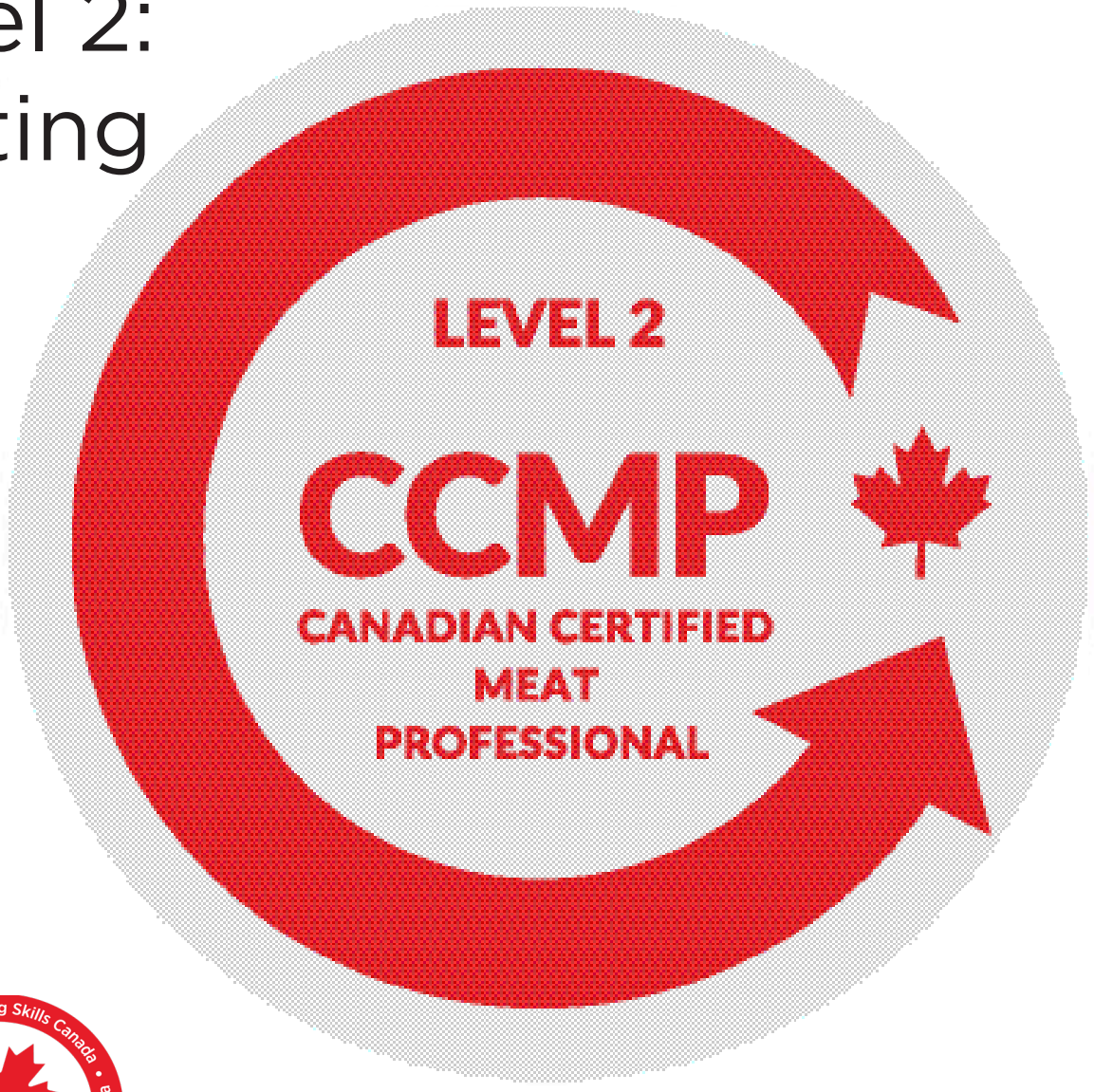
# CERTIFICATION STUDY GUIDE

# Industrial Meat Professional

## Level 2: Cutting




Food Processing Skills Canada
Compétences Transformation Alimentaire Canada

## FOOD PROCESSING SKILLS CANADA CONTACT INFORMATION

**FPSC is here to help!**

**This Study Guide covers all the information on the Canadian Certified Industrial Meat Professional (CCMP) Level 2 Certification. If you have questions after reviewing the Study Guide, please contact the FoodCert™ Team**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# INTRODUCTION

Food Processing is Canada's third largest industry, employing more than half a million people. The sector is extremely diverse, consisting of more than 5,545 firms representing various sizes, structures and subs-sectors that produce over $50 billion in annual sales. The various sub-industries of the broader food processing sector include: Animal Food Production, Grain and Oilseed, Sugar and Confectionary, Fruit and Vegetable, Dairy, Meat and Poultry, Fish and Seafood, Bakery, Beverage, Cannabis, and Other.

The Industrial Meat Professional Level 2 Certification identifies and recognizes individuals who meet a specified standard defining competence in the meat field.  A certified worker, on average, is more competent than a non-certified worker. The program is anchored in National Occupations Standards (NOS) developed by industry stakeholders. Along with information on essential skills and data derived from labour market information, the NOS define the scope of each professional domain in sufficient detail to form the basis for assessment instrument development. Standards include knowledge and performance criteria as defined and validated by the industry. They are established at an expert rather than a job-entry level. Without these standards, no certification program could be built.

This study guide was written to provide you with the knowledge you need to pass the Industrial Meat Professional Level 2 Certification.  The CCIMC Level 2 Certification gives employers a benchmark for evaluating their employee's knowledge and performance. When an applicant for a job says, "I'm CCMP Level 2 Certified", the employer can be assured that the applicants knows the fundamental CCMP Level 2 concepts. For example, a CCMP Level 2 certified worker should know the Basic Knife skills and Food Safety.

DON'T just study the questions and answers—the questions on the actual exam will be different from the practice ones included in this book and the online practice exam. The exam is designed to test your knowledge of a concept or objective, so use this book to learn the objective behind the question.

# 1. WHAT IS THE CCMP LEVEL 2 CERTIFICATION

Certification has found its way into almost every industry for a reason; it helps advance the profession. Certification helps employers evaluate potential new hires, analyze job performance, evaluate employees, select contractors, market services, and motivate employees to enhance their skills and knowledge. Certification gives recognition of competency, shows commitment to the profession, and helps with job advancement. There has been an explosive growth professional certification.

The CCMP Level 2 certification was developed by Food Processing Skills Canada (FPSC) to provide an industry-wide means of certifying the competencies of Industrial Meat Professionals. Candidates seeking certification as Level 2 Industrial Meat Professionals must successfully challenge an applied knowledge multiple-choice examination and a performance evaluation/assessment.

This Industrial Meat Professional Level 2 exam is the first step of a two-step certification process for food processing professionals who use knives and work in a meat processing environment. To qualify to write this exam, individuals must register by providing proof of completion of the CCMP level 2 certification and employment of a minimum of 1-year work experience on cutting floor using knives and power tools.

# 2. WHY BECOME CCMP LEVEL 2 CERTIFIED?

Today, it is increasingly difficult to get a job suited to your knowledge and skills. There are certain criteria that are valued more by employers than by others. Having a certificate from an organization means that you have attended the appropriate course through the approved training partners.

Food Processing Skills Canada and its FoodCert™ program provides the opportunity for prospective employers in the Food and Beverage industry to verify a worker's competencies through the FoodCert™ Passport, which is distributed to candidates after successful completion of any given certification. This brings trust and credibility to your resume and can help you get one step closer to your dream job in the industry.

