

Instructors

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Troy Franco has been a journeyman meat cutter and foreman for 19 years. He trains employees in the various stages of beef, sheep, and goat slaughter. Troy also trains personnel in sanitation, raw processing, breaking primals and sub primals, boning out carcasses, grinding, and net weights. Troy is HACCP certified for Hawaii Beef Packers.

Meat Cutter Program Structure

Graduates of the program will have acquired the knowledge and the skills of the following courses and topics:

Safety and Sanitation

- Equipment and tool safety
- Sanitation practices and participation
- Personal hygiene
- Refrigeration basics
- Attendance and punctuality

Preparation procedures and productivity training for:

- Beef
- Packaging of meats
- Product names

Business Related Math

- Net weights
- Tare weights

Orientation

The program begins with an orientation which includes the following items:

Program rules and regulations

- Hand tool demonstration and practice
- Equipment demonstration and practice
- Knife sharpening and practice

- Meat wrapping and practice
- Basic math: weights, fractions, and percentages
- Scale operation and practice
- Sanitation routine, evaluation, and practice

Students will receive training in the following:

- Beef primal cutting
- Beef secondary cutting
- Boning techniques
- Grinding
- Use of saws and slicers
- Customer service

Stations are set up for all the primary, secondary cuts, boning, meat cleaning, slicing, grinding, and for other meat cutting tasks. Over several classes, students move through all the stations, rotating from one cut to the next with at least three turns at the same cut, and more depending on the availability of the product. As skills begin to develop, students are quickly given wider cutting responsibility and leave the rotation system to work in groups and then on their own. First, a hind or front quarter of beef is allocated to students for cutting. When student speed is increased still further, an individual student will be given a quarter, and then a whole side.

Introduction to Food Safety Sanitation

<p>Food Safety Sanitation Basics</p> <p>Lecture – 15 minutes</p>	<p>The student will understand the importance of sanitation is to prevent foodborne illness and food allergic reactions. Cleaning and sanitizing is a critical process and the foundation of food safety in any food operation.</p>
<p>Sanitation Basics</p> <p>Lecture – 15 minutes</p>	<p>The student will understand the two critical components of sanitation.</p>
<p>GMPs stand for Good Management Practices.</p> <p>Lecture – 15 minutes</p>	<p>The student will understand GMPs and the basic requirements to ensure production of wholesome food including employee practices, buildings/facilities, equipment/utensils and production and process controls.</p>
<p>SSOPs stand for Sanitation Standard Operating Procedures.</p> <p>Lecture – 15 minutes</p>	<p>The student will understand the specific steps taken to perform the sanitation tasks including the details of the company’s sanitation procedures and how often they need to be done.</p>
<p>Hidden Hazard: Food Allergens</p> <p>Lecture – 15 minutes</p>	<p>The student will understand that effective cleaning procedures eliminate residues that cause food allergies.</p>
<p>Cleaning and Sanitizing - Multiple Step Process</p> <p>Lecture – 30 minutes</p>	<p>The student will understand that cleaning and sanitizing is a 5 step process. The 5 steps are:</p> <ol style="list-style-type: none"> 1. Pre-Operational cleaning – scraping and rinsing surfaces to remove excess and loose food. 2. Washing – using detergent solutions to remove stuck on food. 3. Rinsing – to remove the food and detergent solutions. 4. Sanitizing – this kills bacteria and viruses. 5. Air Drying – sink drain boards or for large equipment in place.
<p>Biofilms - A Hidden Hazard</p> <p>Lecture – 15 minutes</p>	<p>The student will understand what a biofilm is, how it is formed, and how to remove it from contact surfaces.</p>
<p>Monitoring Sanitation</p> <p>Lecture – 15 minutes</p>	<p>The student will understand the importance of monitoring and verifying to ensure that the sanitation procedures are being followed and done correctly or adequately.</p>

Introduction to Food Safety Sanitation

Importance of sanitation is to prevent foodborne illness and food allergic reactions. Cleaning and sanitizing is a critical process and the foundation of food safety in any food operation.

Sanitation Basics

Sanitation can be divided into two components.

GMPs stand for Good Management

Practices. These are the basic requirements to ensure production of wholesome food including employee practices, buildings/facilities, equipment/utensils and production and process controls.

For example, the GMP for employee practices should include policies for hair restraints, clean clothing, jewelry, fingernails, etc.

A GMP for buildings and facilities should cover construction and maintenance of floors, walls and ceilings.

SSOPs stand for Sanitation Standard Operating Procedures.

They are the specific steps taken to perform the sanitation tasks including the details of your sanitation procedures and how often they need to be done.

Why is Sanitation important?

Many cases of foodborne illness are associated with sanitation problems.

Contaminated equipment, including food contact surfaces that have not been properly cleaned and sanitized is one of the 5 major risk factors contributing to foodborne illness.

A complete sanitation process will reduce the numbers of bacteria and viruses that could be present on equipment and utensils.

Food equipment that is not properly cleaned and sanitized can leave spoilage bacteria that can cause poor quality product and reduce the shelf life of a product.

A Hidden Hazard: Food Allergens

Effective cleaning procedures eliminate residues that cause food allergies

Food allergens is an emerging risk in food processing if a food contact surface is not properly cleaned in between handling different kinds of foods, and food proteins. Food allergens can be carried over to the next food, (called cross contamination) possibly causing an allergic reaction in the person that eats it.

It is the cleaning/washing step that remove the proteins that are the cause of food allergic reaction.

An example of where allergen cross contact might occur is when using a slicer to slice turkey after slicing bologna, which contains soy or non-fat dried milk and not cleaning and sanitizing the slicer between uses.

Foods must be labeled accurately

Identifying allergenic ingredients is a first step.

It is critical that food labels contain a complete list of ingredients that declare all allergens.

Food allergens are truly the newest food safety hazard.

It is a protein in some foods that cause allergic reactions in some people.

There are eight food groups that are the cause of 90% of food allergic reactions.

The 8 food groups are milk, eggs, peanuts, tree nuts, wheat, soy, fish, and shellfish.

Cleaning and Sanitizing - Multiple Step Process

Cleaning and sanitizing is a multiple step process.

The 5 steps are:

1. Pre-Operational cleaning – scraping and rinsing surfaces to remove excess and loose food.
2. Washing – using detergent solutions to remove stuck on food.
3. Rinsing – to remove the food and detergent solutions.
4. Sanitizing – this kills bacteria and viruses.
5. Air Drying – sink drain boards or for large equipment in place.

These steps must be done in this order for the process to be effective.

There can be NO shortcuts in this process! Each step must be done in the proper order.

For detergents and Sanitizers “Time & Contact” is important for it to be effective

Two Critical Components

Cleaning is the chemical and physical process of removing dirt, food, or soil from surfaces.

Sanitizing results in removing or killing bacteria and viruses

Cleaning and Sanitizing steps are two completely separate operations.

Food allergens are controlled at the cleaning component.

Bacteria and viruses are killed in the sanitizing component.

You must clean a surface before sanitizing can be effective.

A clean surface is needed so that the bacteria will be killed by the action of the sanitizer.

Types of Cleaners

There are several different types of cleaning agents. Each type has a specific function.

