by the veterinarian.

In addition to observing abnormal conditions in heads, postmortem inspectors also identify improper presentation by the establishment. Here are some examples of improper presentation of swine for inspection:

Head missing—the head cannot be inspected if it is missing. Remember, you must always be able to determine which parts belong to a carcass (9 CFR 310.23). Therefore, the establishment must have a method of identifying the carcass and all its parts (e.g., tag).

Mandibular lymph nodes left in the neck instead of on the head. Hair or surface contaminants such as dirt on the head.

Swine Viscera Inspection

Viscera include the contents (organs) of the animal's abdominal and thoracic cavities. You must always be able to determine which parts belong to a carcass. Therefore, the establishment must have a method of identifying the carcass and all its parts (e.g., tag).

Viscera inspection includes the following steps:

1. Observe the eviscerated carcass, viscera, and parietal (top) surface of spleen.
2. Observe and palpate mesenteric lymph nodes.
3. Palpate portal lymph nodes.
4. Observe dorsal (curved) surface of lungs.
5. Palpate bronchial lymph nodes – right and left.
6. Observe mediastinal lymph nodes.
7. Turn lungs over and observe ventral (flat) surfaces.
8. Observe heart.
9. Observe dorsal (curved) surface of liver.
10. Turn the liver over and observe ventral (flat) surface.

You will also observe non-gravid uteri and ovaries when they are saved for edible purposes. Your supervisor and experienced inspectors will show you how to perform these procedures in detail.

Swine Carcass Inspection

There are four steps to carcass inspection:

1. Observe the back of the carcass. This may involve observing it in a mirror or turning the carcass manually.
2. Observe the front parts and the inside of the carcass.
 - a. Observe all cut surfaces.
 - b. Observe all body cavities (pelvic, abdominal, and thoracic).
 - c. Observe the lumbar region.
 - d. Observe the neck region.
3. Grasp, turn, and observe the kidneys (both sides).

Your supervisor and experienced inspectors will show you how to perform these procedures in detail.

If abnormal conditions seen on carcass inspection do not require veterinary disposition, the inspector can have the establishment employee properly trim the carcass. However, some abnormal conditions require retention for veterinary disposition.

Once again, if improper presentation occurs, take the same actions as when it occurs at head or viscera inspection.

Cattle Inspection

The basics of the cattle postmortem inspection process are similar and follow the same principles of livestock inspection. You must be familiar with cattle anatomy. You must also use lymph nodes as an indicator of diseases and conditions that would render the product unwholesome. Cattle inspection involves the following steps:

Head inspection, viscera inspection, and carcass inspection.

No step in the inspection process may be omitted.

In general, when abnormalities are observed while performing inspection, the following actions must take place:

1. If the disease or condition of the head, organ, or carcass is localized, have the establishment trim the affected tissues.
2. If the disease or condition is generalized and affects most of the head, organ, or carcass retain it for veterinary disposition.

You must also ensure that the establishment presents cattle heads, viscera, and carcasses properly. This permits you to perform the same inspection sequence each time and reduces the chances that a required inspection will be overlooked. One example of improper presentation is having the head missing. The head cannot be inspected if it is missing. Remember, you must always be able to determine which parts belong to a carcass (e.g., 9 CFR 310.23). Therefore, the establishment must have a method of identifying the carcass and all its parts (e.g., tag).

Again, based on the severity and the frequency of the improper presentation, certain actions should be taken by inspection.

1. First, direct the designated establishment personnel to immediately remove the condition of improper presentation and delay inspection procedures until the condition is removed.
2. If action in #1 does not result in proper presentation, direct the designated establishment employee to stop the line and remove the condition if it cannot be removed prior to the carcass leaving the inspection area.
3. If conditions exist to the extent that the line must be stopped repeatedly, delay inspection and ask establishment management to correct the problem.
4. The IIC may require the establishment to reduce the line speed until the conditions are favorable.

Online Verification Duties for Control of Specified Risk Materials (SRMs)

The regulations prohibit the slaughter of non-ambulatory disabled cattle and identify a list of Specified Risk Materials (SRM) that may present a risk for transmitting Bovine Spongiform Encephalopathy (BSE) and are considered inedible:

For all cattle:

The tonsils are an SRM.

The distal ileum is an SRM.

For cattle 30 months of age and older:

The skull, eyes, brain, and trigeminal ganglia are the SRMs. The vertebral column (except the transverse processes of the thoracic and lumbar vertebrae and the wings of the sacrum), spinal cord and dorsal root ganglia (DRG) are the SRMs.

Head Inspection

There are **four steps** in head inspection:

Step one: observe the outer surface of the head and eyes.

Step two: incise and observe the four pairs of lymph nodes – mandibular, parotid, lateral retropharyngeal, and medial retropharyngeal.

Step three: incise and observe the masticatory or cheek muscles.

Step four: observe and palpate the tongue.

Examples of improper presentation that you may observe while performing head inspection include the presence of horns, hide, eyelids, hair, dirt, etc.

Viscera Inspection

The following steps are performed in viscera inspection.

1. Observe cranial and caudal mesenteric (mesenteric) lymph nodes, and abdominal viscera.
2. Observe and palpate rumenoreticular junction.
3. Observe esophagus and spleen.
4. Incise and observe lungs lymph nodes - mediastinal [caudal (posterior), middle, cranial (anterior)], and tracheobronchial (bronchial) right and left.
5. Observe and palpate costal (curved) surfaces of lungs.
6. Incise heart, from base to apex or vice versa, through the interventricular septum, and observe cut and inner surfaces.
7. Turn lungs over; observe ventral (flat) surfaces and heart's outer surface.
8. Incise and observe hepatic (portal) lymph nodes.
9. Open the bile duct (both directions) and observe its contents for flukes.
10. Observe and palpate liver's ventral surface.
11. Turn liver over, palpate renal impression, observe and palpate parietal (dorsal) surface.

Sawdust	The affected portion trimmed when less than	Condemn/Use for animal food
Spotted Contamination	1/2 of liver is more than slight	
	Balance of this liver is slight or less	Pass for human food
	More than slight involving ½ or more of liver	Condemn/Use for animal food
	Excessive	Animal food Condemn/tank
Cirrhosis	Any amount	Condemn use for animal food
Nonmalignant	Any amount	Food Condemn/use for animal food
Change Abscesses-benign	Localized : Affected aarea	Food Condemn/use for animal food
(Trim)	Localized-non-affected-area	Condemn/use for animal food
Flukes	Any evidence of infestation	Food Condemn/use for animal food

Hydatid Cyst	Any amount	Food Condemn/tank
Abscesses	More than localized	Condemn/tank
Carotenosis (yellow)	Any amount	Condemn/use for animal food
Other parasites	Numerous Lesions and cannot be removed	Condemn/use for animal food
	Localized: Affected area trimmed	Condemn/use for animal food
	Localized: Non-affected area	Pass for human food

References: 9 CFR 311.25; 9 CFR 311.31 9 CFR 314.10

Presentation

During the evisceration procedure several improper presentations may occur. The following are examples:

- The liver may be placed with the parietal surface up.
- The hepatic (portal) lymph nodes may be missing from the liver.
- The bladder may be leaking urine onto exposed surfaces of the carcass or viscera. The paunch or intestines may be cut or broken, causing contamination.
- The pluck may be placed upside down (ventral surfaces of the lungs pointing up). The liver, pluck, and viscera, or any one of these organs, may be pushed to or deposited on the opposite side of the table from your station, or literally missing.

Carcass Inspection

Almost all establishments handle the carcass the same way until the time the head is removed. Once the head is removed however, any one of several methods may be used to complete the carcass dressing. Almost all the different methods being used today are variations of two basic operations. One of those basic methods is called a "bed" dress operation. The other is called an "on-the-rail" operation. The bed dress method is by far the oldest method and probably dates back to the time when animals were "field dressed".

Lymph Nodes

Learn the names and locations of these lymph nodes:

1. Scrotal (superficial inguinal)
2. Mammary (supramammary)
3. Medial (internal) iliac

The scrotal lymph node is found on the male, and the mammary lymph node is found on the female. The medial iliac lymph node is found on the inside of the abdominal cavity, and the other two are found on the outside of the body cavity.

The following steps are those to follow when inspecting the carcasses in a smaller establishment where the procedures are divided into hindquarter and forequarter inspection.

Hindquarter inspection – performed during and immediately after evisceration.

1. Observe back of skinned carcass while eviscerated.
2. Palpate scrotal (superficial inguinal), or mammary (supramammary), and medial iliac (internal iliac) lymph nodes.
3. Observe body cavities.

Forequarter Inspection – performed during and immediately after evisceration.

1. Observe cut surfaces of muscles and bones, diaphragm's pillars, and peritoneum.
2. Observe and palpate kidneys and diaphragm.
3. Observe pleura, neck, and carcass exterior.

The following steps are those to follow when inspecting the carcasses in a larger establishment where the carcass inspection procedures are performed in a single sequence at a rail inspection station.

Carcass Inspection

1. Palpate superficial inguinal, or supramammary, and internal iliac lymph nodes. Observe lumbar region.
2. Observe and palpate kidneys.
3. Observe diaphragm's pillars and peritoneum.
4. Observe and palpate diaphragm.
5. Observe pleura, cut surfaces of muscles and bones, neck, and carcass exterior.

You are usually doing two dexterity actions during each step. For example, you are required to observe and palpate, or incise and observe.

Restricted Products

The livestock slaughter regulations outline requirements related to restricted products (9 CFR 315). A restricted product is defined as any meat or meat food product that has been inspected and passed but cannot be released for human consumption until it has been subjected to a required treatment because it has a disease or condition that might be transmitted to humans if the meat is not treated. There are four types of restricted product treatments. They are:

Refrigeration (9 CFR 311.23(a)(2))

Heating (9 CFR 311.23(a)(2))

Cooking (9 CFR 311.2(d)(f)(g), 311.18(e), 311.24, 311.25)

Use in comminuted cooked meat food product (9 CFR 311.20(b), 311.35(c), 311.37)

Restricted product will be used for human food after required treatments are complete. For this reason, condemned and inedible products are not examples of restricted product.