- **Certification helps you get hired and allows you to grow within the company**:
  Employers looking to hire want you to have knowledge, experience and certifications in your areas of expertise.

- **Provide an incentive for learning and progression:**
  Certifications don't just separate job candidates starting out; they also demonstrate that you're committed to your profession and are willing to invest in your future. That's why employers are more likely to invest in you if you hold a certification.

- **Certification grows your skills:**
  One of the most important reasons to get certified is that it helps you stay ahead of the competition. If you truly want to succeed in your career, you need to stay current in all the technologies and regulations that affect your profession. Always keep learning and you'll have a knowledge base that will make you an asset to your employer far into the future.

# 3. HOW TO BECOME CCMP LEVEL 2 CERTIFIED?

**The Process to your CCMP Level 2 Certification:**
Earning the prestigious Canadian Certified Industrial Meat Professional (CCMP) Level 2 involves three steps:

1. Having the successful completion of the CCIMC Level 1 Certification.

2. Having the minimal amount of practical experience (1 year) and successful competion of the online exam to test knowledge.

3. Successful completion of the performance assessment/evaluation which will be conducted by a trained in-house evaluator using a smartphone, tablet or digital camera (e.g. Go Pro) technology to record the candidates carrying out the tasks. This Performance Assessment/Evaluation will be conducted after candidates have successfully completed the knowledge assessment.

**THE PROCESS**
**ONLINE EXAM + PERFORMANCE EVALUATION = CERTIFICATION**


Exam

Performance Evaluation

The second step to the two-step certification process involves the provisioning and review of a Performance Evaluation on the use of skills and practices required for the work involved in the meat processing environment. The organization evaluating participants is asked to record, survey, and evaluate the cutting practices on video in a live setting, to then provide the content to FPSC via document upload for our review and auditing before completing the certification process. FPSC can provide the organization with a Go-Pro camera rental upon request, to administer the video recording for the performance evaluations as required.

# 4. COMPETENCIES OBJECTIVES

There are two main categories and six major skill areas, from FPSC's National Occupational Standard for an Industrial Meat Cutting (IMC) professional, in which candidates will be evaluated against.

## Use Meat Cutting Techniques

### Use required cutting method

**Purpose of the Task**

To remove bones and cut carcasses into standard cuts as required by organization and/or customer orders/ specifications.

**Performance**

- Use required PPE, e.g. mesh gloves, safety glasses, mesh apron, rain gear, mesh sleeves
- Use specific equipment to debone/fabricate cuts from carcasses
- Use appropriate cutting technique for the species and organization, for example:
    - ✓ Use bone-in cutting techniques:
        - use appropriate tools, e.g. electric saws, band saws, knives, electric knives
        - fabricate cuts with bone in the cut
        - clean saw debris from meat after cutting
    - ✓ Use muscle-boning method:
        - use in conjunction with bone-in cutting techniques to break carcass into quarters
          fabricate cuts by cutting specific muscle groups off bones with a knife
          use appropriate knife type and size for animal and cutting task
    - ✓ Use on-the-rail boning method:
        - use in conjunction with bone-in and muscle
        - boning methods
        - remove muscle groups from hindquarters or sides of beef from hanging position using gravity to facilitate removal of cuts
        - use hooks to aid in removal of muscle groups
- Carry out final trimming of meat cuts on cutting table
- Place secondary materials (e.g. bone, fat, rind) in specified containers
- Sharpen and sanitize knife frequently during cutting
- Keep cutting area/table orderly
- Store or transfer in-process product to next stage, e.g. belt

**Knowledge**

- Standard Operating Procedures (SOPs)
- Good Manufacturing Practices (GMP)
- Occupational Health and Safety practices
- Knife cutting techniques and knife care
- Beef, pork, lamb, including different parts of carcass, e.g. hind quarter, front quarter
- Organization's and customers' trim and cut specifications, e.g. size, shape, amount and thickness of allowable fat layer, types and size/weight of cuts
- Secondary materials handling procedures
- Food safety standards
- Requirements for specific designations, e.g. halal, kosher, organic, gluten-free, as applicable
- Importance of meeting task completion timelines
- Process flow from start to finish:
    - ✓ impacts of preceding stage on current process stage
    - ✓ effects of current process stage on next stage

**Variables, Range of Context**

- Equipment used, for example:
    - ✓ knives and electric trimming systems
    - ✓ sharpeners
    - ✓ saws, manual and electric
    - ✓ boning hook, manual and hydraulic
    - ✓ overhead conveyor system
- Physical state of carcasses
- Size of carcasses
- Organization's and customers' cut and trim specifications
- Level of cutting required, e.g. primal cuts or sub-primal cuts
- Size of operation, e.g. amounts being processed
- Level of automation
- Equipment configuration
- Involvement in continuous improvement processes

## Size Meat Cuts

### Purpose of the Task

Cuts are trimmed of fat and sized to provide the size of primal, sub-primal and retail cuts, free of imperfections that meets organizational or customer specifications.

### Performance

- Use required PPE, e.g. mesh gloves, mesh aprons, safety glasses, bump caps
- Prepare meat cuts to weight and size specifications:
    - ✓ fabricate meat cut to size specifications
    - ✓ trim to make cuts more uniform in appearance
    - ✓ trim fat layer to specifications
- Clean edges and surfaces of meat cuts, (e.g. trim off loose skin, silverskin, sinew) on the cutting table
- Monitor process:
    - ✓ compare meat cuts to quality standards:
        - weigh meat cuts, as required
    - ✓ redirect meat cuts that do not meet specifications for reuse
    - ✓ adjust cut size as needed
- Place secondary materials (e.g. bone, fat, trim, rind) in specified containers:
    - ✓ segregate trim by percentage fat for ground meat
- Store or transfer trimmed meat cuts to next stage, e.g. belt, conveyer, slide
    - ✓ date and label, as required

### Knowledge

- Standard Operating Procedures (SOPs)
- Good Manufacturing Practices (GMP)
- Occupational Health and Safety practices
- Organization's and customers' specifications, e.g. no bone chips, no abscesses, fat layer and thickness
- Knife cutting technique and knife care
- Beef/veal, pork, lamb, as applicable
- Handling of secondary materials
- Food safety standards
- Requirements for specific designations, e.g. halal, kosher, organic, gluten-free, as applicable
- Importance of meeting task completion timelines
- Process flow, from start to finish:
    - ✓ impacts of preceding stage on current process stage
    - ✓ effects of current process stage on next stage

**Variables, Range of Context**

- Different species
- Different parts of carcass (e.g. hind quarter, front quarter) and different sizes of carcasses
- Equipment used, for example:
    - ✓ knives, manual and electric
    - ✓ sharpeners
    - ✓ saws, manual and electric trimming systems
    - ✓ boning hook, manual and hydraulic
    - ✓ overhead conveyor system
- Physical state of carcasses
- Level of cutting required, e.g. sub-primal or retail cuts
- Size of operation, e.g. amounts being processed
- Level of automation
- Equipment configuration
- Involvement in continuous improvement processes

## Shape meat cuts

**Purpose of the Task**

Shaping meat cuts creates a specific shape of meat cut to maintain its shape when deboned, and to provide a product of consistent thickness for even cooking. Shaping applies to meat products such as roasts and steaks.