What is right for one use may not be right for another.

Soaps and detergents are general purpose cleaners while heavy-duty detergents are often used in dish washing machines.

Abrasive cleaners contain a gritty material that helps to scour off grease, fats, and heavy soil.

Acid cleaners are used to de-lime equipment such as sinks, dish machines, and ice machines.

Degreasers are often used on equipment, floors and walls where there is a heavy grease buildup.

You must use the proper type of cleaner in correct proportions for each cleaning task.

READ the label of cleaner and follow the application instructions!

Cleaning Process

In the cleaning or washing step, there are several points that ensure success.

The proper strength of the detergent wash solution is important. Be sure to use enough to loosen stuck on foods and cut through the grease. Too strong a mixture could harm employees or leave residues on equipment. Detergents may not perform properly if the temperature of the detergent solution is not at the required temp as stated on the label. Follow instructions!

This could also become a safety issue. Example putting a chlorine base detergent into HOT water. This could emit dangerous chlorine fumes.

Contact time of the solution with the food contact surface is critical. Not enough contact time will result in the ineffective process of removing dirt, food, soil from surfaces, or food allergens.

Mechanical action or scrubbing helps remove the dirt, residue, and microbes.

Be sure to change the wash solutions when they become dirty.
Use clean cloths and brushes.

Biofilms - A Hidden Hazard

A hidden hazard in sanitation is called a biofilm.

It is a very thin, not visible layer of food and bacteria that can build up on a surface.

They can form on food contact surfaces over a long period of time when those surfaces have not been properly cleaned.

Once biofilms have formed, cleaners and sanitizers can no longer reach the actual surface that needs to be cleaned.

How do you remove Biofilms?

(open class discussion)

Sanitizing

There are two methods of sanitizing that are commonly used in wholesale & retail operations:
Hot Water or Chemical Sanitizers.

Hot Water

When using hot water as a sanitizer water temperature must be maintained at 180°F or hotter.

Thermometers or temperature strips must be used to ensure the proper temperatures are achieved.

Chemical Sanitizers

If using chemical sanitizers, there are several types and many things that must be taken into consideration.

Keep in mind that different chemical sanitizers are more effective than others on different kinds of bacteria or viruses.

YOU MUST FOLLOW THE LABEL USE INSTRUCTIONS FOR THE SANITIZER YOU USE.

Also, each type of chemical requires a different type of test kit; be sure you have the right kind.

Sanitizing Process

A completely clean surface is essential prior to beginning the sanitizing process. Change the sanitizing solution as often as necessary to keep clean and effective. You must maintain the sanitizing solutions at the proper strength. A test kit must be available and used often to be sure the chemical is being used at the proper strength.

The temperature of water is specific to the type of sanitizer being used. Example, water that is too hot can cause chlorine to evaporate from the solution and it also becomes a safety issue.

Allow the equipment and utensils to remain in the sanitizing solution for required time. The time will vary depending on the sanitizer that is being used.

Chemicals - Read the Label BEFORE Using

All chemicals must be used according to the label directions. A chemical sanitizer must be labeled and approved for use on food contact surfaces. Example: store brands of bleach are often not labeled for use on food preparation surfaces or in commercial operations. The label on each product will give specific instructions for proper use and handling including information on water temperature, and rates to use.

Material Safety Data Sheets (MSDS)

MSDS contain information on proper use, storage, and emergency procedures for each specific chemical. MSDSs must be available at each facility and employees must be trained so they understand the information.

Chemical Safety

DO NOT MIX CHEMICALS!

Hazardous reactions will occur!

Cause injury or illness to employees or consumers!

May decrease effectiveness of either chemical.

chlorine and ammonia are mixed,

Frequency of Cleaning & Sanitizing

When used with potentially hazardous foods, equipment and food contact surfaces must be cleaned throughout the production day at least once every four (4) hours.

For example, meat slicers, grinders, cutting boards, and meat saws, must be disassembled, cleaned, and sanitized every 4 hours.

When there is a change in foods being processed, cleaning and sanitizing may also be required. Example, after a cutting board is used for raw chicken before cutting something else. Be sure to check the ingredient labels on products that may contain allergens as to prevent cross-contamination.

When contamination occurred from an environmental source or from employees cleaning and sanitizing should be done.

Temperature

An exception is when equipment is used and stored in a refrigerated room that is maintained at 40°F or less, it would not have to be cleaned every 4 hours. However, the equipment must still be cleaned and sanitized at least every 24 hours.

Who's job is it?

Sanitation is everyone's responsibility!

Why? (Open class discussion)

SSOP's

Establishment written procedures

Detailed procedures for cleaning and sanitizing – the necessary steps in the process including the reasoning for doing it that way.

A checklist of equipment that needs to be cleaned including how often it needs to be done, twice daily, daily, etc.

Instructions on how to break down and re-assemble equipment.

Equipment cannot be fully cleaned if not completely taken apart.

Procedures and a schedule for cleaning non-food contact surfaces of equipment and facilities.

Examples: sinks, inside surfaces of coolers, rails, rollers, cooling units, overhead pipes, light fixtures, floors, walls, ceiling and wagons.

Instructions for the use and safe handling of chemicals, especially sanitizers.

Instructions for the use of labels.

Additional items that could be included in SSOPs are:

Employee practices such as requirements for employee illness reporting, handwashing and hygienic practices including clothing, smoking, eating, and hair covering.

Procedures for storing and preparing food including monitoring temperatures and procedures to prevent cross contamination.

Pest control procedures include monitoring, trapping and elimination of access to building and food.

Maintenance of the facility and grounds include storage of equipment, waste removal, maintenance of parking lots and weed control.

Monitoring Sanitation

It is important to monitor and verify to ensure that the procedures are being followed and done correctly or adequately.

Managers and supervisors should do a Pre-operational and Operational walk through inspection of the establishment.

What should be done during the walk through inspections?

Supervise daily routines and point out when corrections are needed

Reinforce good habits and practices

Look at equipment to be sure it has been adequately cleaned before it is sanitized.

Verify work done against the cleaning schedule

Watch employees to be sure they are washing their hands properly and when required.

What else should the “walk through inspections” cover? (open class discussion)

Employees can do ‘monitoring’ as they go by using the test kit to check sanitizer strength.

A tool that can be used to monitor the effectiveness of the cleaning and sanitizing activities is called a bioluminator. This tool will show when a surface has not been cleaned properly. Another monitoring tool might be to conduct swab tests to check for bacteria.

Records

Monitoring means nothing if you do nothing with the information.

Use your checklist and write down what you find and keep records to document your actions.

Check to see if employees are following procedures; if they are not following procedures, find out why.

Evaluate how effective your cleaning procedures are.

When problems are found, solve the problem and retrain the employees with the proper procedures.

Encourage employee feedback to improve procedures.

Communication and follow-up are effective monitoring.

Corrective Action

A step to monitoring is to take corrective action.

If an item on the checklist is noted as missed or poorly done, you must make sure it is corrected.

Tell the employee what is wrong, and how they need to correct it.

Example: if food residue is found on a piece of equipment, show employees the problem and be sure they know how to reclean and then sanitize.