Principles of control

FSIS control of condemned and inedible product involves five principles:

1. Identification
2. Custody
3. Separation
4. Destruction
5. Documentation

FSIS personnel must monitor the establishment's handling procedures of condemned and inedible product to assure that it is properly identified, maintained in custody, kept separate from edible product, and properly destroyed. Additionally, all actions taken must be appropriately documented.

Line Speeds

Maximum line speeds established by FSIS are permitted on the eviscerating line when optimum conditions exist (9 CFR 310.1). When there are less than optimum conditions, line speed adjustment is

required. The IIC is responsible for directing establishment management to reduce the line speed to permit adequate inspection.

Marks of Inspection

Once the carcass and parts have been passed for inspection, the carcass may be washed, and sent to the cooler. As stated in FSIS Notice 09-19, effective 4/17/19, FSIS will modify the regulation 9 CFR 316.9, "Products to be marked with official marks" to eliminate the requirement that all livestock carcasses be marked with the official inspection legend at the time of inspection in a slaughter establishment, provided the carcasses are further processed in the same establishment. IPP are to continue to verify that carcasses that pass inspection, but do not receive the mark of inspection when leaving the slaughter floor, proceed for further processing in that establishment. IPP are to continue to verify that whole carcasses leaving the slaughter establishment bear the mark of inspection. The marks of inspection for meat products are shown in 9 CFR 312.

Postmortem Reports



Inspection personnel must also record information about the number of animals slaughtered, the number and types of products condemned, PHV postmortem findings and other details in the PHIS Animal Disposition Report.

Sheep and Goat Inspection

Viscera Inspection for Sheep

1. Observe abdominal viscera, esophagus, mesenteric lymph nodes, and omental fat.
2. Observe bile duct and content and express gall bladder.
3. Observe and palpate liver (both sides) and costal surfaces of lungs.
4. Palpate bronchial and mediastinal lymph nodes.
5. Observe ventral surfaces of lungs.
6. Observe and palpate the heart.

Carcass and Head Inspection for Sheep

1. Observe outer surfaces of carcass, body cavities (pelvic, abdominal, thoracic), and spleen.
2. Observe and palpate kidneys.
3. Palpate sub iliac, scrotal, or mammary, and deep popliteal lymph nodes.
4. Palpate back and sides of carcass.
5. Palpate superficial cervical lymph nodes and shoulders and lift forelegs.
6. Observe neck, shoulders, and head.

For lamb carcasses, FSIS Directive 6100.2 gives the required inspection procedures as:

Viscera Inspection for Lamb

1. Observe abdominal viscera, esophagus, mesenteric lymph nodes, and omental fat.
2. Observe bile duct and content, and express gall bladder.
3. Observe and palpate liver (both sides) and costal surfaces of lungs.
4. Palpate bronchial and mediastinal lymph nodes.
5. Observe ventral surfaces of lungs.
6. Observe and palpate the heart.
7. Examine the pancreatic gland for wholesomeness if the gland is saved for edible purposes. Tapeworms in the bile duct indicate possible infested pancreatic gland.

Carcass-Head Inspection for Lamb

1. Observe outer surfaces of carcass.
2. Observe pelvic, abdominal, and thoracic body cavities.
3. Observe spleen and kidneys.
4. Observe neck, shoulders, and head.

POULTRY POSTMORTEM INSPECTION

Objective

1. Explain the purpose of postmortem inspection.
2. List the sources of regulatory authority used in postmortem inspection.
3. List the six (6) inspection systems listed in 9 CFR 381.76.
4. List the four (4) responsibilities of the establishment to ensure production of a safe and wholesome product.
5. List five (5) facility requirements plant management must provide at the postmortem inspection station.
6. List four (4) duties of the inspector's helper or trimmer required at the postmortem inspection station.
7. List the three (3) disposition options for carcasses at postmortem.
8. Identify the two (2) conditions at postmortem that are considered of public health significance.
9. Explain the procedure an on-line inspector should take when encountering a cadaver bird or DOA at postmortem inspection.
10. List two (2) disposition actions a food inspector may take when a carcass is presented with no viscera.
11. List seven (7) causes for liver condemnation.
12. List four (4) causes for kidney condemnation.
13. List the criteria needed for condemnation of a carcass part related to fractures and luxations.
14. List four (4) methods for disposing of condemned poultry product.
15. List five (5) factors that justify FSIS adjusting line speed.

Introduction

Postmortem inspection covers the inspection of the carcasses and parts of poultry used for human food. It takes place after antemortem inspection and after the poultry has been slaughtered, thus the term "postmortem," meaning "after death" in Latin.

Postmortem inspection covers the steps in the slaughter process that begin at stunning and ends at the step where the poultry is packaged and is ready to be transported from the establishment.

The purpose of postmortem inspection is to protect the public health by ensuring that the carcasses and parts that enter commerce are wholesome, not adulterated, and properly marked, labeled, and packaged. This means that any carcasses or parts that are unwholesome or adulterated and thereby unfit for human food do not enter commerce.

In performing postmortem inspection, making regulatory decisions, documenting findings, and taking enforcement actions when appropriate, we are guided by the following statutes, regulations, directives, and notices.

The statutory authority for postmortem inspection is listed in the **Poultry Products Inspection Act (PPIA)**.

Regulations Covering Postmortem Inspection

Some of the key regulations that cover postmortem inspection for poultry are as follows.

9 CFR 381.1(b); 9 CFR 381.65(b); 9 CFR 381.76 - 9 CFR 381.95

The regulations and directives provide the instructions for performing inspection procedures, making regulatory determinations, documenting noncompliance when appropriate, and taking regulatory action.

Directives Related to Postmortem Inspection

The Directives that cover the procedures for poultry postmortem inspection are found in the 6000 Directive series.

- **FSIS Directive 6100.3**, *Antemortem and Postmortem Poultry Inspection*
- **FSIS Directive 6170.1**, *Ratite Antemortem and Postmortem Inspection*
- **FSIS Directive 6420.5**, *Verifying Poultry Slaughter Establishments Maintain Adequate Procedures for Preventing Contamination with Feces and Enteric Pathogens*

Establishment Responsibilities

The primary responsibility of the establishment is to ensure that its production processes result in the safe and wholesome product. In addition, FSIS regulations outline some responsibilities of the establishment that are specifically related to postmortem inspection. These responsibilities include:

- Slaughtering poultry in accordance with good commercial practices.
- Maintaining good sanitary practices in preparing the carcass for postmortem inspection. Presenting carcasses and parts for inspection in a specified manner (called presentation).
- Meeting facility requirements at the inspection stations.
- Preventing of contamination of poultry carcasses.

As an online inspector, you will communicate to the offline personnel if there is an increase in incidence or frequency of carcass contamination. The offline personnel will verify the poultry slaughter establishment is performing procedures in a manner that will prevent the creation of insanitary conditions and the adulteration of product. FSIS verifies that establishments implement procedures to prevent contamination, rather than relying only on reconditioning and reprocessing procedures at the end of the line to remove contamination that could have been prevented earlier.

9 CFR 381.65(f) requires all establishments that slaughter poultry other than ratites to develop, implement and maintain written procedures to ensure that poultry carcasses contaminated with visible fecal material do not enter the chiller.

9 CFR 381.65(g) requires that establishments that slaughter poultry other than ratites to develop, implement, and maintain written procedures to prevent contamination with enteric pathogens and feces throughout the slaughter process.

Presentation

The establishment must ensure that the carcasses are presented for inspection in a specified manner (9 CFR 381.76). The proper presentation of carcasses for postmortem inspection involves uniform and consistent feather removal, feet removal, opening of carcasses, evisceration, and shackling.

For example, each carcass must be opened to expose the organs and body cavity for proper examination by the inspector. They must also be hung on the line in a specified manner and spaced appropriately. The organs must be displayed in a specified order so that the inspector does not have to spend time locating them before he or she performs inspection procedures. Proper presentation helps to ensure consistent and accurate inspection.

There are variations in the ways in which an establishment will present carcasses and parts for inspection. You will learn the specifics about presentation at the establishment where you are assigned.

Feathers: The presence of feathers on carcasses at postmortem inspection is not significant. A carcass that has been scalded and passed through a picking machine will have sufficient feather removal for postmortem inspection.

Inspectors should not direct carcasses to be hung back or the line speed to be reduced because of feathers. Pre-chill testing conducted by off-line inspectors will consider and score feathers as a defect accordingly on the sheet. If test scores exceed the allowable numbers, then re-tests will be performed, and product may be retained and reworked.

Feet removal: Generally, the feet are removed at the hock joints. Washing the cut surface of hocks is not allowed until postmortem inspection is complete. Otherwise pathological exudate could be removed or obscured and prevent detection of synovitis.

Opening Cut: Plant management must minimize contaminating the opening cut of the carcass.

Evisceration and Shackling: Sanitation and consistency are important for a properly drawn carcass. Traditionally, viscera must be completely withdrawn, left suspended by natural attachments, and arranged consistently on the left or right side.

With increasing frequency, poultry slaughter plants are using automatic equipment on the eviscerating line. Often, the equipment is complex and requires careful and regular adjustment for proper function. It is the responsibility of plant management to maintain the machinery so that it works properly.

The plant may use one of several methods available for suspending carcasses in the shackles. The plant may use a two-point or a three-point suspension depending on the facilities and local

preference. Carcasses must be presented at the postmortem inspection station in a consistent manner.

The shackles must be identified on lines that have more than one inspector. They may be either color coded or mechanically separated (as in the case of selecting devices which “kick out” carcasses automatically).

Inspection Stations

The establishment is responsible for providing appropriate inspection stations that meet regulatory requirements (9 CFR 381.76). The requirements may vary depending on the size of the plant and volume of operations. For example, in large poultry slaughter establishments, there may be separate inspection stations for carcasses and for carcasses that are salvaged and reprocessed. However, if you are

assigned to a very small plant, inspection for all the regulatory requirements may take place in one location.