**Performance**

- Use required PPE, e.g. safety footwear, bump cap, mesh gloves
- Use equipment to shape product into desired shape:
    - ✓ apply technique for shaping, for example:
        - portion cutting
        - tying with butcher's twine, using appropriate knots
- Monitor process:
    - ✓ compare meat cuts and meat products to quality standards
    - ✓ discard in-process product that does not meet specifications or recycle for reuse
    - ✓ take corrective action, if applicable
    - ✓ document actions taken
- Store or transfer in-process product to next stage, e.g. belt, conveyer, slide:
    - ✓ date and label

**Knowledge**

- Standard Operating Procedures (SOPs)
- Good Manufacturing Practices (GMP)
- Occupational Health and Safety practices
- Knife cutting techniques and knife care
- Shaping equipment operating controls, parameters, and capacity, e.g. speed
- How to calibrate and operate testing equipment
- Formula/recipe instructions
- Characteristics of end product
- Quality standards for desired form, indicators of sub-standard form, e.g. lopsided shapes
- Food safety standards
- How relationship between weight and size maximizes yield
- Requirements for specific designations, e.g. halal, kosher, organic, gluten-free, as applicable
- Importance of meeting task completion timelines
- Process flow from start to finish:
    - ✓ impacts of preceding stage on current process stage
    - ✓ effects of current process stage on next stage

**Variables, Range of Context**

- Variety of shapes and sizes of products
- Types of equipment, for example:
    - ✓ tying machine
    - ✓ knives/cutters
    - ✓ needle
    - ✓ pan boiling
- Number of products produced
- Different capacities, sizes and configurations of equipment
- Size of operation, e.g. amounts being processed
- Level of automation
- Equipment configuration
- Involvement in continuous improvement processes

## Produce Ground Meat

### Purpose of the Task

To use secondary materials such as meat trimmings and fat in addition to specific primal cuts to produce ground meat product.

### Performance

- Use required PPE, e.g. mesh gloves, safety glasses, mesh apron, rain gear, mesh sleeves
- Use meat grinder and bowl chopper to process meat:
    - ✓ select size of cutting die or blade
    - ✓ prepare batch:
        - add meat cuts and meat trim
        - calculate amount of fat based on ground meat type fat to trim ratio, if applicable
        - add specified amount and type of fat, if required
        - add seasonings and other additives, as required by formula
- Use portion mixer, e.g. weight, size, volume
- Prepare ground meat:
    - ✓ ensure uniformity of particle size, and mixture, as required
- Monitor process:
    - ✓ compare meat mixture to quality standards:
        - test in-process products, as required
        - monitor moisture content, if applicable
    - ✓ discard in-process product that does not meet specifications or recycle for reuse
    - ✓ notify appropriate personnel (e.g. supervisor, quality control) if meat product does not meet specification
    - ✓ take corrective action, if applicable
    - ✓ document actions taken
- Store or transfer ground meat product to next stage, e.g. belt, conveyer, slide
    - ✓ date and label, as required

### Knoweldge

- Standard Operating Procedures (SOPs)
- Good Manufacturing Practices (GMP)
- Occupational Health and Safety practices
- Batch formula
- Appropriate meat cuts for grinding, e.g. hind quarter, front quarter
- Applicable regulations, e.g. fat percentage
- Role of other ingredients, e.g. salt, ice, fat,

- Waste disposal procedures
- Food safety standards for preparing, and handling ground meat
- Food safety risks when grinding meat, e.g. temperature control, contamination
- Requirements for specific designations, e.g. halal, kosher, organic, gluten-free, as applicable
- Importance of meeting task completion timelines
- Process flow from start to finish:
    - ✓ impacts of preceding stage on current process stage
    - ✓ effects of current process stage on next stage

## Fabricate Meat Cuts for Beef/Veal

### Breakdown beef/veal carcass into primal cuts

**Purpose of the Task**

The purpose of breaking down the carcass is to provide marketable pieces of meat based on the muscle groupings of the animal, and end use.

**Performance**

- Use required personal protective equipment, e.g. mesh gloves, mesh aprons, safety glasses, bump caps
- Split carcass:
    - ✓ split carcass into equal sides through centre of backbone, where applicable
- Quarter sides of beef:
    - ✓ cut through 12th and 13th ribs into fore and hind quarters
    - ✓ cut straight and neatly in the inside of the carcass
    - ✓ saw through backbone to expose eye of the beef
    - ✓ keep forequarters attached until ready to move quarters to cutting table carry quarters on shoulders, placing inside up on cutting table
- Cut forequarter into:
    - ✓ square-cut chuck (chuck and blade):
        - cut between 5th and 6th ribs from back of neck, parallel with ribs
        - cut across ribs parallel with the back bone above the arm bone and fore shank joint
    - ✓ full brisket or brisket and plate:
        - cut through ribs above arm bone and fore shank joint straight up through to forequarter rib cut
    - ✓ fore shank:
        - remove lean from arm bone and fore shank joint down the leg
    - ✓ rib section:
        - cut between the 5th and 6th ribs and the forequarter rib cut, above the brisket
- Cut hindquarter into:
    - ✓ hip

- cut down through the tail bones, down around the top of the femur

✓ flank:

- cut from the scrotum or udder, in front of hind leg joint (stifle joint) to the 13th rib sirloin tip:

✓ long loin:

- cut above the pelvis to the forequarter rib break, above the flank

- Cut veal into primal cuts
  - ✓ leg, includes hind shank loin
  - ✓ flank
  - ✓ shoulder
  - ✓ rib or rack
  - ✓ fore shank
  - ✓ breast
- Place secondary materials (e.g. trim, fat, bones) in designated containers for alternative uses, for example
  - ✓ ground meat
  - ✓ by-product customers, e.g. pet food processers
  - ✓ further processing
- Clean saw debris from meat cuts
- Sharpen and sanitize knife frequently during cutting
- Keep cutting area/table orderly

**Knowledge**

- Standard Operating Procedures (SOPs)
- Good Manufacturing Practices (GMP)
- Occupational Health and Safety practices
- Appropriate PPE, e.g. mesh gloves, mesh apron, safety glasses, bump caps
- Cutting and sawing hand and power equipment use, safety features and maintenance
- Knife cutting techniques and knife care
- Lifting and conveying equipment use, e.g. restraints, conveyors, block and tackle, chains, rollers
- Secondary materials (e.g. fat, trim, silverskin) handling procedures
- Food safety standards, e.g. potential contamination and cross contamination
- Inspection regulations
- Anatomy and muscle groupings of beef and veal carcass
- Organization's and customer's trimming and cut specifications
- Importance of meeting task completion timelines
- Process flow from start to finish:
  - ✓ impact of preceding stage on current process stage
  - ✓ effects of current process stage on next stage

**Variables, Range of Context**

- Equipment used, for example:
  - ✓ knives and electric trimming systems
  - ✓ electric saws
  - ✓ rails
- Varying sizes of beef and veal
- Breakdown method, e.g. bone-in, boneless
- Organization's and customers' cut and trim specifications
- Size of operation, e.g. amounts being processed
- Level of automation
- Equipment configuration
- Involvement in continuous improvement processes

## Cut beef/veal sub-primal cuts

**Purpose of the Task**

The purpose of breaking down the primal cuts is to provide marketable meat portions based on the muscle groupings of the animal and end use.