A manager or supervisor should then re-check to be sure it is satisfactory and write down that it was corrected. An additional space on the checklist can be used to indicate that and how the corrections were made.

Results of Poor Sanitation

When sanitation procedures are not done properly, there are many possible effects. It can result in reduced shelf life or a poor quality product.

But, the results can be more serious. A customer could become ill.

Other results of poor sanitation include:

Medical claims or lawsuits against the company.

If bacteria are found in the food, it might need to be recalled and the company loses \$\$\$

The government could impose fines or take court action.

This brings bad publicity for the company; customers lose confidence and buy somewhere else.

It could even cost you your job!

Lock Out – Tag Out

Lock Out – Tag Out is the control of energy during the pre-operational process verification inspection or verification of pre-operational or operational corrective action. These procedures apply to machinery and equipment in meat and poultry plants. Lock Out – Tag Out procedures are

required only if these tasks expose the inspector to the unexpected startup or release of stored energy

which could cause injury. Lock Out – Tag Out applies when:

- A. Tasks are performed on machines or equipment on which the guards or other safety devices have been removed or bypassed during cleaning or maintenance procedures resulting in exposure to hazards at the point of operation.
- B. The inspector places any part of his or her body into the danger zone such as, the point of operation associated with the machine or equipment.

Energy Isolating Device.

A mechanical device that physically prevents the transmission or release of energy. Devices include but are not limited to:

1. Manually operated electrical circuit breakers.
2. Disconnect switches.
3. Manually operated switches by which the circuit conductors can be disconnected from ungrounded supply conductors, and no pole can be operated independently.
4. Line valves.
5. Blocks.
6. Any similar devices to block or isolate energy. (NOTE: Push buttons, selector switches, and other control circuit-type devices are not energy isolating devices.)

Energy Source

Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or hazardous energy.

Lockout Device

A positive means, such as a key or combination-type lock, to hold an energy isolating device in a safe position and prevent energizing a machine or equipment. Lockout devices include blank flanges and bolted slip blinds.

Serious

A hazard, violation, or condition where there is a substantial probability that death or serious physical harm could result.

Tag Out Device

A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device according to established procedure. The Tag Out device shows that the energy isolating device and the equipment being controlled may not be operated until the warning device is removed by the authorized employee who placed the Tag Out device on the energy isolating device.

Identifying Machines and Equipment

The USDA Inspector in Charge or inspector must assure that machines and equipment required to be

locked out are clearly identified on a schematic or floor plan that:

1. Lists the exact location of the machines and equipment required to be

locked out or assessed before a pre-operational or operational sanitation inspection.

2. Lists the exact location of each energy isolating device and shows which machines and equipment

each device controls.

The Inspector in Charge or inspector must post the Lock Out - Tag Out schematic or floor plan in a readily visible location. This allows relief inspectors responsible for performing SSOP

verification activities to observe and review the exact locations of machines, equipment, and energy isolating devices within a plant before starting the inspection.

Procedures for Assessing Lock Out – Tag Out Safety

An inspector shall, as a secondary authorized FSIS employee, perform the following procedures before starting the pre-operational process verification inspection or verification of pre-operational or operational corrective action as a result of operational verification findings involving a machine or equipment.

Preparation for Shutdown.

USDA Inspectors shall inform plant management that specific machines or equipment must be completely shut down and locked or tagged out for pre-operational or operational process verification in those situations meeting the scope and applicability of this directive and the cooperative agreement.

Machine or Equipment Shutdown

The primary authorized plant employee(s) shut down the machine or equipment by the normal stopping procedure. (EXAMPLES: Depressing stop button, opening switch, and closing valve.)

Machine or Equipment Isolation

The primary authorized plant employee(s) has physically located and de-activated all energy isolating devices for that machine or piece of equipment.

Lock Out or Tag Out Device Application

The primary authorized plant employee(s) has located and locked out the isolating devices with assigned individual locks. (NOTE: When a Tag Out device is used on an energy isolating device which can be

locked out, the Tag Out device shall be attached where the lockout device would have been attached.)

Plant management must demonstrate that the plant Tag Out program complies with all Tag Out-related provisions of the OSHA standard and with any additional safety elements necessary to provide full inspector protection that equals the level of safety received from using a lockout device. (NOTE: Additional safety elements include implementing measures such as removing an isolating circuit element, blocking a control switch, opening an extra disconnecting device, or removing a valve handle to reduce the likelihood of inadvertent energization.)

The **secondary authorized FSIS employee** locks or tags out energy isolation devices identified in the cooperative agreement under one of the following procedures:

1. After the primary authorized plant employee has placed his/her personal lock or tag upon each energy isolating device, the secondary authorized FSIS employee affixes his or her personal lock or tag to the energy isolating device. This procedure may be appropriate when there are limited numbers of isolated energy sources and pieces of equipment or machines.
2. The primary authorized plant employee places his/her personal lock or tag upon each energy isolating device, and places the key or tag tabs in a lockbox. Each authorized employee (plant and FSIS) affixes his or her lock to the lockbox.

This procedure may be appropriate when there are many energy sources and pieces of equipment or machines.

Stored Energy.

The primary authorized plant employee(s) observes and verifies that stored or residual energy has been dissipated or restrained by methods such as grounding, repositioning, blocking, and bleeding down. Stored or residual energy may be found in items such as capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure.

Verification of Isolation

To ensure that equipment is disconnected from energy sources, the primary authorized plant employee(s) operate the push button or normal operating controls or test to make certain the equipment will not operate. The machine or piece of equipment is now locked out. (NOTE: The plant employees should return operating controls to the neutral or "OFF" position after verifying the equipment isolation and before the inspector performs a pre-operational process verification inspection or verification of pre-operational or operational corrective action as a result of operational verification findings.)

Locked or Tagged Out Equipment

An inspector or affected employee shall leave all lock and Tag Out devices alone. Do not attempt to start or use equipment that has been locked or tagged out.

Completion of Verifications

When an inspector has completed a pre-operational process verification inspection or verification of pre-operational or operational corrective action, the inspector shall notify plant management immediately that the inspected machines or equipment may be released from the energy control

procedures by the secondary authorized FSIS employee and the primary authorized plant employee(s). This action occurs upon completing the pre-operational process verification inspection or verification of pre-operational or operational corrective action on the specific machine at this time the locks or Tag Outs are removed.

Cord and Plug Connected Electric Equipment

Cord-and-plug connected electric equipment is not required to comply with OSHA Lock Out – Tag Out procedures. The exposure to hazards of unexpected energization or startup is controlled by unplugging equipment from the energy source. The person doing the pre-operational process verification inspection or verification of pre-operational or operational corrective action must have exclusive control of the plug.

Prior to a pre-operational process verification inspection or verification of pre-operational or operational corrective action of cord-and-plug electric equipment which may expose the inspector to stored energy, the primary authorized plant employee shall:

1. Determine if the electric equipment is unplugged by conducting a visual inspection.
2. Unplug the electric equipment if the equipment is found to be plugged into an electrical outlet. The plant employee places the disconnected plug in a position that can be readily seen by the inspector during the inspection. The inspector has exclusive control of the cord-and-plug connected electric device during the pre-operational process verification inspection or verification of pre-operational or operational corrective action.
3. When directed by the inspector operate the push button or normal operating controls of the cord and plug connected electric equipment to make certain the equipment has dissipated stored energy. The plant employees should return operating controls to the neutral or "OFF" position after verifying that stored energy has been dissipated.
4. If the plant is located in an OSHA State Plan State, cord-and-plug equipment may be required to be locked or tagged out.