The requirements also vary with the type of inspection system being used by the establishment. There are six inspection systems recognized in 9 CFR 381.76 of the regulations and they are as follows:

(1) Traditional (2) Streamlined Inspection System (SIS) (3) New Line Speed Inspection System (NELS) (4) New Poultry Slaughter Inspection System (NPIS) (5) New Turkey Inspection System (NTI) (6) Ratite

Establishment management must provide the following facilities at the postmortem inspection station.

Space: The amount of space required for the inspector and helper varies, depending upon the inspection method. Regulations require a minimum of 4' x 2' for each. If enough space is not available for the inspector and helper, then the IIC, FLS, and establishment management need to implement corrections. The recommended space for inspector and helper is not always adequate. Some plants need more.

Lighting: Lighting requirements also vary between inspection methods. Regulatory minimum lighting requirements at the postmortem station are **200 foot-candles**.

Other factors as important as the quantity of foot candles are the quality and direction of light. Light should not cause color changes on the inspected carcasses and should be shadow-free. Light with a minimum **color-rendering index of 85** is mandatory with SIS, NTIS, NPIS, and NELS.

Hand-rinsing facilities: Water for hand washing with both hot and cold running water available, delivered through a suitable mixing device controlled by the inspector, or, alternatively, water at a minimum temperature of 65°F., must be available at the postmortem inspection station.

Condemned containers: Generally, there are two types of condemned containers at the postmortem inspection station. One type is for parts and one is for the whole carcass. These containers must meet the sanitation requirements in 9 CFR 416.3(c).

Hangback racks: The primary purpose of the hangback rack is to retain questionable carcasses for veterinary review and disposition. It is very important that you use your hangback

racks to retain cadaver birds for the PHV. The racks can also be used for carcasses designated as salvage, improper presentation, etc.

Start/stop switch: A start/stop switch within easy reach of each inspector is required.

Establishment Personnel: The establishment is required to provide plant employees who act as presenters and helpers.

With the SIS inspection system, the regulations require that each inspector be flanked with an establishment employee assigned to be the inspector's helper (9 CFR 381.76(b)(3)(iii)(b)). For the NELS inspection system, each inspector is to be flanked by two establishment employees, the presenter and the helper (9 CFR 381.76.(b)(4)(i)(a)). The presenter must ensure that the bird is properly eviscerated and presented for inspection. The helper, as directed by the online inspector, may remove carcasses from the line. Mark FSIS Form 6000-16 with condemnation/ disposition as directed by IPP. Identify carcasses for salvage hang back or trim defects and abnormalities if time allows. Trimmers may be positioned down the line, after the gible harvest, to trim defects and abnormalities prior to pre-chill inspection.

Inspection Responsibilities

In this section, we will cover the inspection responsibilities related to postmortem inspection.

Personal Hygiene: You and all other inspection personnel must always maintain proper employee hygiene when conducting inspection procedures. This is required by 9 CFR 416.5. In most cases, the

establishment will have a set of requirements, such as Good Manufacturing Practices, that are required for plant employees. For example, the establishment may include requirements for employee hygiene such as hand washing, wearing hair and beard nets, and using foot washes when moving between edible and inedible areas of the establishment. You must meet or exceed those standards.

General Methods of Postmortem Inspection: The general methods you will use to conduct online poultry slaughter inspection to detect diseases, abnormalities, and contamination will involve your senses (organoleptic inspection) These senses include:

- Sight – observing a disease lesion (inflammatory process, airsacculitis or tumor).
- Feel – palpating (feeling an abnormal lump in tissues, feeling abnormal firmness in an organ).
- Smell – smelling a decomposed carcass

Diseases, abnormalities, and contamination can occur at any place on the carcass or its parts. Signs of diseases, abnormalities, and contamination will include variations in size, position, color, shape, odor, consistency, or a combination of these factors. Some of the diseases and abnormalities will produce visible or palpable lesions in specific locations. The best way to learn what is “normal” is to look at birds under the direction of your supervisor and experienced inspectors who will explain what you see.

Here are some general characteristics of normal poultry carcasses. Remember that normal poultry carcasses will vary because of age, breed, gender, nutrition, management, and killing/scalding/picking practices.

The firmness of the flesh and the color and sheen of the tissues will depend on the age of the bird. The flesh and organ color tones are generally brighter in younger birds. Color tones tend to fade and decrease in intensity with advancing age.

The comb and wattles of normal commercially slaughtered birds may vary from bright red to pale red and even yellowish in color. Fowl which have been in heavy production may have pale, shrunken combs, and the normal yellow coloration of beaks and shanks may be faded or completely depleted. Breeds of birds that have white, slate-colored, or black shanks generally have skin that is lighter in color than the skin of birds that have yellow shanks.

A common characteristic of the Cornish breed is a greenish cast of the skin to the drumstick and thigh, sometimes extending to the abdomen.

Most of the commercial broiler birds in the U.S. are a cross between a Cornish chicken and another breed of chicken. As a result of this cross breeding, broiler or frying chicken carcasses will often show some degree of pigmentation of the skin on the legs and in the abdominal fat reservoirs.

Postmortem Dispositions

The purpose of postmortem inspection is to make a decision about the wholesomeness of each poultry carcass inspected. One of the following outcomes will result from postmortem inspection:

If the carcass is wholesome and normal without any localized disease condition, it is passed and allowed to continue down the line (9 CFR 381.79). If it does have a localized condition, the carcass would be trimmed by the inspector’s helper or a trimmer further down the line. These removed tissues are inedible and are condemned. The remainder of the carcass which is now wholesome or free of disease can continue after removal of the affected area. Carcasses may be passed subject to salvage or reprocessing at an offline station.

If a final decision cannot be made by the inspector, the carcass will be retained for further examination (9 CFR 381.77). When the inspector is undecided about the proper disposition of a carcass, the helper is

notified to place the carcass on the hangback or retain rack. The Public Health Veterinarian reviews all such carcasses and makes a final disposition of whether to pass, trim, or condemn the bird.

If there are systemic signs that indicate the carcass is unwholesome or diseased, the entire carcass is condemned (9 CFR 381.78(a)).

The regulations specifically tell us what to do in the case of some disease conditions. The conditions are listed on FSIS Form 6000-16 (Lot Tally Sheet). The criteria for condemnation in each category are as follows.

Diseases and Conditions of Public Health Significance

Let us review the diseases and conditions of public health significance along with the inspection dispositions that you will make.

9 CFR 381.83 - Septicemia/toxemia: Septicemia is a disease state caused by pathogenic (disease producing) microorganisms in the blood that have produced systemic change within the bird. Systemic change affects the body as a whole rather than a localized portion of it. In septicemia the normal functions of the bird's organ systems are disrupted. The cells of the body deteriorate. This deterioration may be very rapid when highly virulent microorganisms are the cause, or it may be more gradual if less virulent ones are involved. In some cases, the changes produced by septicemia overwhelm the bird and result in death. In other cases, the bird's immune system overcomes the causative organism before irreversible damage occurs and it subsequently recovers. Septicemia is manifested by a group of clinical signs, not all of which will be present in a single carcass. Therefore, judgment plays an important part in correct dispositions for this condemnation category. Septicemic carcasses frequently have: petechial (pinpoint) hemorrhages on the heart, liver, kidneys, muscles, and serous membranes; blood-tinged exudate in the body cavity (this can also be seen when birds are improperly stunned, so other changes must also be evident); swollen and hyperemic (contain an excess of blood) liver and spleen (remove most of the bacteria from the circulating blood); swollen and congested kidneys; hyperemic skin (must be differentiated from changes seen in cadavers) muscle wasting (Some of this is caused by loss of appetite but most skeletal muscle breakdown is the result of changes in muscle metabolism that triggers protein degradation.). Depending upon the cause and duration of septicemia, carcasses might be hyperemic, cyanotic (bluish-gray), anemic, dehydrated, edematous, or exhibit a combination of these signs. It is important to remember that no single carcass will show all these signs.

Toxemia is poisoning caused by the absorption of toxins produced by infective organisms and shows signs like septicemia. Both conditions often exist simultaneously. It is not necessary for the food inspector to differentiate between these two conditions. The Agency considers both conditions under the general category of septicemia/toxemia, commonly referred to as "sep/tox." If a carcass shows systemic change, as described above, it is condemned for sep/tox.

9 CFR 381.65(f) – Fecal Contamination: In slaughter establishments, fecal contamination of carcasses is the primary avenue for contamination by pathogens. Pathogens may reside in fecal material, both in the gastrointestinal tract and on the exterior surfaces of the bird going to slaughter. Without care being taken in handling and sanitary dressing procedures during slaughter and processing, the edible portions of the carcass can become contaminated with bacteria capable of causing illness in humans. Once introduced into the establishment environment, the organisms may be spread from carcass to carcass or by other means. Therefore, FSIS enforces a "zero tolerance" standard for visible fecal material on poultry carcasses entering the chiller. Carcasses that are contaminated with fecal material may be reconditioned by either trimming or a combination of trimming and washing offline. The establishment may also have online reprocessing using an antimicrobial intervention. If a carcass is so contaminated it cannot be inspected or if it is contaminated to the extent that it cannot be made wholesome the carcass would be condemned.

Diseases and Conditions Not of Public Health Significance

9 CFR 381.81 – Tuberculosis: Avian tuberculosis (TB) is caused by the bacterium *Mycobacterium avium* and usually is a chronic, slowly developing disease. This disease has largely been eradicated in domestic poultry in the U.S. but is still found occasionally in mature birds. Birds with TB develop a wasting condition characterized by loss of weight and diarrhea. At postmortem examination, their carcasses are typically emaciated. Gray to yellow, firm nodules (tubercles) are often scattered along the intestines and may be found in various organs, especially the liver and spleen. Lungs generally have no gross lesions although, in advanced cases, any organ or tissue can be involved. Avian tuberculosis can infect humans but is not considered to be a serious threat to people with healthy immune systems. One definitive lesion is all that is required to condemn a poultry carcass for tuberculosis.