**Performance**

- Use required personal protective equipment, e.g. mesh gloves, mesh aprons, safety glasses, bump-caps
- Break down brisket into sub-primal cuts:
  - ✓ remove brisket rib and sternum bones to form:
    - brisket
    - shank, also known as shin, shin meat, and shin shank
    - gambrel cord, also known as Achilles tendon or calchoneal tendon
- Break down square-cut chuck into sub-primal cuts:
  - ✓ cut across the bottom of the fore shank side to form shoulder arm sub-primal cut
  - ✓ separate spine at base of neck down towards the fore shank to form the neck sub-primal cut
  - ✓ cut remainder of square-cut chuck into following sub-primals:
    - boneless blade, also known as chuck roll or bottom blade
    - chuck tender, also known as mock tender, Scotch tender or top blade
    - flat iron, also known as top blade or oyster blade
    - shoulder clod, also known as long cut clod, short cut clod, clod heart or boneless cross rib
    - clod tender, also known as shoulder tender or shoulder petite tender
    - pectoral
    - chuck short ribs, also known as chuck flap (boneless), chuck flat (boneless) or chuck meat square (boneless)

- Cut rib into sub-primal cuts:
    - ✓ cut across the bottom of the rib primal cut to form short rib and 7-bone rib primal cuts:
        - rib, also known as oven ready rib, bone-in lip-on rib, or fat cap off rib
        - rib, export style; rib eye, lip on; or rib eye roll
        - blade meat, also known as lifter meat, false lean, wedge meat, or cap meat
        - back ribs that may include ribs 6 through 12
        - short ribs
- Cut long loin into:
    - ✓ strip loin
    - ✓ tenderloin
    - ✓ sirloin butt
    - ✓ short loin
    - ✓ top sirloin, also known as top butt, or rump heart
    - ✓ top sirloin cap, also known as culotte, or rump cap
    - ✓ bottom sirloin tri tip, also known as Triangle, knuckle cap, or rump tail
    - ✓ bottom sirloin flap, also known as steak tails
- Cut hip into:
    - ✓ sirloin tip, also known as thick flank
    - ✓ eye of round
    - ✓ outside round gooseneck, also known as bottom round gooseneck, silverside
    - ✓ outside flat, also known as bottom round, or bottom flat
    - ✓ inside round, also known as top round, or topside
    - ✓ rump
    - ✓ heel
    - ✓ shank/knuckle
    - ✓ inside round
    - ✓ outside round
- Trim flank to specifications
- Trim sirloin tip to specifications
- Place secondary materials (e.g. trim, fat) in designated containers for alternative uses
- Sharpen and sanitize knife frequently during cutting
- Keep cutting area/table orderly

**Knowledge**

- Standard Operating Procedures (SOPs)
- Good Manufacturing Practices (GMP)
- Occupational Health and Safety practices

- Cutting risks and mitigation strategies
- Appropriate PPE, e.g. mesh gloves, mesh apron, safety glasses, bump caps
- Cutting and sawing hand and power equipment use, safety features and maintenance
- Knife cutting techniques and knife care
- Lifting and conveying equipment use, e.g. restraints, conveyors, block and tackle, chains, rollers
- Secondary materials (e.g. fat trim, silverskin) handling procedures
- Food safety standards, e.g. potential contamination and cross contamination
- Inspection regulations
- Anatomy and muscle groupings of beef and veal carcass
- Organization's and customers' trimming and cut specifications
- Importance of meeting task completion timelines
- Process flow from start to finish:
    - ✓ impact of preceding stage on current process stage
    - ✓ effects of current process stage on next stage

**Variables, Range of Context**

- Equipment used, for example:
    - ✓ knives and electric trimming systems
    - ✓ electric saws
    - ✓ rails
- Varying sizes of animals
- Breakdown method, e.g. bone-in, boneless
- Organization's and customers' cut and trim specifications
- Size of operation, e.g. amounts being processed
- Level of automation
- Equipment configuration
- Involvement in continuous improvement processes

## Cut beef/veal retail cuts

**Purpose of the Task**

The purpose of breaking down the sub-primal cuts is to provide marketable meat portions based on the muscle groupings of the animal and end use.

**Performance**

- Use required personal protective equipment, e.g. mesh gloves, mesh aprons, safety glasses, bumpcaps

- Cut retail cuts and trim fat to organization's or customer's specifications
- Cut at appropriate break points, e.g. between specific ribs, at specific joints
- Cut across grain of meat when possible
- Cut in sequence according to method used, e.g. bone-in method, muscle boning method, on-the-rail boning method.
- Use appropriate tools for cutting method, e.g. knives, hooks, electric knives and saws
- Break down beef sub-primals into beef retail cut options:
    - ✓ sirloin tip:
        - sirloin tip oven roast
        - sirloin tip fast fry steak
        - sirloin tip marinating steak
    - ✓ eye of round:
        - eye of round marinating steak
        - eye of round fast fry steak
    - ✓ outside round:
        - outside round roast
        - outside round steak
        - outside round fast fry steak
    - ✓ inside round:
        - inside round oven roast
        - inside round steak
        - inside round fast fry steak
        - inside round roulade
    - ✓ boneless hip:
        - round marinating steak
        - hip of round oven roast
        - hip fast fry minute steak
        - hip marinating cubes
    - ✓ flank:
        - flank marinating steak
    - ✓ plate:
        - inside skirt
        - outside skirt
        - skirt marinating steak
    - ✓ brisket:
        - brisket pot roast, boneless
        - brisket simmering steak country style
    - ✓ foreshank:
        - stewing beef
    - ✓ bottom sirloin tri-tip:

- bottom sirloin tritip oven roast
- bottom sirloin tritip grilling steak

✓ bottom sirloin ball tip:
- bottom sirloin roast
- bottom sirloin fast fry steak
- bottom sirloin marinating steak

✓ top sirloin cap:
- top sirloin steak

✓ top sirloin:
- top sirloin oven roast
- top sirloin grilling steak

✓ tenderloin:
- butt tenderloin
- tenderloin oven roast
- tenderloin grilling steak

✓ strip loin:
- porterhouse grilling steak
- porterhouse fast fry steak
- Tbone grilling steak
- Tbone fast fry steak

✓ rib:
- short ribs
- beef grilling back ribs

✓ rib eye:
- rib eye premium oven roast
- rib eye grilling steak

✓ oven ready rib:
- prime rib premium oven roast, boneless
- prime rib premium oven roast
- prime rib grilling steak
- rib cap off grilling steak

✓ shoulder clod:
- cross rib pot roast, boneless
- cross ribs simmering steak, boneless

✓ cross rib:
- cross rib simmering steak
- cross rib marinating cross ribs

✓ boneless top blade:
- top blade simmering steak
- top blade pot roast

✓ boneless bottom blade:
- bottom blade pot roast, boneless
- bottom blade simmering steak, boneless
- stewing beef

✓ blade:
- blade pot roast
- blade simmering steak

• Break down veal sub-primals into veal retail cut options:

✓ top round (inside round):
- cutlets
- medallions (inside round)
- roast (inside round)

✓ bottom round (outside round):
- cutlets
- medallions (outside round)
- roast (outside round)

✓ knuckle sirloin tip:
- cutlets
- slices (sirloin tip)

✓ boneless, sirloin butt:
- cutlets
- medallions (sirloin butt)
- roast (sirloin butt)
- steak (sirloin butt)

✓ eye of round:
- medallions (eye of round)

✓ shank:
- hind shank or front shank for osso buco
- centre cut hind or front shank

✓ butt tenderloin:
- tenderloin slices
- tied tenderloin butt roast

✓ rib (rack):
- boneless rib chop
- frenched rib chop
- hotel rack, chop ready frenched rib
- rib chop
- rib roast

✓ flank:
- flank rolled

✓ short loin (trimmed):
- loin, tbone steak
- rib, wing steak
- strip loin
- strip loin roast

✓ short tenderloin (tip):
- tournedos (tenderloin)

✓ bone-in and boneless blade cuts:
- boneless shoulder blade roast
- shoulder blade roast