Sanitation Standard Operating Procedures

Sanitation Standard Operating Procedures are the steps of the sanitation procedures in food production plants which are required by the Food Safety and Inspection Service of the USDA and regulated by 9 CFR part 416 in conjunction with 21 CFR part 178.1010. It is one of the prerequisite programs of HACCP.

SSOP's are documented steps that must be followed to ensure the adequate cleaning of product contact and non-product surfaces. These cleaning procedures must be detailed enough to make certain that adulteration of product will not occur. All HACCP plans require SSOP's to be documented and reviewed periodically to incorporate changes to the physical plant. This reviewing procedure can take on many forms, from annual formal reviews to random reviews, but any review should be done by management. As these procedures can make their way into the public record if there are serious failures, they might be looked at as public documents because they are required by the government. SSOP's in conjunction with the Sanitation Schedule and Pre-Operational Inspection Program, form the entire Sanitation operational guidelines for food processing.

An individual SSOP should include:

The equipment or affected area to be cleaned, identified by common name,

The tools necessary to prepare the equipment or area to be cleaned

How to disassemble the area or equipment

The method of cleaning and sanitizing

Preoperational and Operational Sanitation Checklists.

Food Safety Sanitation – Final Exam

- 1) Sanitation can be divided into two components:
- 2) Why is Sanitation important?
 - A) Many cases of foodborne illness are associated with sanitation problems.
 - B) Contaminated equipment, including food contact surfaces that have not been properly _____ cleaned and sanitized is one of the 5 major risk factors contributing to foodborne illness
 - C) A complete sanitation process will reduce the numbers of bacteria and viruses that could be present on equipment and utensils.
 - D) All of the above
- 3) True or False
Food equipment that is not properly cleaned and sanitized can leave spoilage bacteria that can cause poor quality product and reduce the shelf life of a product.
- 4) Food allergens is an emerging risk in food processing if a food contact surface is not properly cleaned in between handling different kinds of foods, and food proteins. Food allergens can be carried over to the next food, causing _____ and possibly causing an allergic reaction in the person that eats it.
- 5) Cleaning and sanitizing is a multiple step process. The 5 steps are:
- 6) For detergents and Sanitizers _____ is important for it to be effective.
- 7) The two critical components in sanitation are _____.
- 8) A hidden hazard in sanitation is called _____.
- 9) The two methods of sanitizing that are commonly used in wholesale & retail operations are:

10) When sanitation procedures are not done properly, the possible effects are:

- A) It can result in reduced shelf life or a poor quality product.
- B) A customer could become ill.
- C) Medical claims or lawsuits against the company.
- D) If bacteria are found in the food, it might need to be recalled and the company loses \$\$\$
- E) The government could impose fines or take court action.
- F) Brings bad publicity for the company; customers lose confidence and buy somewhere else.
- G) You could lose your job!
- H) All of the above

Food Safety Sanitation – Final Exam Answer Sheet

Food Safety Sanitation – Final Exam Answer Sheet

Safety Tip of the Month (Article)

Source: Grocers Insurance

Meat-Cutting Band Saws

These Band Saws use a thin, flexible, continuous steel strip with cutting teeth on one edge that runs around two large motorized pulleys or wheels. The blade passes through a slot in the work table where the operator feeds the product to be sliced. Blades are available with various teeth sizes, and the saws may have adjustable blade speeds.

Meat-Cutting Band Saws are usually constructed of stainless steel for sanitary purposes and for easy cleaning. The table has a pushing guard installed to protect the operator while feeding the saw and may slide or roll.



Meat Band Saw



Top Pulley



Bottom Pulley

Meat Band Saw Blade



Safety Hazards

Cuts or amputations occur most frequently when operators' hands contact the running saw blade while feeding meat into the saw. The hazard is greatest when operators place their hands too close to the saw blade, in a direct line with the saw blade, or beneath the adjustable guard during feeding operations. Here are some common causes of cuts or amputations involving meat-cutting band saws:

Operator's hand slips off the meat and accidentally runs into the running blade.

Operator attempts to remove meat from the band saw table while the blade is still moving.

Operator's gloves, loose-fitting clothing, or jewelry became entangled in the saw blade pulling in the hand or arm into the running blade.

Work practice

The guards shall be adequate and in place and that operators safely perform feeding methods.

Adjust the point of operation guard to admit only the meat.

Use the pushing guard to feed the saw, especially when cutting small pieces of meat.

Use only sharp meat-cutting blades.

Tighten blades to the appropriate tension.

Operators not to wear gloves, loose-fitting clothing, or jewelry while operating a band saw.

If the Operator has long hair put in a net or cap.

Do not remove meat from the band saw while the saw blade is still moving.

Turn off and unplug band saws when not in use or when left unattended for any period of time in case of unexpected energization or start up.

Beef Skeletal Chart

Source: American Meat Science Association

Retail Beef Cuts and Recommended Cooking Methods (Chart)

Source: Cattlemen's Beef Board and National Cattlemen's Association

Introduction to Beef Carcass Processing

Carcass Processing	The student will understand, gain skills, and knowledge in the procedures and safety requirements in processing beef carcasses.
Meat Cutter Equipment and Safety Gear	The student will understand and gain skills in the proper and safe use of knives, hooks, saws, and safety gear.
Carcass Flow	The student will understand, gain skills and experience in the safe proper way to travel beef carcasses on a rail system and how to transfer quarter sections on to processing tables.
Quarter Carcass Processing	The student will gain knowledge in the different types of beef primal cuts and gain skills in cutting the quarters into primal sections.
Carcass Boning	The student will understand, gain skills, and experience in the safe proper way to remove the meat from the bones of the carcass to produce boneless meat for ground beef production.
Operational Sanitation	The student will understand and gain knowledge in operational sanitation procedures and requirements to produce a safe and wholesome product for human consumption.
Product Storage	The student will understand, gain knowledge, and experience in the proper storage of raw beef products in refrigerated facilities.
Hands On Training	2.5 hours per day/ 4 days = 10 hours

Cuts of Beef

A beef carcass is divided into large sections called primal cuts. These beef primal cuts, or aka "primals," are then broken down further into individual steaks and other retail cuts.

A "side" of beef or "half a carcass" is one side of the beef carcass that is split through the backbone (spine). Each side is then cut in half between the 12th and 13th ribs into sections called the forequarter and hindquarter.

Forequarter

Beef Chuck:

Chuck consists of parts of the neck, shoulder blade and upper arm. The beef chuck is a tough cut of meat because of the muscle tissue. The Chuck is used for beef stew or pot roast. Because of its fat content, beef chuck is also used for making ground beef.

Beef Rib:

From the center section of the rib, the beef rib primal cut is used for the traditional standing rib roast aka "prime rib". Rib eye steak is cut from this primal.

Beef Brisket:

Beef Brisket is used for pot roast and for making corned beef. Beef Brisket is also used for Hawaii favorites like Brisket Stew, Lau Lau, and Salt Beef.