9 CFR 381.82 – Leukosis Complex: This category includes several neoplastic diseases caused by various viruses. All produce tumors in domestic poultry and present similar gross lesions. The age and species of bird affected by leukotic tumors suggests which viral agent is involved. The most common manifestations of the leukosis complex are:

- Marek's disease, which is an important disease only in young chickens less than six months of age
- Lymphoid leukosis, which is most common in semi-mature and mature chickens
- Reticuloendotheliosis (RE), which occasionally produces liver and spleen tumors in turkeys and, rarely, runting disease in chickens
- Lymphoproliferative disease, which affects turkeys, producing a greatly enlarged spleen as well as tumors in other organs.

There is no evidence that viruses of the leukosis complex are pathogenic for humans. One definitive lesion justifies condemnation of the carcass. Definitive means a lesion that can be defended grossly as a lesion of leukosis.

9 CFR 381.86 — Inflammatory Process: Any organ or other part of a carcass which is affected by an inflammatory process shall be condemned and if there is evidence of general systemic disturbance, the whole carcass shall be condemned.

Synovitis is caused by several organisms, most often members of the genus *Mycoplasma*. Injury and nutritional deficiencies also lead to synovitis. The result is acute or chronic inflammation of the membranes lining one or more joints and tendon sheaths. Joints are often noticeably swollen and might contain varying amounts of exudate. The liver, kidneys, and spleen may be swollen. In addition, the liver is sometimes stained green from bile stasis because the bird was too painful to move, and therefore did not eat. Lesions vary depending upon whether the condition is confined to the joints or has overwhelmed the bird's defense mechanisms and caused systemic changes. A carcass with synovitis is not condemned unless it also shows systemic or sep/tox changes.

Inflammatory Process (IP) is an inflammation in or under the skin caused by bacteria. This inflammation causes an immune response by the bird. IP can occur anywhere on the bird but is most often seen around the vent, abdominal flaps, or side of the bird. IP appears as bright yellow cheesy material under the skin. On the skin, areas indicating the presence of IP will have a yellow color and sometimes, in severe cases, have a burnt waffle appearance. These localized changes in skin color are an indication of infection. Due to the insidious nature of IP and its ability to spread under the skin, carcasses showing these localized signs should be further examined on or offline to assure the unsafe and unfit portions are removed. A carcass with inflammatory process is not condemned unless it also shows systemic or sep/tox changes.

Woody Breast or “White Striping” in broiler chickens is a condition that affects breast muscle tissues causing swelling and inflammation. Abnormalities can present as: scattered, small, pinpoint hemorrhages, blood spots or patches on the surface of the breast filet. Thick, gelatinous, blood-tinged fluid and deteriorated muscle may be present on one or both sides. Inflammatory tissues are considered adulterated since they are unwholesome and unfit for human consumption. Establishments must trim lesions with active inflammation, but lesions that do not exhibit active inflammatory signs such as “White Striping” only, are considered a quality issue and do not need to be trimmed.

9 CFR 381.87 – Tumors: This category refers to tumors other than those of the leukosis complex. Some of the more common tumors include keratoacanthomas, adenocarcinomas, melanomas, hemangiomas, and fibromas.

- **Keratoacanthomas**, previously known as squamous cell carcinomas, are skin tumors that arise from the feather follicle epithelium found in young chickens. These tumors are multicentric in nature, which means they can arise in different areas on the bird but are still considered to be benign. Adenocarcinomas generally are located on abdominal organs and are common in older birds.
- **Melanomas** are composed of melanin (black) pigmented cells.
- **Hemangiomas** are benign tumors made of newly formed blood vessels
- **Fibromas** may develop in any connective tissue. They are more common in older birds.
- **Teratomas** are composed of different types of tissue none of it native to the area it occurs.

Numerous other types of tumors occur in domestic poultry but at a low frequency. There is no evidence that any of these types of tumors are a health threat to humans.

Condemn a carcass for tumors if there is gross evidence of metastasis (more than one tumor of the same kind indicating spread), or if one large tumor causes a systemic disruption.

Condemn young chickens showing generalized signs of avian keratoacanthoma with large coalescing (joining) lesions. Trim all tumors and pass chickens with localized or only a few small keratoacanthoma lesions.

9 CFR 381.89 – Bruises: If bruises cause systemic change in a carcass, or if there is no part of the carcass that can be salvaged, the carcass is condemned and recorded under this category. Otherwise, if any part can be salvaged from the carcass, the bruises are trimmed, and the remainder of the carcass is passed. If you encounter increased numbers or clusters of severely bruised carcasses at the inspection station, notify the PHV as this may be an indication the establishment is not following good commercial practices.

9 CFR 381.90 – Cadavers: Poultry that die from causes other than slaughter is condemned under the cadaver category. These birds are not physiologically dead and are still breathing when they enter the scald vat. Carcasses of poultry that die from drowning may exhibit signs of incomplete exsanguination (bleed-out), resulting in an unwholesome carcass. When submerged in the hot water, they drown, and the physiological reaction to the heat is for the blood vessels to expand or dilate causing the remaining blood to flow to the surface of the skin in an attempt to cool the bird. This is what causes the skin of the carcass or neck to become cherry red to purple. (May want to consider a similar statement from above about what to do if increased numbers or clusters are observed?)

9 CFR 381.92 – Overscald: Carcasses that are cooked are condemned. The muscle must be cooked through the level of the deep pectoral muscle to be classified as an overscald. Simply having a superficial cooked appearance does not make a carcass overscalded. It is important for inspection program personnel to differentiate an overscald carcass from a hard scald carcass. Cooking of the most superficial surface of the superficial pectoral (breast) muscle

occurs in a hard scald carcass. This produces a whitening of that surface. Many times, overscalded carcasses will also be mutilated by picking machines. However, carcasses that are not cooked to the level of the deep pectoral muscle may also be mutilated by the picking machines. These carcasses should not be condemned for overscald, but should either be salvaged or condemned for contamination, depending upon the extent of the damage. If a carcass is to be condemned for overscald, the deep pectoral muscle must have a cooked appearance.

9 CFR 381.84 – Airsacculitis: To better understand airsacculitis, which is inflammation of the air sacs, you should understand what air sacs are and where they are in the live bird. There are nine air sacs in the chicken: unpaired clavicular and paired cervical, cranial thoracic, caudal thoracic and abdominal air sacs. The cervical and interclavicular air sacs connect to bone and the anterior deep pectoral muscle. Air sacs are normally thin clear membrane pouches. The air sacs occupy all space in the thoraco-abdominal cavity not occupied by other organs. The air sacs are disrupted during evisceration and you will only see the remains.

Numerous microorganisms cause airsacculitis, which is inflammation of air sacs. Many times, there is more than one infectious agent identified in an outbreak. Bacteria of the genus *Mycoplasma* are frequently involved in cases of airsacculitis. Birds are more susceptible to infections of the air sacs when they are under stress. Vaccination, other disease, poor nutrition, insanitary conditions, and poor ventilation are contributing factors. The lesions of airsacculitis can be acute or chronic. Their appearance ranges from slight clouding of air sac membranes and small amounts of watery exudates (which is generally an acute lesion) to thickened, opaque membranes and large amounts of thick, white-to-cream colored and/or cheesy exudates (which is generally a chronic lesion). The exudates can be confined to the air sacs and their diverticuli, or they may be found in other areas of the body if the air sac membranes are ruptured.

Pneumonia, pericarditis, and perihepatitis might be present. In some cases, all portions of the respiratory tract (nasal passages, sinuses, trachea, bronchi, lungs, and air sacs and their diverticuli) are affected. In other cases, little involvement beyond the air sacs is evident. Systemic change can occur with airsacculitis. Carcasses are condemned if there is evidence of extensive involvement of the air sacs. If the exudate cannot be effectively removed, the carcass is condemned. Carcasses are also condemned if airsacculitis occurs in conjunction with systemic change.

Establishments may have procedures in place to salvage carcasses by ensuring the removal of all affected tissues and exudates in a sanitary manner. Salvaged carcasses are subject to reinspection by offline personnel.

- When establishments do NOT have airsacculitis programs, the on-line inspectors are to condemn the airsacculitis affected carcass and instruct the helper to record condemned birds under the airsacculitis category.
- When establishments have airsacculitis salvage programs but choose not to salvage all affected carcasses, the on-line inspector is to continue to identify birds eligible for salvage. Establishments may regulate the flow of product by sending the affected carcasses to salvage or by disposing of salvageable carcasses and marking those carcasses as “plant rejects” on the lot sheet.
- When specific production is extensively affected with airsacculitis, establishments with a salvage program may elect to suspend salvage for the entire specific production. The IIC is to instruct the on-line inspection team to condemn salvageable birds and instruct the helper to record the condemned birds under the airsacculitis category on the lot sheet.

Note: As per FSIS Notice 05-19, IPP are to condemn kidneys (9 CFR 381.78(a)) when either renal (kidney) pathology is present or if airsacculitis is present specifically in the abdominal air sac membranes

making the kidneys an affected tissue, and the posterior (back) part of the carcass is salvaged for airsacculitis per 9 CFR 381.84.

9 CFR 381.83 Abnormal Physiologic States – Ascites: Ascites is an abnormal physiological condition in which fluid accumulates in the body cavities. It occurs in young, rapidly growing chickens due to genetic and nutritional improvements. The rapid growth of the birds leads to an increase in the oxygen demands of the chicken. When the birds are under stress, this can lead to right sided heart failure and the subsequent accumulation of fluid around the heart. The right sided heart failure may force the fluid into the abdominal cavity. If the carcass shows evidence of ascites and is characterized by the presence of septicemia and/or toxemia or any other disease condition, the carcass must be condemned under the septicemia/toxemia category. If the amount of fluid in the body cavity is such that it interferes with proper inspection the carcass must be condemned under the “other” category on the lot sheet. If there is no evidence of any other disease condition and the fluid does not interfere with inspection, the carcass may be passed after removal of the fluid.