✓ shoulder cuts:
- boneless shoulder clod roast
- cross rib roast

• Place secondary materials (e.g. trim, abdominal/caul fat) in designated containers for alternative uses
• Sharpen and sanitize knife frequently during cutting
• Keep cutting area/table orderly

**Knowledge**

• Standard Operating Procedures (SOPs)
• Good Manufacturing Practices (GMP)
• Occupational Health and Safety practices
• Cutting risks and mitigation strategies
• Appropriate PPE, e.g. mesh gloves, mesh apron, safety glasses, bump caps
• Cutting and sawing hand and power equipment use, safety features and maintenance
• Knife cutting techniques and knife care
• Secondary material (e.g. fat trim, silver skin) handling procedures
• Food safety standards, e.g. potential contamination and cross contamination
• Inspection regulations
• Anatomy and muscle groupings of beef and veal carcass
• Organization's and customers trimming and retail cut specifications
• Appropriate cooking methodology for each cut
• Importance of meeting task completion timelines
• Process flow from start to finish:
✓ impact of preceding stage on current process stage
✓ effects of current process stage on next stage

**Variables, Range of Context**

• Equipment used, for example:
✓ knives and electric trimming systems

  - ✓ electric saws
  - ✓ rails
- Varying sizes of animals
- Breakdown method, e.g. bone-in, boneless
- Organization's and customers' cut and trim specifications
- Size of operation, e.g. amounts being processed
- Level of automation
- Equipment configuration
- Involvement in continuous improvement processes

## Fabricate Meat Cuts for Pork

### Breakdown pork carcass into primal cuts

**Purpose of the Task**

The purpose of breaking down the carcass is to provide marketable pieces of meat based on the muscle groupings of the animal, its tenderness and end use.

**Performance**

- Use required personal protective equipment, e.g. mesh gloves, mesh aprons, safety glasses, bump caps
- Halve carcass:
  - ✓ saw carcass into equal sides through centre of backbone
- Place rind side on cutting table, inside facing up:
  - ✓ remove or leave on skin depending on specifications and designated use, e.g. smoking/curing
- Cut to gain maximum muscle primal
- Cut according to organization's or customers' trim and cut specifications
- Cut in sequence according to method used, e.g. bone-in method, primal boning method, on-the-rail boning method, where applicable
- Cut leg or ham:
  - ✓ remove hind foot sawing through first joint at right angles
  - ✓ cut long or short hams as specified by customer
  - ✓ remove tail bone
- Remove jowl from shoulder at half moon shape
- Cut shoulder:
  - ✓ remove shoulder by cutting at the shoulder joint
  - ✓ remove forefoot by sawing through first joint and hock
- Cut middle portion of hog into loin and belly primals using rotating saw
- Remove backfat according to organization's or customers' specifications
- Place secondary materials (e.g. trim, fat, bones) in designated containers for alternative uses

- Clean saw debris from meat cuts, if applicable
- Sharpen and sanitize knife frequently during cutting
- Keep cutting area/table orderly

**Knowledge**

- Standard Operating Procedures (SOPs), including Standard Work Instructions (SWIs)
- Good Manufacturing Practices (GMPs)
- Occupational Health and Safety practices
- Cutting risks and mitigation strategies
- Appropriate PPE, e.g. mesh gloves, mesh apron, safety glasses, bump cap
- Cutting and sawing hand and power equipment use, safety features and maintenance
- Knife cutting techniques and knife care
- Lifting and conveying equipment use, e.g. conveyors, chains, rollers
- Secondary materials (e.g. silverskin, split skin, bone chips, bruises) handling procedures
- Food safety standards, e.g. potential contamination and cross contamination
- Inspection regulations
- Anatomy and muscle groupings of pork carcass
- Organization's and customer's trimming and cut specifications
- Importance of meeting task completion timelines
- Process flow from start to finish:
    - ✓ impact of preceding stage on current process stage
    - ✓ effects of current process stage on next stage

**Variables, Range of Context**

- Equipment used, for example:
    - ✓ knives and electric knives
    - ✓ electric saws
- Varying sizes of pigs
- Breakdown method, e.g. bone-in, boneless
- Organization's and customers' cut and trim specifications
- Size of operation, e.g. amounts being processed
- Level of automation
- Equipment configuration
- Involvement in continuous improvement processes

**Glossary**

Silverskin - sinew/connective tissue located on the outside of muscles that connects to the inside muscles of the ham

## Cut pork sub-primal cuts

### Purpose of the Task

The purpose of breaking down the primal cuts is to provide marketable portions cut to organization's standards.

### Performance

- Use required personal protective equipment, e.g. mesh gloves, mesh aprons, safety glasses, bump caps
- Cut sub-primal cuts according to organization's or customer specifications
- Cut at appropriate break points, e.g. between specific ribs, at specific joints
- Cut in sequence according to method used, e.g. bone-in method, muscle boning method
- Use appropriate tools for cutting method, e.g. knives, hooks, electric knives and saws
- Breakdown pork ham into inside, outside, and knuckle ham sub-primal muscle cuts
- Cut pork shoulder into sub-primal picnic, butt and hock:
    - ✓ Cut pork hock off at the leg joint
    - ✓ split shoulder into butt and picnic by cutting along the main artery vein (1/2 away from saw blade)
    - ✓ remove skin/rind from picnic with skinning machine or with manual or electric knife
    - ✓ remove rind from butt with skinning machine or with manual or electric knife
- Cut belly and pork side ribs sub-primal cuts:
    - ✓ cut closely under the side ribs to separate the pork side ribs from the belly
    - ✓ remove belly rind with skinning machine
- Trim fat, gland tissue and membrane from tenderloin
- Trim fat to organization's or customer's specifications, e.g. trim loin to fat cover
- Place secondary materials (e.g. trim, fat) in designated containers for alternative uses
- Sharpen and sanitize knife frequently during cutting
- Keep cutting area/table orderly

### Knowledge

- Standard Operating Procedures (SOPs)
- Good Manufacturing Practices (GMP)
- Occupational Health and Safety practices
- Cutting risks and mitigation strategies
- Appropriate PPE, e.g. mesh gloves, mesh apron, safety glasses, bump cap
- Cutting and sawing hand and power equipment use, safety features and maintenance
- Knife cutting techniques and knife care
- Lifting and conveying equipment use, e.g. conveyors, rollers
- Secondary materials (e.g. fat, trim, silverskin, split skin) handling procedures
- Food safety standards, e.g. potential contamination and cross contamination

- Inspection regulations
- Anatomy and muscle groupings of pork carcass
- Organization's and customers' trimming and cut specifications
- Importance of meeting task completion timelines
- Process flow from start to finish:
    - ✓ impact of preceding stage on current process stage
    - ✓ effects of current process stage on next stage

**Variables, Range of Context**

- Equipment used, for example:
    - ✓ knives, manual and electric
    - ✓ electric saws
- Varying sizes of pigs
- Breakdown method, e.g. bone-in, boneless
- Organization's and customers' cut and trim specifications
- Size of operation, e.g. amounts being processed
- Level of automation
- Equipment configuration
- Involvement in continuous improvement processes

**Glossary**

Silverskin - sinew/connective tissue located on the outside of muscles that connects to the inside muscles of the ham

## Cut pork retail cuts

**Purpose of the Task**

The purpose of breaking down the primal cuts is to provide marketable meat products that meet customers' specifications.