Beef Plate:

aka the "short plate", beef plate includes the short ribs and the skirt steak, which is also used for making ground beef.

Beef Shank:

The beef shank is the leg of the bovine. The shank is a very tough cut and is used for stew or soups.

Hind Qtr:

Beef Short Loin:

The Short Loin is where we get most of the desirable cuts of meat: T-bone, Porterhouse, and strip loin steaks.

Beef Tenderloin:

The Beef Tenderloin is found inside the loin, and is where we get filet mignon, which is made from the very tip of the pointy end of the tenderloin and is considered the finest cut of beef.

Beef Flank:

Beef Flank is used as a roll with stuffing or for making ground beef.

Beef Round:

From the Beef Round, cuts for pot roast are made as well as round steaks. Subprimal cuts taken from the round include the top round (or inside round), eye round and bottom round.

Beef by products:

Ox Tail is the tail of the bovine. It is cut into pieces for stew or soup.

Beef Trimmings are pieces of beef (fat included) that are trimmed off the primal sections or cuts that are fit for human consumption. Trimmings are used in ground beef production.

Beef Fat is pieces of fat (no meat attached) that are trimmed off the primal sections or cuts that are fit for human consumption. Beef fat is used in ground beef production.

Net weight

Net weight is the weight of a product, minus the tare.

Tare weight is the weight of a vehicle or container when it is empty. Tare weight is the weight of any container or packaging including soaker pads and the weight of any additional items that contributes to the product's total (gross) weight.

Pork Skeletal Chart

Source: Not Listed

A Consumer Guide to Identifying Retail Pork Cuts (Chart)

Source: National Pork Producers Council

American Lamb Cuts & How to Cook Them (Chart)

Source: American Lamb Board

Goat Primal Cuts (Chart)

Source: Not Listed

Goat Carcase (Chart)

Source: Not Listed

Introduction for Food Safety for Ground Beef Production

Food Safety for Ground Beef Production Lecture – 15 minutes	The student will understand that safe food handling practices and control measures are needed to increase the quality and safety of ground meat.
Hazards with ground meat products Lecture – 30 minutes	The student will understand the three food safety hazard categories: biological, physical, and chemical.
Primary Hazards Controls Lecture – 15 minutes	The student will understand the two primary hazards controls are temperature and sanitation
Grinding Lecture – 30 minutes	The student will understand the grinding process and how both sanitation and temperature impact the quality and safety of the ground meat products.
Packaging & Labeling Lecture – 15 minutes	The student will understand the requirements of packaging materials and labels.
Records Lecture – 15 minutes	The student will understand how detailed and accurate records will prove to be invaluable in the case where product needs to be recalled or if there is a foodborne illness outbreak associated with your products.
Government Sampling Lecture – 15 minutes	The student will understand the USDA sample ground beef procedures.

Introduction to Food Safety of Ground Beef Production

Methods of teaching

4 hours of class instruction on food safety of ground products. 2 hours will consist of hands on training at a food processing establishment where the students will review the procedures for the production of wholesome ground beef and record keeping.

Required Teaching Materials

Teaching Handouts, handouts on E-coli O157

Learning Objectives

Students will know and understand measures to control food safety hazards in ground beef. They shall be able to explain procedures to control E. coli O157 and why ground meat is more hazardous than whole muscle meat. They will understand the usefulness of record keeping for trace backs, recalls, and investigations.

Introduction to Food Safety for Ground Beef Production

Ground meat is of special concern. If bacteria is present on the whole muscle meat, the bacteria is distributed throughout the entire batch when it is ground. Safe food handling practices and control measures are needed to increase the quality and safety of ground meat.

Special Risks with Ground Meat

Bacteria are on carcass surfaces

When ground, surface meat becomes interior meat

Most of carcass surfaces become ground product

Bacteria such as *E. coli* can live in the intestines of animals, is carried in the manure, which is, then on the hide. During the slaughter process, the bacteria spreads and can contaminate the outside surfaces of the meat carcass. The interior of muscle meat cuts such as steaks or roasts remain essentially protected from pathogens (disease-causing organisms) they do not move into the meat. However, when meat is ground, the outside surfaces are turned in so that more of the meat is exposed to the pathogenic bacteria. In addition, it is estimated that 75% of a beef carcasses original surface area becomes beef trim that is used to make ground beef. A serving of ground beef is potentially a mixture of trim from many carcasses, thus increasing the potential for contamination. Because many beef products have not traditionally been cooked to temperatures that would kill these bacteria, the risk for foodborne illness is increased.

What's the Hazard?

Biological Hazards

Pathogenic Bacteria

Escherichia coli

0157:H7

Salmonella

Spoilage Bacteria

Do not cause illness

Result in reduced quality

Physical Hazards

Metal fragments

What are the hazards with ground meat products?

Generally, food safety hazards can be grouped into three categories; biological, physical and chemical.

Biological hazards include bacteria and viruses.

Pathogenic Bacteria are those that can cause illness in people.

Bacteria are everywhere in our environment and any food of animal origin can harbor bacteria.

The primary pathogenic bacteria that are of concern in ground meats are **Escherichia coli 0157:H7** and **Salmonella**.

Spoilage Bacteria are not harmful but will cause meat to lose quality by developing a bad odor or feeling sticky on the outside.

Physical Hazard that could occur in ground products is metal particles.

These can come from equipment used in processing or could be left from needles or buckshot from the beef carcass, although this is not common.

Escherichia coli 0157:H7

- Extremely infectious strain of *E. coli*
- Cause of many foodborne illness outbreaks
- Primary symptom bloody diarrhea
- Can progress to kidney failure and death
- Survives refrigerated and freezer temperatures
- There is a zero tolerance for the presence of this pathogen in raw ground beef

The primary food safety hazard associated with ground meat products is pathogenic bacteria and the main bacterium of concern is *E. coli*.

E. coli 0157:H7 is a certain strain of *E. coli* that is especially infectious.

Most scientists believe it takes only a small number of this strain to cause serious illness.

E. coli 0157:H7 was first recognized as a human pathogen in 1982 when two U.S. outbreaks were associated with undercooked hamburger from a fast-food restaurant chain.

A study published in 2011, an estimated 93,094 illnesses are due to domestically acquired *E. coli* O157:H7 each year in the United States. Estimates of foodborne-acquired O157:H7 cases result in 2,138 hospitalizations and 20 deaths annually.

E. coli O157:H7 infection often causes severe bloody diarrhea and stomach cramps. Usually little or no fever is present. In children under 5 years of age and the elderly, the infection can also cause a complication called hemolytic uremic syndrome, in which the red blood cells are destroyed and the kidneys fail. Symptoms usually appear 3-4 days after exposure to the bacteria, but may be as short as 1 day or as long as 10 days. (source: Hawaii Dept. of Health)

The *E. coli* bacteria survives refrigerated and freezer temperatures. Once present in food, they can multiply very slowly at temperatures as low as 44°F.

Because *E. coli* 0157:H7 poses such a serious risk to public health, USDA's Food Safety Inspection Service has declared it an adulterant in raw ground beef. This means there is a zero tolerance for the presence of this pathogen.