Other conditions

No Viscera - Carcasses condemned because there are no viscera to inspect. Carcasses are classified as no viscera if none of the three major organs - heart, liver, and spleen - are present for inspection. Disposition of no-viscera carcasses are determined by the veterinarian in charge and are based upon flock incidence of disease. Carcasses should be hung back and the veterinarian in charge notified.

Plant rejects - When the establishment rejects a carcass before inspection, condemn as plant reject on the lot tally sheet. Carcasses rejected by the establishment at salvage should also be recorded as a plant reject on the lot tally sheet.

Parts Disposition: When conditions are localized, the appropriate inspection decision may be to condemn the carcass part. If there is an unwholesome portion or part that can be effectively removed, the remainder of the carcass is considered wholesome. Some organs or parts that may be condemned because of localized conditions without condemning the whole carcass are:

- Livers - Condemn livers with:
 - fatty degeneration
 - extensive petechiae or hemorrhages inflammation or necrosis cysts or cirrhosis
 - discoloration due to a biliary system disorder or postmortem changes contamination from intestinal content or noxious materials
- Kidneys - Condemn kidneys when:
 - the carcass has renal pathology, (spacing)
 - there are pathological conditions requiring condemnation of all viscera, or
 - airsacculitis is present specifically in the abdominal air sac membranes making the kidneys an affected tissue, and the posterior (back) part of the carcass is salvaged for airsacculitis per 9 CFR 381.84 (vacuum the kidneys from carcass or salvaged posterior portion).
 - Note: Hepatic (liver) or splenic (spleen) pathology which is determined by IPP to be localized and visibly limited to the affected organ require only the affected visceral organ to be condemned. Localized pathology of the liver or spleen does not require simultaneous condemnation of the kidneys unless the kidneys are also affected by visible pathological changes.
- Fractures
 - A fracture with no associated hemorrhage is passed.

- O A fracture with hemorrhage in the affected part is trimmed and the remainder of the carcass is passed.
- O A compound fracture, one in which the bone goes through skin, is trimmed whether there is hemorrhage present or not.

Luxation - Luxation is a simple disjointment without breaking the skin and without hemorrhage. It does not have to be trimmed. If hemorrhage does not extend into the musculature, trim, or slit/wash out the hemorrhage. Do not trim simple redness of skin.

9 CFR 381.91 Contamination other than fecal (a) Carcasses contaminated by volatile oils, paints, poisons, gases, scald vat water in air sacs shall be condemned. Carcasses mutilated shall be condemned if whole carcass is affected.

Carcasses contaminated with digestive contents shall not be condemned if properly and promptly reprocessed using an approved method and parameters of use. The establishment must incorporate procedures for online reprocessing or offline reprocessing into its Hazard Analysis Critical Control Points (HACCP) plan or Sanitation Standard Operating Procedures (Sanitation SOP) or other prerequisite program (9 CFR 381.91(b)(1) and (2)). Under the final rule, establishments are permitted to use online reprocessing and offline reprocessing if it uses approved parameters for use of its antimicrobial intervention system.

9 CFR 381.78 allows adulterated carcasses to be reprocessed under FSIS supervision such that it is rendered unadulterated and fit for human consumption. Establishments that demonstrate effective sanitary dressing and process control procedures can propose corrective actions that will render the product wholesome and, at the discretion of the Inspector-in-Charge (IIC), be allowed to reprocess adulterated carcasses in order to render them fit for human consumption.

Carcasses that are accidentally contaminated with the contents of the digestive tract during slaughter are not to be condemned if they can be reprocessed in a manner so that they can be found to be unadulterated. Contamination on the external surfaces that are cut must be trimmed. Contamination of the inner surfaces may be trimmed or vacuumed. All visible contamination must be removed, and if inner surfaces are reprocessed, all surfaces of the carcass must be treated with an approved antimicrobial intervention system. Reprocessing of contaminated carcasses can be done either offline or online.

Off-line reprocessing is the point in the evisceration process where internally contaminated carcasses are reprocessed off-line according to 9 CFR 381.91(b) (1) and (b)(2). Carcasses that

have their body cavities contaminated with digestive tract contents may be rendered unadulterated by prompt washing, trimming, and/or vacuuming. If the procedure is performed off line, there must be adequate facilities, trained personnel, and the procedure must be accomplished in a sanitary manner in order to maintain product flow and prevent cross-contamination.

Facilities at the off-line reprocessing station usually will include: (1) a trough or table that is sloped and properly drained (2) a retain rack designed to prevent cross-contamination (3) adequate space in the eviscerating room or suitable adjacent area conveniently located hand washing facilities (4) a knife rack or stand (5) containers for chilling product (6) at least 50 foot candles of light (7) a spray nozzle with proper fitting for cleaning carcasses (8) approved antimicrobial intervention system

On-Line Reprocessing (OLR), is the point in the slaughter process where contaminated eviscerated carcasses are reprocessed on-line following the provisions of FSIS Notice 50-14, *Verification of Online Reprocessing (OLR) and Offline Reprocessing (OFLR) Antimicrobial Intervention Systems*.

Establishments need to have incorporated written procedures into their HACCP system for reprocessing. Since the final rule has become effective, establishments no longer need waivers to use approved OLR

and OFLR antimicrobial intervention systems. A list of approved antimicrobial intervention systems can be found in tables 1 and 2 of FSIS Notice 50-14.

Salvage at Offline Locations: The establishment must have a procedure for each type of salvage. The procedures must be done under sanitary conditions, with adequate facilities, and personnel must be available. There should be a continuous product flow without pileup or delay.

Facilities at salvage stations should include: (1) adequate space located in the eviscerating area (2) a retain rack designed to prevent cross-contamination a trough or table sloped and properly drained (3) a singer, if there is not one in the picking room containers for chilling the product (4) a spray nozzle with proper fittings to clean carcasses (5) a facility for washing hands, tools, etc., such as a gooseneck a minimum of 50 foot-candles of light at contamination salvage.

Contamination - Knife Salvage: When a carcass is designated for knife salvage because of body cavity contamination, most plants follow a salvage technique similar to the following: (1) remove the viscera (2) hang the carcass by the neck in a designated area on the retain rack transfer the carcass to the salvage station and rehang it by the neck wash external carcass surfaces thoroughly before any cutting (3) properly trim the carcass without cutting into the body cavity or opening cut surfaces (4) usually save both wings, both legs, and the breast muscle, including the deep and superficial pectoral muscles.

Airsacculitis - Knife Salvage: Special attention must be given to salvaging carcasses with airsacculitis because of the complexity of the interclavicular air sac and the associated diverticuli. If the visible part of the interclavicular air sac is inflamed, assume all of it is inflamed and salvage the carcass accordingly. All exudates and the kidneys must be removed.

When a carcass is designated for knife salvage because of airsacculitis, most plants follow a salvage technique like the following:

The salvaged carcass with airsacculitis is usually hung by the legs to distinguish it from a salvageable contaminated carcass.

Other steps, such as removing the viscera, transferring the carcass to the salvage station, etc. are also followed for carcasses with airsacculitis.

The following portions of the carcasses are usually salvageable: the wings (minus the portion containing the humeral bones), the legs, and the breast muscle. The area of the breast muscle, that area around the first wing joint is condemned and the deep pectoral muscle anterior to breastbone bursa is condemned. All the rest is eligible for salvage.

Airsacculitis Salvage -- Vacuuming - When the interclavicular air sacs are not involved in airsacculitis, knife salvage is not required. The requirement for this type of salvage is removal of all exudates and the kidneys. This can be accomplished by vacuuming the carcass with a vacuuming device, or by removing all exudates and kidneys by hand. This type of salvage is appropriate when there is involvement of the abdominal and/or thoracic air sacs without involvement of the interclavicular air sacs, because the thoracic and abdominal air sacs do not have diverticuli that extend into bone.

When a carcass is designated for reprocessing because of body-cavity contamination, the plant usually will:

- Remove the viscera and hang the carcass in a designated area on the rack or line.
- Transfer the carcass to the reprocessing station and suspend it to prevent contamination during reprocessing.
- Remove the crop.
- Wash the external surface thoroughly.

- Remove contaminants by trimming, vacuuming, and/or washing. Any contamination of cut surfaces must be removed by trimming.
- Thoroughly rinse with water containing at least 20 ppm available chlorine measure and record the chlorine concentration at least once a day monitor reprocessed birds.
- Make birds available for reinspection by the FSIS inspector.

If retain racks at the USDA inspection station or reprocessing station are filled, the Inspector-in-Charge (IIC) should allow the plants the option of disposing of contaminated carcasses or adjusting the production rate. Carcasses disposed of by the plant because of reprocessing pileups should be recorded as plant rejects.

Condemned and Inedible Product: Condemned product is product that has been determined through inspection to be diseased or condition that renders it unfit for human consumption. It is prohibited from entering commerce for use as human food (318.95). Inedible product is any product that is adulterated, uninspected, or not intended for use as human food. The term inedible refers to product that by its nature is not handled as human food. Examples include bones, intestines, lungs, reproductive organs, feet, etc. If inedible product is diseased or has the appearance of edible product, it must be handled as condemned. Both condemned and inedible products are not fit for human consumption. Due to the edible appearance of condemned product, its control is most crucial, and the requirements found in the regulations are very specific. Edible product may have a similar appearance to condemned product and some inedible product. **NOTE:** Inspectors must maintain control over condemned products. There are three ways to do this: (1) sight - under direct supervision of inspection personnel (2) lock or seal – place a government lock or seal on the container denaturing. The regulations related to the handling and disposal of condemned or other inedible poultry products are similar to the meat regulations. They are found in 9 CFR 381.95. Here is a summary of this regulation. FSIS inspectors must verify that the establishment disposes of condemned and inedible products using one of the appropriate methods outlined in the regulation.