**Performance**

- Use required personal protective equipment, e.g. mesh gloves, mesh aprons, safety glasses, bump caps
- Cut to gain maximum muscle primal
- Cut meat and trim fat to customers' specifications
- Cut at appropriate break points, e.g. between specific ribs, at specific joints
- Cut in sequence according to method used, e.g. bone-in method, muscle boning method
- Use appropriate tools for cutting method, e.g. knives, hooks, electric knives and saws
- Remove tenderloin from loin

- Pull the skirt meat
- Remove membrane from inside, outside and knuckle ham muscles
- Cut hams to organization's or customers' specifications, for example:
    - ✓ Tunnel hams - boned and trimmed
    - ✓ 80 day hams - boned and trimmed used for curing
    - ✓ Boneless C105+ hams
- Cut pork sirloin into:
    - ✓ pork sirloin roast
    - ✓ pork sirloin roast, boneless
- Cut pork loin centre into:
    - ✓ pork loin centre cuts:
        - x1/2
        - 1/8x 0
        - center cut main muscle
        - long cuts
        - long cuts in half
        - main muscle
        - Japan special muscle
        - pork loin centre chop
- Cut pork rib into:
    - ✓ pork back rib
    - ✓ pork rib end, country style
- Cut pork shoulder into:
    - ✓ pork shoulder picnic, e.g. 90% lean picnic
    - ✓ pork shoulder picnic, boneless
    - ✓ boneless butt
    - ✓ K-butt
    - ✓ extra lean boneless butt
    - ✓ NY shoulders, boneless
    - ✓ pork shoulder blade
    - ✓ capicola butt, boneless, netted
    - ✓ collar butt
    - ✓ pork jowl steak, sliced for shabu shabu hotpot
    - ✓ pork jowl steak, sliced for yakiniku barbeque
- Cut belly into:
    - ✓ pork side ribs
    - ✓ pork side ribs, sweet and sour cut
    - ✓ pork side ribs, St. Louie cut
    - ✓ pork side ribs, beast bone removed
    - ✓ pork shoulder riblet
    - ✓ single rib bellies

  - ✓ square cut bellies
  - ✓ trimmed bellies
  - ✓ Japan bellies
  - ✓ pork loin back ribs
  - ✓ pork side ribs and belly
- Place secondary materials (e.g. trim, fat, pork neck, jowl, tail, foot and hock) in designated containers for alternative uses
- Sharpen and sanitize knife frequently during cutting
- Keep cutting area/table orderly

**Knowledge**

- Standard Operating Procedures (SOPs)
- Good Manufacturing Practices (GMP)
- Occupational Health and Safety practices
- Cutting risks and mitigation strategies
- Appropriate PPE, e.g. mesh gloves, mesh apron, safety glasses, bump cap
- Cutting and sawing hand and power equipment use, safety features and maintenance
- Knife cutting techniques and knife care
- Lifting and conveying equipment use, e.g. conveyors, chains, rollers
- Secondary materials (e.g. fat, trim, silverskin, bones, rind) handling procedures
- Food safety standards, e.g. potential contamination and cross contamination
- Inspection regulations
- Anatomy and muscle groupings of pork carcass
- Organization's and customers' trimming and cut specifications
- Appropriate cooking methods for retail cuts
- Importance of meeting task completion timelines
- Process flow from start to finish:
  - ✓ impact of preceding stage on current process stage
  - ✓ effects of current process stage on next stage

**Variables, Range of Context**

- Equipment used, e.g. manual and electric knives
- Varying sizes of pigs
- Breakdown method, e.g. bone-in, boneless
- Cut specifications
- Trim specifications
- Size of operation, e.g. amounts being processed
- Level of automation
- Equipment configuration

- Involvement in continuous improvement processes

**Glossary**

Silverskin: sinew/connective tissue located on the outside of muscles that connects to the inside muscles of the ham

## Fabricate Meat Cuts for Lamb

### Breakdown lamb carcass into primal cuts

**Purpose of the Task**

The purpose of breaking down the carcass is to provide marketable meat portions based on the cuts, their tenderness and end use.

**Performance**

- Use required personal protective equipment, e.g. mesh gloves, mesh aprons, safety glasses, bump caps
- Cut across grain of meat when possible
- Use electric saw or knife, depending on cutting method
- Cut primal cuts at break points
- Cut and trim fat according to organization's or customer's specifications
- Cut in sequence according to method used, e.g. bone-in method, muscle boning method
- Cut front/shoulder primal cut:
    - ✓ cut between the fifth and sixth rib or customer specification
- Cut lamb long cut leg:
    - ✓ cut in front of hip bones to separate long leg primal cuts from loin or customer specification
- Cut loin primal cut:
    - ✓ cut between the 12th and 13th rib or customer specifications
- Cut off flank and breast
    - ✓ Remove thin cuts:
        - cut lean meat from flank, breast, and foreleg
- Place secondary materials (e.g. trim, fat, bones) in designated containers for alternative uses, for example:
    - ✓ ground meat
    - ✓ by-product customers, e.g. pet food processers
    - ✓ further processing
- Clean saw debris from meat cuts
- Sharpen and sanitize knife frequently during cutting
- Keep cutting area/table orderly

**Knowledge**

- Standard Operating Procedures (SOPs)
- Good Manufacturing Practices (GMP)
- Occupational Health and Safety practices
- Cutting risks and mitigation strategies
- Appropriate PPE, e.g. mesh gloves, mesh apron, safety goggles, bump cap
- Cutting and sawing hand and power equipment use, safety features and maintenance
- Knife cutting techniques and knife care
- Lifting and conveying equipment use, e.g. restraints, conveyors, block and tackle, chains, rollers
- Secondary materials (e.g. fat trim, silverskin) handling procedures
- Food safety standards, e.g. potential contamination and cross contamination
- Inspection regulations
- Anatomy and muscle groupings of lamb carcass
- Organization's and customers' trimming and cut specifications
- Importance of meeting task completion timelines
- Process flow from start to finish:
    - ✓ impact of preceding stage on current process stage
    - ✓ effects of current process stage on next stage

**Variables, Range of Context**

- Equipment used, for example:
    - ✓ knives and electric trimming systems
    - ✓ electric saws
    - ✓ rails
- Varying sizes of animals
- Similar types of animals, e.g. small deer, goat, sheep
- Breakdown method, e.g. bone-in, boneless

- Organization's and customers' cut and trim specifications
- Size of operation, e.g. amounts being processed
- Level of automation
- Equipment configuration
- Involvement in continuous improvement processes

## Cut lamb retail cuts

### Purpose of the Task

The purpose of breaking down the primal cuts into retail cuts is to provide marketable, value-added meat portions based on the cut, their tenderness and end use.