Primary Controls: Temperature - Sanitation

Temperature

Keep meat at 41°F or less (colder is better)

Thaw frozen products under refrigeration

Keep equipment cold! Grinding and chopping equipment add heat to the meat both by their mechanical action and the heat contained in the metal. When large pieces of meat are ground through small size holes in grinding plates the friction force increases meat temperature. Storing and using this equipment in a cold room will help to reduce temperature increases in the meat.

A controlled low temperatures is critical to maintaining the safety and quality of raw meat products and is one of the most important factors to control bacterial growth. Regulations require that meat be kept at a maximum temperature of 40°F. This is also required for all refrigerated units including walk-in coolers and retail display cases. Temperatures colder than 40°F are even better and will reduce the rate at which both spoilage and pathogenic bacteria multiply. Meat previously frozen must be thawed under refrigeration temperatures – do not thaw at room temperatures!

Sanitation

Food residue allows bacterial growth.

Grinding equipment is difficult to clean.

Clean frequently!

Bacteria can grow on any dirty food contact surface, so when equipment and utensils such as grinders, bandsaws, knives, slicers and cutting boards become smeared with food, the food smears will support bacterial growth.

Some equipment is easy to clean and to check for food residue. But grinders are difficult to thoroughly clean and must be completely disassembled. Key points to inspect and evaluate for cleanliness of a meat grinder are food contact areas including the pan, auger, auger housing (under the guard), plates and knives. Inspect internal parts for wear. Sanitation of the entire processing area is important. Regulations require that food equipment that is **not** kept in a refrigerated room at 40°F or less be cleaned at least every 4 hours. If in a cooler or chilled cutting room, equipment must still be cleaned every 24 hours. While these are the minimum frequencies required, more frequent cleaning is encouraged. Because bacteria can be transferred from one lot/batch of product that is contaminated to another lot/batch that was not contaminated, clean-up between lots will improve the isolation of the bacteria.

Another frequency issue is clean up between animal species.

All parts of the grinder must be fully broken down and cleaned so there is no cross contamination from one type of meat to another. Whether because of religious concerns, food allergy concerns or for economic reasons, consumers need to be sure that there is no pork in the ground beef they buy (or vice versa).

Sanitation improves product quality, food safety and reduces your liability.

Sanitation – Written Procedures

Sanitation Standard Operating Procedures (SSOPs):

Detailed procedures on how to clean and sanitize and properly use chemicals

A checklist of equipment to be cleaned and the frequency to be cleaned

Steps for the tear-down and re-assembly of equipment

Other equipment and facilities

Monitoring and follow-up verifications are key

Additional Sanitation Issues:

Packaging Materials - Store off the floor and covered

Employee Practices

Handwashing

Reporting employee illness

Wear clean clothes/aprons

Follow hygienic practices

Flow Diagram for Grinding Meat

Receiving Meat

Storage of Meat

Grinding

Packaging and Storage

Retail Handling

A diagram shows the flow of meat products through an establishment.

There are important points at each of these steps for controlling hazards.

Receiving Meat

Purchase from approved source

Require purchase specifications

Check condition of delivery vehicles (are they clean, do they have off odors?)

Check condition and temperature of raw meat (is the temperature 40°F or less?)

Move to refrigerated storage immediately

Storage of Meat

Rotate stock.

Monitor and record temperature of coolers.

Thaw frozen products in cooler, not at room temperature.

When meats are placed in storage, be sure they are stacked so that code dates are easy to read, and rotated so that products with the oldest codes are used first.

Monitor temperatures in all coolers.

Refrigerated product must be stored at 40°F degrees or less.

Frozen products must be maintained frozen at 0°F or colder.

Document storage temperatures by keeping records.

Records show you practice 'due diligence' – that you took every possible precaution to ensure the safety of the food product.

Frozen products that are thawed must be done by an approved method, preferably under refrigeration.

Grinding

Verify that equipment is clean prior to use.

Prevent cross contamination.

Ensure good employee practices.

During the grinding process, both sanitation and temperature impact the quality and safety of the ground meat products.

Verify that all equipment has been properly cleaned and sanitized.

Follow your established Sanitation Standard Operating Procedures – SSOPs - to be sure that all grinder parts, tubs, cutting boards, etc have been properly cleaned and sanitized and that they have been cleaned as often as required and necessary.

Control the potential for cross contamination by cleaning and sanitizing between different species of meat and also between grinding raw meat and ready-to-eat products.

Be sure equipment used to grind raw meat does not contaminate ready-to-eat foods and equipment used to handle and process it.

Be sure that employees are washing their hands properly and at the appropriate times.

Monitor and record temperature of processing room

When the grinding operations and packaging operations occur in rooms that are not cooled to 40°F or less, you must limit the amount of time that meat is allowed to stay in these areas. Monitor the finished product temperatures to ensure the meat has not moved into the temperature danger zone (41°F-140°F). Re-chill down to 40°F or less.

Develop tracking system for re-work

Develop and implement re-work and carry over procedures.

No added ingredients

Ground meat products cannot contain any other added ingredients.

Illegal additives include beef hearts, other meat species such as pork or chicken in ground beef, sodium sulfite, added blood, niacin and undeclared extenders.

Monitor fat content

Ground beef products are **not** to have added fat or added water.

Fat content cannot exceed 30%, and must be accurate on the label description.

Packaging & Labeling

Packaging materials must be approved for food contact and stored and handled to keep them sanitary

Minimum label requirements include the name of the product, name, address and zip code of the manufacturer or distributor, Establishment Number (Wholesale) and a net weight statement.

All products packaged for retail sale must be properly labeled.

There are several product names that are acceptable.

Products simply labeled Ground Beef or Hamburger must be pure beef and contain no more than 30% fat.

USDA regulations require that all raw meat products sold at retail contain the official 'Safe Handling Statements' where it is easily visible to the consumer.

It is strongly recommended to assign a production code or date and be sure that all packages are marked or coded to identify specific lots in case there is a need to conduct a recall.

A safe food handling label is information that is required on all raw or partially pre-cooked (Not ready-to eat) meat and poultry packages that will tell the consumer how to safely store, prepare and handle raw meat and poultry products in the home to avoid illness. Safe handling instructions are required on all raw pre-packaged products and on products wrapped to order from a service case. Safe handling statements are not required on seafood, fish, or cooked/ready-to-eat meats, use only on products that require it.

Records

Detailed and accurate records will prove to be invaluable in the case where product needs to be recalled or if there is a foodborne illness outbreak associated with your products.

Grind records should identify each batch or lot of ground meat; if illness or injury are indicated, then only specific lots may be implicated and more limited quantities can be recalled.

Grind records should also indicate the source of the product you grind, the grade or quality of the product, the brand and name of the supplier and the lot number.

Sanitation and temperature records can show that your company properly handled the product and took all necessary precautions. All records should be dated, filled out completely, and be signed by the person doing the monitoring and verifying.

Government Sampling

In 1994 the United States Department of Agriculture Food Safety Inspection Service began sampling and testing ground beef for *E. coli* 0157:H7.

USDA samples ground beef at wholesale and retail firms on a random basis. They collect thousands of samples annually.