Condemned and inedible poultry products may be disposed of by one of the following: (1) Steam (381.95(a))
(2) Burying (381.95(e))
(3) Incineration (burning) (381.95(b))
(4) Chemical denaturing (381.95(c))
(5) Dye denaturing (381.95(c)(3))

Only burying and burning may be used for products condemned for biological residues.

Line Speeds: Maximum line speeds established by FSIS are permitted on the eviscerating line when optimum conditions exist (9 CFR 381.76). When there are less than optimum conditions, line speed adjustment is required. The IIC is responsible for directing plant management to reduce the line speed to permit adequate inspection. When the IIC is satisfied that the situation that necessitated the line speed reduction has been corrected, he or she will allow the line speed to be increased. FSIS may require the establishment to adjust line speed to a slower rate than the maximum for the following reasons (FSIS Directive 6550.1): poultry class and the size of the birds in the class if the weight of the bird interferes with inspection presentation errors, such as viscera on the wrong side or not presented in a consistent manner high level of disease incidence in birds plant personnel's inability to accomplish eviscerating procedures in a sanitary manner with a minimum of contamination.

Marks of Inspection: Once the carcass and parts have been inspected and passed, it is eligible to bear the mark of inspection. The marks of inspection for poultry products are shown in 9 CFR 381.98.

Postmortem Inspection Reports: During the shift, the “inspector’s helper” records condemnations on the FSIS Form 6000-16, Lot Tally Sheet. The slaughter report is an accurate record of the incidence of diseases encountered by on-line inspection program personnel performing post-mortem inspection.

At the end of the shift, the on-line inspection program personnel are to ensure that off-line inspection program personnel receive the lot tally sheets.

At the end of the shift, the Lot Tally Sheets from all on-line inspectors are collected and condemnations for each lot are totaled on a separate FSIS Form 6000-16 by the offline IPP.

Plant management is also responsible for collecting data. Plant management must supply the total number of birds and their live weight per lot, and the total pounds condemned on antemortem, which includes the dead-on-arrival (DOA) carcasses. Plant management must also supply inspection with the total weight in pounds of carcasses and of parts condemned on postmortem, and with the total weight in pounds of chilled and frozen product from that lot. Plant management supplies inspection with this data on FSIS Form 6510-7, Poultry Lot Information Sheet.

In addition to the Lot Tally Sheets, a Condemnation Certificate, FSIS Form 9061-2, is completed for each lot of poultry slaughtered. The Condemnation Certificate contains both antemortem and postmortem information and is completed and signed by the IIC. The data for the Condemnation Certificate is taken from the Lot Tally Summary Sheet and from the FSIS

Form 6510-7, Poultry Lot Information Sheet, which is supplied by the plant. All the above information will be entered by the Off-line IPP into the Animal Disposition section of PHIS.

IN-PLANT SAFETY

Objectives

After completing this module, participants will be able to do the following:

1. Identify employee rights and responsibilities regarding workplace health and safety.
2. Know which health and safety items that FSIS provides to employees.
3. Introduction to the FSIS Safety and Health Program

Resources

The following workplace health and safety resources are covered in this module:

- Federal Laws and Regulations
 - o Occupational Safety and Health Act
 - o Responsibility and Rights
 - o Inspection and Abatement
- FSIS Safety and Health Program
- General Industry Standards
 - o Hazard Communication
 - o Personal Protective Equipment
 - o Occupational Noise
 - o General Safety
 - o General Occupational Health

Federal Laws and Regulations

Occupational Safety and Health Act

The declared Congressional purpose of the Occupational Safety and Health Act (OSH Act) of 1970 is to “assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources.” Under the Act, the Federal government is authorized to develop and set mandatory occupational safety and health standards applicable to any business affecting inter-state commerce. The responsibility for promulgating and enforcing occupational safety and health standards rests with the Department of Labor’s Occupational Safety and Health Administration (OSHA). The OSH Act requires OSHA to develop standards for recognized hazards. It also requires Federal departments to establish safety and health programs. Responsibilities and Rights

FSIS responsibilities and FSIS employee responsibilities and rights are contained in 29 CFR 1960.8 to 1960.10 and FSIS Directive 4791.1. The FSIS Safety and Health Poster summarize these responsibilities and rights. This poster should be in all headquarters’ establishments in accordance with 29 CFR 1910.12(c) and FSIS Directive 4791.1.

FSIS Employee Responsibilities

FSIS employee responsibilities regarding safety and health in the workplace include complying with OSHA standards and FSIS directives, and using FSIS provided and funded personal protective equipment.

FSIS Employee Rights

FSIS employees have rights that are outlined in FSIS Directive 4791.1 and include participating in the safety and health program, having access to records and documents, reporting hazards in their workplace, and freedom from fear of reprisal.

Inspection and Abatement

Hazard Reporting

Hazard reporting requirements are contained in 29 CFR 1960.28 and FSIS Directive 4791.12. Employees are encouraged to report unsafe or unhealthful working conditions to their supervisors. FSIS Form 4791.27 is used to document the report of a hazard. Reported hazards must be investigated or inspected by the supervisor at the workplace, and a log of reported unsafe or unhealthful working conditions must be maintained on FSIS Form 4791.26.

Special Hazard Abatement Requirements

According to Standard 29 CFR 1910.1(g), Federal employees working in establishments of private employers (such as meat and poultry establishments) are covered by their agencies' occupational safety and health programs. Although an agency may not have the authority to require abatement of hazardous conditions in a private sector workplace, the agency head must assure safe and healthful working conditions for his/her employees. This shall be accomplished using administrative controls, personal protective equipment, or withdrawal of Federal employees from the private sector facility to the extent necessary to assure the protection of the employees.

FSIS Safety and Health Program

Introduction

The Assistant Administrator for the Office of Management (OM) is the Designated Agency Safety and Health Official (DASHO) and has overall responsibility for management of the FSIS Safety and Health Program. The Environmental, Safety and Health Group (ESHG) within the Workers Safety and Health Division in the OM, is responsible for the planning, policy development, and management of the program at the Agency level. The Inspector-In-Charge (IIC) Public Health Veterinarians (PHVs) are responsible for managing the program at the establishment level.

FSIS Safety and Health Directives

Several FSIS safety and health directives have been issued which provide guidance for FSIS compliance with OSHA standards. The directives are revised and updated to reflect changes in the OSHA standards and FSIS policies. The following is a list of FSIS Directives pertaining to safety and health:

4791.1 Basic Occupational Safety and Health Program Part 1 – Basic Provisions

Part 2 – Safety and Health Committees

Part 3 – Personal Protective Equipment and Hand Tools for Inspection Personnel

4791.5 Hazard Communication Program

4791.11 Lockout Safety Procedures

4791.12 Reporting and Correcting Occupational Hazards Part 1 – Basic Provisions

Part 2 – Reporting and Correcting Hazards

4791.13 Workplace Inspections, and Injury Illness and Motor Vehicle Incident Reporting

Part 1 – Basic Provisions

Part 2 – Safety and Health Workplace Inspections

Part 3 – Injury, Illness and Motor Vehicle Incident Reporting and Recordkeeping Guidelines

4792.1 First Aid

Environmental, Safety and Health Group (ESHG)

The mission statement of the ESHG is to:

Furnish FSIS employees a workplace which is free from recognized hazards or, where applicable, apply administrative controls or provide appropriate personal protective equipment to assure safe and healthful working conditions.

Protect the environment and community through implementation of FSIS environmental management systems and pollution prevention programs.

Develop safety, health and environmental management response actions for likely scenarios of FSIS workplace terrorist acts.

Occupational Safety and Health Specialists (OSHS)

Operations, the specialists are assigned to one or more districts. The following map specifies these assignments:

The program areas within the ESHG are occupational safety and health, environmental management, and homeland security. Occupational safety and health is comprised of safety management, industrial hygiene, and occupational medicine.

As a component of occupational safety and health, the goal of safety management is to prevent accidents and injuries. This goal is achieved by providing technical assistance and training at the district, circuit and work unit levels, evaluating the FSIS safety and health program at the plant level by performing plant reviews and maintaining an injury and illness database to identify safety and health program needs. The goal of the industrial hygiene component is prevention of occupational illnesses. This is accomplished by assessing workplace exposures for inspection operations and new microbial reduction technologies, providing technical assistance on chemical, physical and biological health hazards, and participating in the development of new sampling methods needed to assess workplace exposures in this industry. The goal of the occupational medicine component is to diagnose and prevent occupational illnesses and injuries. This is done by conducting medical reviews and providing medical opinions on occupational exposure issues in plants and laboratories (on a consultation basis), and by developing information on the health effects associated with chemicals used in plants and laboratories and implementing appropriate policies to control hazards.

Materiel Management Service Center

The Materiel Management Service Center (MMSC), formerly known as Beltsville Service Center, located in Beltsville, MD, is part of the Administrative Services Division and a vital part of the FSIS Safety and Health Program. It distributes supplies and over 30 types of personal protective equipment (PPE) and other safety and health related items to FSIS field employees.