If a sample is collected at your establishment, it is recommended to hold the sampled lot. USDA considers a 'lot' to be all production between complete breakdown and clean up/sanitizing of equipment. If you hold the sampled lot and it is confirmed positive for *E. coli* 0157:H7, you will not have to do a recall.

Irradiated Ground Beef

Following the FDA approval of food irradiation for beef, pork and lamb in 1997, irradiated meat processing guidelines were developed by the USDA. Consumers can buy irradiated foods in many areas of the country. Foods that have been irradiated must be identified with a statement such as ‘treated with radiation’ or ‘treated by irradiation’ as well with the radura symbol.

Irradiation can improve the quality and safety of foods by killing spoilage bacteria and pathogenic bacteria such as *E. coli 0157:H7*.

Irradiation reduces but does not kill 100% of the bacteria. So food workers and consumers must still follow safe handling and preparation guidelines to ensure food safety, such as proper cooking, hand washing, cleaning preparation surfaces often, separating foods to avoid cross contamination, cooking, and refrigeration.

Food Safety for Ground Beef Production – Final Exam

- 1) What are the 3 hazards with ground meat products?
- 2) Biological hazards include _____ and _____.
- 3) True or False
The E.coli bacteria survives refrigerated and freezer temperatures.
- 4) Primary Controls for E. coli 0157:H7 are _____ and _____.
- 5) What temperatures should raw ground meat products be stored at?
- 6) Regulations require that food equipment that is not kept in a refrigerated room at 40°F or less be cleaned _____.
- 7) Sanitation improves product quality, food safety and reduces _____.
- 8) Fat content cannot exceed ___%, and must be accurate on the label description.
- 9) Packaging materials must be approved for food contact and stored and handled to _____.
- 10) True or False
Detailed and accurate records will prove to be invaluable in the case where product needs to be recalled or if there is a foodborne illness outbreak associated with your products.

Food Safety and Ground Beef Production – Final Exam Answer Sheet

Food Safety and Ground Beef Production – Final Exam Answer Sheet

Introduction to Meat Cutting Basics

Category	Exemplary 4	Satisfactory 3	Developing 2	Beginning 1
Sanitation				
Personal Hygiene	Shows complete understanding of the requirements & procedures for personal hygiene while working in a food processing establishment.	Shows substantial understanding of the requirements & procedures for personal hygiene while working in a food processing establishment.	Shows some understanding of the requirements & procedures for personal hygiene while working in a food processing establishment.	Shows very limited understanding of the requirements & procedures for personal hygiene while working in a food processing establishment.
Hand Washing	Shows complete understanding of the requirements & procedures for hand washing while working in a food processing establishment.	Shows substantial understanding of the requirements & procedures for hand washing while working in a food processing establishment.	Shows some understanding of the requirements & procedures for hand washing while working in a food processing establishment.	Shows very limited understanding of the requirements & procedures for hand washing while working in a food processing establishment.
Lock Out /Tag Out	Shows complete understanding of the requirements & procedures for Lock Out/Tag Out on plant equipment.	Shows substantial understanding of the requirements & procedures for Lock Out/Tag Out on plant equipment.	Shows some understanding of the requirements & procedures for Lock Out/Tag Out on plant equipment.	Shows very limited understanding of the requirements & procedures for Lock Out/Tag Out on plant equipment.
Pre/Post Operational Sanitation	Shows complete understanding of the requirements & procedures for Pre/Post Operational Sanitation	Shows substantial understanding of the requirements & procedures for Pre/Post Operational Sanitation	Shows some understanding of the requirements & procedures for Pre/Post Operational Sanitation	Shows very limited understanding of the requirements & procedures for Pre/Post Operational Sanitation
GMP's	Shows complete understanding of the requirements & procedures of the plant's GMP'S	Shows substantial understanding of the requirements & procedures of the plant's GMP'S	Shows some understanding of the requirements & procedures of the plant's GMP'S	Shows very limited understanding of the requirements & procedures of the plant's GMP'S
Sanitation Practices	Shows complete understanding of the requirements & procedures for Sanitation Practices	Shows substantial understanding of the requirements & procedures for Sanitation Practices	Shows some understanding of the requirements & procedures for Sanitation Practices	Shows very limited understanding of the requirements & procedures for Sanitation Practices
Cleaning & Sanitizing	Shows complete understanding of the requirements	Shows substantial understanding of the requirements	Shows some understanding of the requirements	Shows very limited understanding of the requirements

Introduction to Meat Cutting Basics

	& procedures for Cleaning & Sanitizing.	& procedures for Cleaning & Sanitizing.	& procedures for Cleaning & Sanitizing.	& procedures for Cleaning & Sanitizing.
Cross Contamination	Shows complete understanding of the requirements & procedures to prevent cross contamination of equipment & food products	Shows substantial understanding of the requirements & procedures to prevent cross contamination of equipment & food products	Shows some understanding of the requirements & procedures to prevent cross contamination of equipment & food products	Shows very limited understanding of the requirements & procedures to prevent cross contamination of equipment & food products
Temperature Controls	Shows complete understanding of the requirements for temperature controls in a food processing plant	Shows substantial understanding of the requirements for temperature controls in a food processing plant	Shows some understanding of the requirements for temperature controls in a food processing plant	Shows very limited understanding of the requirements for temperature controls in a food processing plant
SSOPs	Shows complete understanding of the requirements & procedures of a SSOP in a food processing plant	Shows substantial understanding of the requirements & procedures of a SSOP in a food processing plant	Shows some understanding of the requirements & procedures of a SSOP in a food processing plant	Shows very limited understanding of the requirements & procedures of a SSOP in a food processing plant
Equipment Safety				
Knives & personal safety gear	Shows complete understanding of the requirements & procedures of proper use of knives & personal safety gear while working in a food processing plant.	Shows substantial understanding of the requirements & procedures of proper use of knives & personal safety gear while working in a food processing plant.	Shows some understanding of the requirements & procedures of proper use of knives & personal safety gear while working in a food processing plant.	Shows very limited understanding of the requirements & procedures of proper use of knives & personal safety gear while working in a food processing plant.
Meat Band Saw	Shows complete understanding of the requirements & procedures for the safe proper use of a meat band saw	Shows substantial understanding of the requirements & procedures for the safe proper use of a meat band saw	Shows some understanding of the requirements & procedures for the safe proper use of a meat band saw	Shows very limited understanding of the requirements & procedures for the safe proper use of a meat band saw
Meat Slicer	Shows complete understanding of the requirements & procedures for the safe proper use of a meat slicer	Shows substantial understanding of the requirements & procedures for the safe proper use of a meat slicer	Shows some understanding of the requirements & procedures for the safe proper use of a meat slicer	Shows very limited understanding of the requirements & procedures for the safe proper use of a meat slicer
Primal				