The following is a list of the safety and health items stocked at the MMSC:

- Eye Protection: Safety Glasses (2 types)

- *Anti-Fog Eyeglass Wipes
- Head Protection: Hardhats (Regular)
- *Hardhats (Lightweight)
- Hand Protection: Cut-Resistant Gloves (3 sizes)
- *Nitrile Protective Gloves (5 sizes) Disposable Latex Gloves (4 sizes)
- Body Protection:
- *Freezer Coats
- *Freezer Vests Freezer Jackets Aprons
- Heat Stress Management: Neck Cooling Scarves
- *Sqwinchers (3 flavors)
- Leg Protection: Pant Gaiters
- Respiratory Protection: Dust Masks (3 types) [RESTRICTED, Approved Use Only]
- Hearing Protection: Earmuffs (2 types)
- Foam plugs (4 types) Reusable plugs (4 types) Canal Caps
- Locks: Lockout Program
- First Aid: First Aid Kits (2 types) First Aid Kit (Refill) Instant Cold Packs

Safety and Health Items Reimbursed by FSIS

Not all safety and health items are issued by the MMSC. Directive 3410.3, Revision 6, provides for reimbursement of permanent full-time inspection personnel for the following inspection expenditures:

- Work clothing
- Skid-resistant footwear
- Personal inspection equipment
- Flashlights and replacement batteries
- Hand, wrist, and arm support devices

General Industry Standards

The following topics are covered in this section of the training module:

- Hazard Communication
- Personal Protective Equipment
- Occupational Noise
- General Safety
- General Occupational Health

Hazard Communication

OSHA Hazard Communication Standard: 29 CFR 1910.1200

The purpose of this standard is to ensure that the hazards of all chemicals produced or imported are evaluated, and that information concerning their hazards is transmitted to employers and employees. The Hazard Communication Standard applies to any chemical that is known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency. It does not apply to ionizing radiation, non-ionizing radiation, biological hazards, or hazardous waste.

Under the standard, chemical manufacturers or importers are required to determine the hazards of the chemicals that they produce or import. Typically, this information is provided to employers on a document known as a safety data sheet (SDS) and on container labels. Employers are required to transmit this information to their employees by means of a comprehensive Hazard Communication Program.

FSIS Hazard Communication Program

The FSIS Hazard Communication Program is found in FSIS Directive 4791.5. It applies to FSIS employees working in meat, poultry, and import establishments.

The Frontline Supervisor (FLS) is assigned the responsibility of the overall coordinator of the program for FSIS employees in each plant or establishment.

Employee Responsibilities

As an FSIS employee, you are responsible for reading and understanding the FSIS written Hazard Communication Program, recognizing situations where hazardous chemicals are present in your workplace and notifying your supervisor of hazardous conditions. In addition, you are responsible for understanding how the information on the SDS applies to the specific use of the chemical in your workplace and for properly using and wearing the FSIS-supplied personal protective equipment.

Methods of Hazard Communication

A safety data sheet (SDS) is a document that provides specific information about a hazardous chemical in accordance with OSHA guidelines. The SDS, prepared by the manufacturer of the chemical, includes physical and health information, recommended control measures, and precautions for the safe handling and use of a chemical.

An SDS is generally written by the chemical manufacturer for the "pure product" (e.g. 100% concentration) and not for the diluted form of the chemical as it is used in most applications at poultry and red meat establishments. This must be taken into consideration when reviewing and interpreting the information found on the SDS. This is especially true for the health hazard information because the health effects for the concentrated solution are more severe than for the diluted solution.

Chemical Hazards in FSIS Workplaces

Many chemicals are used in meat, poultry, egg product, and import facilities as disinfectants, sanitizers, cleaning agents, and processing aides.

- Chlorine is used in water sprays in numerous locations on the evisceration line, on the reprocessing line, and in the pre-chiller and chillers.
- Chlorine dioxide and trisodium phosphate (TSP) are typically used in rinse cabinets prior to the chiller to kill microbial organisms on the carcass.
- Ozone is used to disinfect recycled water for use in the chillers and the on-line reprocessing carcass washes.
- Acids, bases, quaternary ammonia, and sodium hypochlorite are chemicals commonly used for sanitation.

In addition, new chemical antimicrobial treatments are continuously being tested in establishment trials in an attempt to find more effective ways to ensure food products are safe from harmful bacteria. Some examples of chemical antimicrobial treatments are:

- Peroxyacetic acid (Inspexx 100)
- Acidified sodium chlorite solution (Sanova System)
- Ammonium hydroxide
- Acetic acid
- Acidic calcium sulfate (Mionix)
- Carbon Dioxide (TomCo)
- Sodium Acid Sulfate
- Chlorine Dioxide (Zep® Antimicrobial Treatment System)
- Lactoferrin Antimicrobial Spray

Other hazards, such as carbon monoxide and sulfur compounds, may be present from the exhaust gases of forklift trucks, singers, cooking operations, and rendering stacks. Ammonia and Freon are used in refrigeration systems, and exposures may occur from leaks. Carbon dioxide (in the form of dry ice) is used in food packaging and as a gas in some chiller systems to lower the pH of the water. It is very important to refer to the SDS at your duty station for specific health hazard information.

Health Hazards of Chemicals

All of the chemicals mentioned above have similar health effects, including eye, nose, throat and respiratory irritation; nasal discharge; coughing, wheezing, and bronchitis; and skin irritation with prolonged, direct contact.

Personal Protective Equipment (PPE)

OSHA Standard

OSHA Standard 29 CFR Part 1910, Subpart I, contains the requirements for workplace hazard assessments, training, and several types of PPE. OSHA requires employers to protect employees from workplace hazards that have the potential to cause injury by physical contact, absorption through the skin, or inhalation.

Workplace Hazard Assessments

In order to determine which PPE will provide the best protection, the FSIS EHSG has completed many workplace hazard assessments. Certain types of PPE are required to be worn based on workplace hazards that have been identified during workplace hazard assessments. Workplace hazards, and therefore required PPE, can be specific to your duty station.

Training Requirements

Inspectors must be able to demonstrate their ability to use properly PPE properly before being allowed to perform work requiring the use of PPE. OSHA standard 1910.132 requires that a PPE program be established to ensure that the appropriate PPE has been selected and that employees are trained in the proper use of PPE. FSIS Directive 4791.1 provides additional guidance on PPE.

Inspectors who are required to use PPE will be trained in the following: when PPE is necessary, what PPE is necessary, how to properly adjust and wear PPE, the limitations of the PPE, and the proper care, maintenance, useful life and disposal of the PPE.

Material Management Service Center

Most required and other optional PPE is available through the FSIS Materiel Management Service Center (MMSC). Available PPE includes such items as hardhats, earmuffs and ear plugs, impervious gloves, cut-resistant gloves and freezer coats. FSIS Directive 3410.3 provides guidance on reimbursement for direct purchases. Inspectors are reimbursed directly for the purchase of the following types of PPE and safety equipment: skid-resistant footwear, hand tools, knives, sharpening steels, node hooks, scabbards, chains with breakaway link, and flashlights.

Head Protection

The OSHA standard for head protection is 29 CFR 1910.1353. FSIS Directive 4791.1, Revision 3, requires that hardhats be worn at all inspected establishments. The MMSC provides two types of hardhats, standard and lightweight.

Eye and Face Protection

Studies indicate that about 60 percent of workers who suffered eye injuries were not wearing protective eye equipment. Eye and face protective equipment is required by OSHA in situations where there is a reasonable probability of preventing injury when such equipment is used. The OSHA standard for eye and face protection is 29 CFR 1910.133. There is no FSIS directive specifically for eye and face protection. The MMSC provides 2 types of safety glasses that may provide protection from small flying objects and blood and bodily fluids from animals.

Ear Protection

Exposure to high noise levels can cause hearing loss or impairment. The OSHA standard for hearing protection is 29 CFR 1910.95, Occupational Noise Exposure. Hearing protection is required in areas where noise levels are at or exceed 85 decibels (dB) since noise at or above this level can cause irreversible hearing loss. Four types of hearing protectors are provided: earmuffs, canal caps, foam plugs, reusable plugs.

Hand Protection

The OSHA standard for hand protection is 29 CFR 1910.138. FSIS Directive 4791.1, Revision 3, requires that red meat slaughter inspectors wear a cut-resistant glove on the non-knife hand when performing inspection tasks that require a knife and the assignment of two or more inspectors. The MMSC provides 3 sizes of cut-resistant gloves and 5 sizes of nitrile protective gloves to meet this FSIS requirement. The MMSC also supplies 4 sizes of disposable latex gloves to limit the potential risk of exposure to zoonotic diseases; however, use of latex gloves is voluntary.

Foot Protection

The OSHA standard for foot protection is 29 CFR 1910.136. This standard does not require foot protection for wet slippery surfaces. FSIS provides footwear that has skid-resistant soles, water-resistant uppers, and a closed heel and toe. Soles made from leather, wood, hard plastic, or metal materials are excluded.

Reimbursement

FSIS Directive 3410.3, Revision 6, provides for foot protection reimbursement. Reimbursement is limited to actual expenses, and the total allowance during the fiscal year shall not exceed \$108. However, supervisors may authorize reimbursement for additional replacement of skid-resistant footwear (up to an additional \$108 per pair) on an "as needed" basis.

Respiratory Protection

Respirators are not available through the Material Management Service Center. If the IIC believes that a respirator may be useful in certain situations, your Field Safety and Health Specialist should be contacted to perform a hazard assessment and provide you with the proper respirator.

Occupational Noise

The amount of hearing loss caused by noise depends on how loud the noise is and how long you are exposed. The loudness of a noise is measured in decibels (dB). Noise greater than 85 dB can damage hearing if the exposure is long enough. FSIS employees working in meat and poultry establishments and egg product plants may be exposed daily to noise in this decibel range.

FSIS Safety and Health Program

The FSIS Hearing Conservation Program includes the following elements:

- Audiometric Testing
- Monitoring Noise Levels
- Hearing Protection
- Training on the effects of noise and the selection, use, fit, and care of hearing protectors

Audiometric Testing

There are two types of audiograms required in a Hearing Conservation Program: baseline audiograms and annual audiograms. The baseline audiogram is the reference audiogram against which all future audiograms are compared.

Baseline audiograms must be provided within 6 months of an employee's first exposure at or above an 8-hour time-weighted-average (TWA) of 85 dB. Annual audiograms must be conducted within one year of the baseline. It is important to test hearing on an annual basis to identify any changes in hearing ability. If hearing loss has occurred, protective follow-up measures can be initiated before hearing loss progresses. An annual audiogram can also help identify whether your hearing protection properly fits and whether you are using it correctly.

Audiograms will be provided to all FSIS employees at no cost, including reimbursement of travel expenses where necessary. Arrangements for you to have an audiogram will be made through your supervisor.