Introduction to Meat Cutting Basics

Processing				
Transporting carcasses on a rail system	Shows complete understanding of the requirements & procedures for the safe proper transport of beef carcasses on a rail/roller system	Shows substantial understanding of the requirements & procedures for the safe proper transport of beef carcasses on a rail/roller system	Shows some understanding of the requirements & procedures for the safe proper transport of beef carcasses on a rail/roller system	Shows very limited understanding of the requirements & procedures for the safe proper transport of beef carcasses on a rail/roller system
Breaking carcasses into primal sections	Shows complete understanding of the requirements & procedures for breaking beef carcasses into primal sections	Shows substantial understanding of the requirements & procedures for breaking beef carcasses into primal sections	Shows some understanding of the requirements & procedures for breaking beef carcasses into primal sections	Shows very limited understanding of the requirements & procedures for breaking beef carcasses into primal sections
Breaking primals into sub primals	Shows complete understanding of the requirements & procedures for breaking beef primals into sub primals	Shows substantial understanding of the requirements & procedures for breaking beef primals into sub primals	Shows some understanding of the requirements & procedures for breaking beef primals into sub primals	Shows very limited understanding of the requirements & procedures for breaking beef primals into sub primals
Identifying beef cuts	Shows complete understanding & knowledge of the names & origin for the different beef cuts and products	Shows substantial understanding & knowledge of the names & origin for the different beef cuts and products	Shows some understanding & knowledge of the names & origin for the different beef cuts and products	Shows very limited understanding & knowledge of the names & origin for the different beef cuts and products
Boneless Beef	Shows complete understanding of the requirements & procedures for boning out beef carcasses	Shows substantial understanding of the requirements & procedures for boning out beef carcasses	Shows some understanding of the requirements & procedures for boning out beef carcasses	Shows very limited understanding of the requirements & procedures for boning out beef carcasses
Net & Tare weights	Shows complete understanding of the requirements & procedures for net & tare weights	Shows substantial understanding of the requirements & procedures for net & tare weights	Shows some understanding of the requirements & procedures for net & tare weights	Shows very limited understanding of the requirements & procedures for net & tare weights
Ground beef				
Biological & physical hazards	Shows complete understanding of the requirements & procedures for the prevention of biological &	Shows substantial understanding of the requirements & procedures for the prevention of biological &	Shows some understanding of the requirements & procedures for the prevention of biological &	Shows very little understanding of the requirements & procedures for the prevention of biological &

Introduction to Meat Cutting Basics

	physical hazards in ground beef	physical hazards in ground beef	physical hazards in ground beef	physical hazards in ground beef
Grinding Procedures	Shows complete understanding of the requirements & procedures for producing ground beef	Shows substantial understanding of the requirements & procedures for producing ground beef	Shows some understanding of the requirements & procedures for producing ground beef	Shows very limited understanding of the requirements & procedures for producing ground beef
Fat content	Shows complete understanding of the requirements & procedures for fat content in ground beef	Shows substantial understanding of the requirements & procedures for fat content in ground beef	Shows some understanding of the requirements & procedures for fat content in ground beef	Shows very limited understanding of the requirements & procedures for fat content in ground beef
Rework	Shows complete understanding of the requirements & procedures for reworking ground beef	Shows substantial understanding of the requirements & procedures for reworking ground beef	Shows some understanding of the requirements & procedures for reworking ground beef	Shows very limited understanding of the requirements & procedures for reworking ground beef
Packaging & labeling	Shows complete understanding of the requirements & procedures packaging & labeling ground beef	Shows substantial understanding of the requirements & procedures packaging & labeling ground beef	Shows some understanding of the requirements & procedures packaging & labeling ground beef	Shows very little understanding of the requirements & procedures packaging & labeling ground beef
Temperature Controls	Shows complete understanding of the requirements & procedures for temperature controls of product and facilities	Shows substantial understanding of the requirements & procedures for temperature controls of product and facilities	Shows some understanding of the requirements & procedures for temperature controls of product and facilities	Shows very limited understanding of the requirements & procedures for temperature controls of product and facilities
Records	Shows complete understanding of the requirements & procedures for record keeping	Shows substantial understanding of the requirements & procedures for record keeping	Shows some understanding of the requirements & procedures for record keeping	Shows very little understanding of the requirements & procedures for record keeping

Other Resources

Topic	Items	Source	Total Pages
Personal Hygiene	Activities/ Charts	Pennsylvania State University: Countertop Food Safety Training Program for Employees of USDA- Inspected Egg, Meat & Poultry Establishments.	5
Personal Cleanliness	Activities/ Charts	Pennsylvania State University: Countertop Food Safety Training Program for Employees of USDA- Inspected Egg, Meat & Poultry Establishments.	2
Dress Code	Activities/ Charts	Pennsylvania State University: Countertop Food Safety Training Program for Employees of USDA- Inspected Egg, Meat & Poultry Establishments.	2
Outer Garments	Activities/ Charts	Pennsylvania State University: Countertop Food Safety Training Program for Employees of USDA- Inspected Egg, Meat & Poultry Establishments.	2
Footwear	Activities/ Charts	Pennsylvania State University: Countertop Food Safety Training Program for Employees of USDA- Inspected Egg, Meat & Poultry Establishments.	2

Headcovering	Activities/ Charts	Pennsylvania State University: Countertop Food Safety Training Program for Employees of USDA- Inspected Egg, Meat & Poultry Establishments.	2
Leaving Production Areas	Activities/ Charts	Pennsylvania State University: Countertop Food Safety Training Program for Employees of USDA- Inspected Egg, Meat & Poultry Establishments.	2
General Health & Wounds	Activities/ Charts	Pennsylvania State University: Countertop Food Safety Training Program for Employees of USDA- Inspected Egg, Meat & Poultry Establishments.	2
Eating and Drinking	Activities/ Charts	Pennsylvania State University: Countertop Food Safety Training Program for Employees of USDA- Inspected Egg, Meat & Poultry Establishments.	2
No Smoking	Activities/ Charts	Pennsylvania State University: Countertop Food Safety Training Program for Employees of USDA- Inspected Egg, Meat & Poultry Establishments.	2
Sneezing & Spitting	Activities/ Charts	Pennsylvania State University: Countertop Food Safety	2

		Training Program for Employees of USDA- Inspected Egg, Meat & Poultry Establishments.	
Jewelry	Activities/ Charts	Pennsylvania State University: Countertop Food Safety Training Program for Employees of USDA- Inspected Egg, Meat & Poultry Establishments.	2
Cosmetics, Fingernails & Polish	Activities/ Charts	Pennsylvania State University: Countertop Food Safety Training Program for Employees of USDA- Inspected Egg, Meat & Poultry Establishments.	2
Personal Items	Activities/ Charts	Pennsylvania State University: Countertop Food Safety Training Program for Employees of USDA- Inspected Egg, Meat & Poultry Establishments.	2
Lockers	Activities/ Charts	Pennsylvania State University: Countertop Food Safety Training Program for Employees of USDA- Inspected Egg, Meat & Poultry Establishments.	2
Toilet Paper	Activities/ Charts	Pennsylvania State University: Countertop Food Safety Training Program for Employees of USDA- Inspected Egg, Meat &	2

		Poultry Establishments.	
Activity: Personal Hygiene Practices	Activities/ Charts	Pennsylvania State University: Countertop Food Safety Training Program for Employees of USDA- Inspected Egg, Meat & Poultry Establishments.	14
Instructor Guide	Activities/ Charts	Pennsylvania State University: Countertop Food Safety Training Program for Employees of USDA- Inspected Egg, Meat & Poultry Establishments.	1