Monitoring Noise Levels

In accordance with FSIS Directive 4791.1, Basic Occupational Safety and Health Program, noise monitoring must be conducted, and results must be recorded on FSIS Form 4791-20 and posted in the Government office of each establishment. Monitoring has shown that noise levels within a meat or poultry establishment or egg products plant are typically between 85 to 105 db.

FSIS requires employees to wear hearing protectors if they are exposed to noise levels of 85 dBA TWA or greater.

Hearing Protection

The Material Management Service Center stocks four basic types of hearing protectors: foam earplugs, reusable earplugs, canal caps, and earmuffs. The type of hearing protection you select will depend on the noise level to which you are exposed, the fit of the hearing protector, and your personal choice for comfort. In some cases, with very high exposure, it may be necessary to wear both earplugs and earmuffs.

Training

FSIS employees who are exposed to noise levels at or exceeding 85 dB for an 8- hour time-weighted average (TWA) are trained on the effects of noise, and the selection, use, fit, and care of hearing protectors.

The following are some tips on how to choose the best hearing protection for you:

- Choose hearing protection that works well at your job site.
- Be sure your hearing protection is the right size for you. There are many different types and sizes of ear plugs available.
- Practice inserting and removing your hearing protectors, so you become comfortable using them.
- Frequently check the fit to be sure you are using your hearing protection correctly.
- Always wear your hearing protection in areas where the noise levels are at or exceed 85 db.
- Learn the right way to care for your hearing protectors and know when to replace them.

General Safety

Lockout Program

FSIS Lockout Program

Details of the FSIS Lockout Program, which was developed according to OSHA Standard 29 CFR 1910.147, are found in FSIS Directive 4791.11.

Authorized FSIS employees are required to lock and tag out machines or equipment to perform pre-op process verification inspections in coordination with the establishment's lockout/tagout program.

Training

Authorized FSIS employees must be trained in lockout procedures prior to performing pre-op process verification inspection. If you have to perform lockout/tagout procedures, you will be trained by your supervisor during initial assignment to your duty station. Authorized employees are trained to recognize applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods necessary for energy isolation and control. These procedures will vary from establishment to establishment.

Confined Spaces

A confined space is defined as a space that is large enough to enter and work in, has limited or restricted means of entry and exit, and is not designed for continuous human occupancy. Examples are pits, silos, tanks, hoppers, storage bins, railroad or truck tank cars, reactor vessels, and machinery enclosures.

Applicability to Food Inspection Activities

It is FSIS policy that employees DO NOT enter or work in confined spaces. Therefore, in accordance with the OSHA Standard, FSIS is required to do the following:

- Evaluate the workplace to determine if any spaces that FSIS may need to enter are permit-required confined spaces.
- Take measures to prevent employees from entering the spaces.
- Evaluate any changes to non-permitted confined spaces that increase the hazards (requiring them to be permitted).

FSIS employees have the following responsibilities regarding confined spaces:

- Be familiar with the location of permit-required confined spaces at your duty station/s.
- For permit required confined spaces that require inspection, arrange to have the interior of these spaces inspected by means that do not require the FSIS employee to enter the space.

Walking and Working Surfaces

Slips, trips, and falls are a major cause of accidents. They cause 15 percent of all accidental deaths and are second only to motor vehicles as a cause of fatalities. The walking and working surfaces within meat and poultry establishments and egg product plants may be hazardous.

OSHA Standard 29 CFR Part 1910, Subpart D, contains the requirements for walking and working surfaces and applies to all FSIS workplaces.

The following are safety considerations regarding walking and working surfaces:

- Wear skid resistant footwear with adequate tread on the soles.
- Use the “packing house shuffle” when walking in slippery areas.
- Walk in meat and poultry establishments and egg product plants. Do not run.
- Use all available hand and stair rails.

Emergency Action Plans

OSHA Standard 29 CFR 1910.38 -Emergency Action Plans, requires the development of a written plan of action and employee training regarding their actions and responsibilities under the plan.

FSIS Directive 4791.6 provides procedures for the development of these plans. Each FSIS Workplace (establishment, laboratory, or office) must have its own written plan. A diagram of emergency evacuation routes and emergency numbers should be posted on the bulletin board in the USDA Office at every establishment.

General Occupational Health/Medical Services and First Aid

OSHA Standard 29 CFR 1910.151

This standard, which addresses medical services and first aid, is meant to ensure that employees receive medical attention when it is needed. FSIS Directive 4792.1 provides further direction on this standard as it applies to FSIS workplaces.

Injuries in the Workplace

FSIS employees should seek immediate medical attention if an injury occurs in the workplace. FSIS employees should be familiar with the specific workplace procedures for notifying their supervisors and summoning emergency medical care.

The IIC/CS should develop a plan for obtaining emergency first aid, which includes an establishment health clinic managed by a health professional, a local community paramedical unit, or a hospital in near proximity to the workplace. FSIS employees should know the location or phone number of these medical services.

Zoonotic Diseases

Zoonotic diseases are diseases and infections that are naturally transmitted between vertebrate animals (including their carcasses or by-products) and man. Currently there is no OSHA standard or FSIS directive for zoonotic diseases.

Although a review of CA 1 and CA 2s over the past 5 years has shown a very low potential for exposure to zoonotic diseases among the FSIS workforce (based on only a few documented cases), information regarding zoonotic diseases in the workplace is provided to FSIS employees. This includes precautions taken and the awareness needed to reduce the potential of a FSIS employee contracting a zoonotic disease in the workplace.

Protective Measures

The main mode of transmission for many zoonoses and the greatest potential risk of exposure to zoonosis for FSIS employees are from contact with tissue, blood, and bodily fluids of infected animals. Therefore, FSIS inspectors and veterinarians should protect their eyes, nose, mouth, and any open cuts for protection against exposures to potentially infected tissues or fluids. For example, open cuts should be covered with a waterproof bandage. Gloves should be worn to reduce direct contact, and safety glasses or a face shield should be worn when the potential for a significant exposure to splashes or tissue spatter exists. Practice good personal hygiene: wash hands after contact and do not touch face, eyes, nose, or mouth with contaminated hands or gloves.

Heat Stress

Heat stress is a problem that affects up to an estimated 10 million workers in the United States each year. During the hot summer months, FSIS inspectors may be exposed to extreme conditions of hot temperatures and high relative humidity in meat and poultry slaughter establishments.

Human Susceptibility Factors

People who have experienced a previous heat-related illness, have low-sodium diets, consume caffeine or alcohol, are taking certain types of medication (for example, heart-rate controlling drugs), or are wearing personal protective equipment, such as a respirator or protective suit, can be more susceptible to heat-related illness.

Heat Injuries

The more common heat injuries are heat cramps and heat exhaustion. These disorders are not life threatening; however, they may be intermediate steps on the way to heatstroke. Heat stroke, on the other hand, is a life-threatening emergency that requires immediate medical attention.

FSIS Heat Stress Management Program

There is currently no specific OSHA standard or FSIS directive for heat stress. However, OSHA may cite Federal Agencies for heat stress violators under 29 CFR 1960.8(a). FSIS is constrained by 29 CFR 1960.1(g) from requiring abatement of heat hazards in private sector workplaces but should attempt to work with establishment management on high heat days to improve ventilation and cooling of work areas.

FSIS has only three realistic options for managing exposures and for protecting inspectors working in high temperature environments in establishments:

- Administrative control: employee awareness training on actions to reduce the effect of heat stress.
- Administrative control: increasing the effectiveness of fluid intake using electrolyte replacement supplements.
- Personal protective equipment: neck-cooling scarves.

Using all three of these approaches is the basis of the FSIS Heat Stress Management Program.

Cold Stress

Workplace temperatures below 61° F may result in exposures to cold stress. The actual development of cold-stress related disorders will depend on conditions such as air temperature, air speed, the insulating value of clothing, the duration of the exposure, and the environment (e.g., exposure to wet conditions). Cold-related illness can slowly overcome a worker who has been chilled by low temperatures, brisk winds, or wet clothing.

Some FSIS inspectors may have processing assignments in areas that are maintained at 40°F or below. Also, FSIS inspectors may be required to enter walk-in freezers and coolers.

Cold Stress Disorders

Frostbite and hypothermia are two cold stress disorders. Frostbite is more common and is the result of freezing of the extracellular fluid in the skin.

Hypothermia is the most dangerous cold stress disorder and is a result of abnormally low core body temperature (at or below 95°F).

FSIS Cold Stress Management Program

Currently there is no specific OSHA standard or FSIS directive for cold stress. However, OSHA may cite Federal Agencies for cold stress violators under 29 CFR 1960.8 (a).

The FSIS Cold Stress Program consists of providing awareness training and personal protective equipment (PPE). The PPE consists of freezer and cooler attire stocked by the Materiel Management Service Center (full-length freezer coat, freezer jacket, freezer vest).

FSIS COVID-19 Protection

We are still in the midst of the Covid-19 pandemic and your health and safety as FSIS continues to meet its mission of providing inspection services to ensure that American consumers receive safe wholesome meat, poultry, and egg products is paramount. Please review the USDA Covid Workplace Safety Memo and the Executive Order on Protecting the Federal Workforce below. To protect the inspection force FSIS has stocked supplies directly related to pandemic safety in the Materiel Management Service Center (MMSC).

[USDA COVID-19 Workplace Safety Memo](#)

[Executive Order on Protecting the Federal Workforce](#)

Additional COVID-19 Resources

[FSIS Notice 27-20 Availability of Cloth Face Coverings, Disposable Masks, and Face Shields](#)

[CDC Guidance for Meat and Poultry Workers](#)

[FSIS Notice 31-20 Face Shields that Attach to Helmets Instruction](#)

[Information about Face Coverings/Masks and Face Shields](#)

[FSIS Instruction for Use of Hardhat-Compatible Face Shields](#)

[Instructions on the Use and Care of the Bullard Face Shield](#)

[FSIS Employee Eye and Face Protection Instructions](#)