### Performance

- Use required personal protective equipment, e.g. mesh gloves, mesh aprons, safety glasses, bumpcaps
- Cut across grain of meat when possible
- Cut lamb retail cuts:
    - ✓ trim fat from sub-primal cuts to specifications
    - ✓ cut retail cuts according to industry standards or customer specifications:
        - cut at appropriate break points, e.g. between specific ribs, at specific joints
    - ✓ cut in sequence according to method used, e.g. bone-in method, muscle boning method
    - ✓ use appropriate tools for cutting method, e.g. knives, hooks, electric knives and saws
- Cut front and flank into:
    - ✓ boneless rolled flank roast
    - ✓ flank side rib
    - ✓ fore shank arm side
    - ✓ frenched fore leg
- Cut shoulder into:
    - ✓ arm chop
    - ✓ blade chops
    - ✓ bone-in shoulder roast
    - ✓ neck slice
    - ✓ shoulder roast, boneless
- Cut rib into:
    - ✓ single rib chops
    - ✓ Frenched rib chop
    - ✓ rack of lamb
    - ✓ crown roast
    - ✓ rack of lamb, double Frenched, Frenched rack
    - ✓ rib roast, 8-rib rack
    - ✓ rib roast 14 rib, Frenched hotel rack
- Cut loin into:
    - ✓ loin noisettes
    - ✓ loin chops
    - ✓ double loin chops
    - ✓ boneless loin

- ✓ butterfly loin, boneless
- ✓ tenderloin
- ✓ butterfly loin, boneless
- ✓ boneless double loin roast

• Cut lamb leg into:

- ✓ sirloin chops, bone-in
- ✓ boneless leg roast
- ✓ boneless leg, butterflied leg of lamb
- ✓ Frenched shank roast
- ✓ boneless sirloin steaks
- ✓ centre slice leg steak
- ✓ Frenched long leg
- ✓ short cut leg

• Prepare special cuts, e.g. spedini
• Place secondary materials (e.g. trim, fat) in designated containers for alternative uses
• Sharpen and sanitize knife frequently during cutting
• Keep cutting area/table orderly

**Knowledge**

• Standard Operating Procedures (SOPs)
• Good Manufacturing Practices (GMP)
• Occupational Health and Safety practices
• Cutting risks and mitigation strategies
• Appropriate PPE, e.g. mesh gloves, mesh apron, safety goggles, bump cap
• Cutting and sawing hand and power equipment use, safety features and maintenance
• Knife cutting techniques and knife care
• Lifting and conveying equipment use, e.g. restraints, conveyors, block and tackle, chains, rollers
•. Secondary materials (e.g. fat, trim, silverskin) handling procedures
• Food safety standards, e.g. potential contamination and cross contamination
• Anatomy and muscle groupings of lamb carcass
• Organization's and customers' trimming and cut specifications
• Appropriate cooking methods for cuts of lamb
• Importance of meeting task completion timelines
• Process flow from start to finish:

- ✓ impact of preceding stage on current process stage
- ✓ effects of current process stage on next stage

**Variables, Range of Context**

- Equipment used, for example:
  - ✓ knives, manual and electric
  - ✓ electric saws
  - ✓ rails
- Varying sizes of animals
- Similar types of animals, e.g. deer, goat, sheep
- Breakdown method, e.g. bone-in, boneless
- Organization's and customers' cut and trim specifications
- Size of operation, e.g. amounts being processed
- Level of automation
- Equipment configuration
- Involvement in continuous improvement processes

## Fabricate Meat Cuts for Farmed Game Animals

### Breakdown farmed games carcass into primal cuts

**Purpose of the Task**

The purpose of breaking down the carcass is to provide marketable pieces of meat based on the muscle groupings of the animal, the tenderness of the muscle grouping, and end use. Game animals would include large deer, moose, elk, caribou and boar.

**Performance**

- Use required personal protective equipment, e.g. mesh gloves, mesh aprons, safety glasses, bump caps
- Cut across grain of meat when possible
- Halve carcass:
  - ✓ saw carcass into equal sides through centre of backbone
- Quarter sides of game animal:
  - ✓ cut through lower ribs to divide side into fore and hind quarters
  - ✓ cut straight and neatly in the inside of the carcass
  - ✓ carry quarters on shoulders, placing inside up on cutting table or leave on rail
- Cut primal cuts of game animal:
  - ✓ trim fat and connective tissue from quarters/cuts to specifications
  - ✓ cut primal cuts at break points
  - ✓ cut according to industry standards or customer specifications

- ✓ cut in sequence according to method used, e.g. bone-in method, muscle boning method, on-the-rail boning
- ✓ method

- Cut game into primal cuts:
  - ✓ remove tenderloin
- Cut forequarter into:
  - ✓ neck
    - cut at base of neck
  - ✓ shoulder:
    - cut between ribs from back of neck, parallel with ribs
    - cut across ribs parallel with the back bone above the arm bone and fore shank joint
  - ✓ fore shank:
    - remove lean from arm bone and fore shank joint down the leg
  - ✓ ribs:
    - cut between the 5th and 6th ribs (depending on the size of the animal) and the forequarter rib cut, above the brisket
  - ✓ loin
    - cut between the 10th and 11th ribs, depending on the size of the animal
- Cut hindquarter into:
  - ✓ rump:
    - cut down through the tail bones, down around the top of the femur
  - ✓ sirloin tip:
    - cut down separating the pelvis and spine to the flank
  - ✓ round:
    - cut above the pelvis to the forequarter rib break, above the flank
- Cut boar into primal cuts as for pork
- Cut small deer into primal cuts as per lamb
- Keep rabbit whole or manually cut
- Clean saw debris from meat cuts
- Sharpen and sanitize knife frequently during cutting
- Keep cutting area/table orderly

**Knowledge**

- Standard Operating Procedures (SOPs)
- Good Manufacturing Practices (GMP)
- Occupational Health and Safety practices
- Cutting risks and mitigation strategies
- Appropriate PPE, e.g. mesh gloves, mesh apron
- Cutting and sawing hand and power equipment use, safety features and maintenance
- Knife cutting techniques and knife care
- Lifting and conveying equipment use, e.g. restraints, conveyors, block and tackle, chains, rollers

- Secondary materials (e.g. fat, trim, silverskin) handling procedures
- Food safety standards, e.g. potential contamination and cross contamination
- Inspection regulations
- Anatomy and muscle groupings of deer species, elk, moose, boar, rabbit
- Organization's and customers' trimming and cut specifications
- Importance of meeting task completion timelines
- Process flow from start to finish:
    - ✓ impact of preceding stage on current process stage
    - ✓ effects of current process stage on next stage

**Variables, Range of Context**

- Different types of game animals
- Equipment used, for example:
    - ✓ knives, manual and electric
    - ✓ electric saws
    - ✓ rails
- Varying sizes of game animals of the same species and different species
- Breakdown method, e.g. bone-in, boneless
- Organization's and customers' cut and trim specifications
- Size of operation, e.g. amounts being processed
- Level of automation
- Equipment configuration
- Involvement in continuous improvement processes

## Cut farmed game into retail cuts

**Purpose of the Task**

The purpose of breaking down the primal cuts is to provide marketable portions of meat based on the muscle groupings of the animal, its tenderness and end use.

**Performance**

- Use required personal protective equipment, e.g. mesh gloves, mesh aprons, safety glasses, bump caps
- Cut retail cuts and trim fat to organization's or customer's specifications
- Cut at appropriate break points, e.g. between specific ribs, at specific joints
- Cut across grain of meat when possible
- Cut in sequence according to method used, e.g. bone-in method, muscle boning method, on-the-rail boning method
- Use appropriate tools for cutting method, e.g. knives, hooks, electric knives and saws

- Cut game into retail cuts:
  - ✓ cut tenderloin into medallions or leave whole, depending on size of animal and desired end use
- Cut neck into:
  - ✓ small roasts
  - ✓ stewing meat
  - ✓ trim for ground meat
- Cut shoulder into:
  - ✓ roasts
  - ✓ trim for ground meat
- Cut fore shank and hind shank into:
  - ✓ stewing meat
  - ✓ trim for ground meat
- Cut rib meat:
  - ✓ into 57 inch pieces, 2-4 ribs wide for barbequing or into shorter pieces for stew
  - ✓ off bones and use for ground meat
- Cut loin into:
  - ✓ steaks
  - ✓ chops
  - ✓ roasts
- Cut flank into:
  - ✓ steaks, for larger animals
  - ✓ trim for ground meat
- Cut rump into:
  - ✓ roasts
- Cut sirloin tip:
  - ✓ steaks
  - ✓ roasts
- Cut round:
  - ✓ steaks
  - ✓ roasts
  - ✓ strips for jerky
- Cut large game into retail cuts:

✓ cut tenderloin into medallions/filets or leave whole, depending on size of animal and desired end use

  - ✓ cut neck into:
    - small roasts
    - stewing meat
    - trim for ground meat
- Cut shoulder into:
  - ✓ shoulder clod
  - ✓ top blade roast
  - ✓ chuck roll, tied chuck roast
  - ✓ cross rib roast

- Cut fore shank and hind shank into:
    - ✓ osso bucco
    - ✓ trim for ground meat
- Saddle:
    - ✓ rib steaks boneless
    - ✓ rib steaks bonein
    - ✓ tbone steaks
    - ✓ prime rib
    - ✓ rib, French rack
    - ✓ striploin steak
    - ✓ short loin
    - ✓ flank steak
- Cut hindquarter into:
    - ✓ roast
    - ✓ stewing meat
    - ✓ outside round silverside
    - ✓ boneless hip
    - ✓ sirloin tip roast
    - ✓ inside round roast
    - ✓ outside round, eye removed
- Cut boar into retail cuts as for pork
- Cut small deer into retail cuts as per lamb
- Place secondary materials (e.g. trim, fat, bones) in designated containers for alternative uses, e.g. ground meat, further processing
- Sharpen and sanitize knife frequently during cutting
- Keep cutting area/table orderly

**Knowledge**

- Standard Operating Procedures (SOPs)
- Good Manufacturing Practices (GMP)
- Occupational Health and Safety procedures
- Cutting risks and mitigation strategies
- Appropriate PPE, e.g. mesh gloves, mesh apron, safety glasses, bump caps
- Cutting and sawing hand and power equipment use, safety features and maintenance
- Knife cutting techniques and knife care
- Lifting and conveying equipment use, e.g. shackles, conveyors, block and tackle, chains, rollers
- Secondary materials (e.g. fat, trim, silverskin) handling procedures
- Food safety standards, e.g. potential contamination and cross contamination
- Inspection regulations
- Anatomy and muscle grouping of game animals, e.g. elk, deer, moose

- Food safety standards, e.g. potential contamination and cross contamination
- Inspection regulations
- Anatomy and muscle grouping of game animals, e.g. elk, deer, moose,
- Organization's and customers' trimming and cut specifications
- Appropriate cooking methodologies for retail cuts
- Importance of meeting task completion timelines
- Process flow from start to finish:
    - ✓ impact of preceding stage on current process stage
    - ✓ effects of current process stage on next stage

**Variables, Range of Context**

- Different types of animals
- Varying sizes of animals
- Equipment used, for example:
    - ✓ knives, manual and electric
    - ✓ electric saws
    - ✓ rails
- Breakdown method, e.g. bone-in, boneless
- Organization's and customers' cut and trim specifications
- Size of operation, e.g. amounts being processed
- Level of automation
- Equipment configuration
- Involvement in continuous improvement processes

## Equipment and Tools

### Operate Food Processing Equipment

### Conduct pre-operation check on food processing equipment

**Purpose of the Task**

Before even starting the equipment, it is important to ensure that the equipment is ready to be energized in order to prevent damage. This preventative measure can prevent problems occurring when the equipment is operating and ensure the equipment is safe and sanitary for operation.

**Performance**

- Use required PPE, e.g. safety glasses, safety footwear, mesh gloves
- Check that equipment safety controls are in place and working properly
- Conduct pre-operation check using checklist, if applicable
- Check operational functions, for example:
    - ✓ control valves are working properly

  - ✓ level probes are operational
  - ✓ oil levels
  - ✓ sharpness of cutting instruments
  - ✓ guards are in place
- Identify component wear on equipment
- Carry out preventative maintenance, if applicable, e.g. replace gasket or worn parts
- Verify that equipment is properly calibrated, if applicable
- Ensure appropriate personnel approve equipment start up, if applicable, e.g. supervisor, quality assurance
- Document pre-operation check, if applicable

**Knowledge**

- Standard Operating Procedures (SOPs)
- Good Manufacturing Practices (GMP)
- Occupational Health and Safety practices
- Operation of equipment component functions and safety controls
- Pre-operation checklists
- Indicators of equipment wear
- Indicators of operational malfunctions, e.g. stuck valves, low oil levels

**Variables, Range of Context**

- Types of equipment
- Level of automation and instrumentation
- Equipment hazards and guards/safety controls
- Requirements for documentation, e.g. checklists

## Start up food processing equipment

**Purpose of the Task**

It is important to ensure that when the equipment is energized, it is operating correctly. This prevents damage to the equipment, ensures the efficiency of the organization and ensures employee safety.

**Performance**

- Use required PPE, e.g. safety glasses, safety footwear
- Set up equipment for operation:
  - ✓ set specific equipment and process controls, for example:
    - size
    - speed
    - temperature

- time
- weight
- volume
- product

• Use checklist for start-up, if required
• Energize/power up equipment, if required
• Check readouts to verify required settings are achieved
• Calibrate equipment, if applicable:
  ✓ ensure all scales or weighing equipment are set correctly, e.g. zeroing of scales, taring of material
• Listen for unusual noises or other malfunctions, e.g. squeaking, grinding
• Take corrective action for abnormalities, e.g. make minor adjustments, notify supervisor
• Report any changes or deviations from Standard Operating Procedures (SOPs)

**Knowledge**

• Standard Operating Procedures (SOPs)
• Good Manufacturing Practices (GMP)
• Occupational Health and Safety practices
• Continuous improvement practices
• How to operate equipment controls
• Equipment settings, for example:
  ✓ temperature controls
  ✓ speed controls
  ✓ Programmable Logic Controls (PLC)
  ✓ switches
• Equipment operating ranges, specified settings and limitations
• Product/customer specifications
• Types of processes, e.g. grinding, cooking, stuffing, tumbling, pasteurization

**Variables, Range of Context**

• Types of equipment and related processes
• Types of readouts, e.g. gauges, graphs, digital readouts, colour-coded lights
• Equipment settings for different ingredients/products and customer specifications

**Glossary**

Calibrate: to determine, check, or rectify the graduation of any instrument giving quantitative measurements.

## Perform food processing changeovers

### Purpose of the Task

Changeovers occur when production shifts from one product to another. Changeovers can occur with the same product being treated differently for different lines of product (e.g. chicken wings being mixed with different types of sauces) or when the actual product changes (e.g. freezing soybeans, then peas and then carrots). A changeover may also be necessary if the quantity, size, weight or volume of the same product changes, depending on the type of product. Changeovers can require a shutdown for cleaning and sanitation depending on the previous product and the changeover product.

### Performance

- Check schedule for changeover dates/times
- Check changeover requirements, for example:
    - ✓ allowed changeover time, e.g. equipment shutdown time
    - ✓ changeover product
    - ✓ new specifications
    - ✓ new coding requirements, e.g. allergens
    - ✓ food safety considerations for equipment cleaning/sanitation requirements, especially for specific designations, e.g. allergen-free, gluten-free, halal, kosher
- Prepare for changeover in advance of changeover date/times:
    - ✓ check inventory levels of raw materials, if applicable
    - ✓ gather required tools for equipment shutdown, if required
- Use required Personal Protective Equipment (PPE), e.g. safety footwear, bump cap, ear protection
- Use required food safety and hygiene equipment, e.g. hair nets, beard nets, aprons, gloves, smocks
- Shutdown and lock out equipment for cleaning and sanitization of line for changeover, if required after last batch of current product
- Prepare new batch when processing equipment is ready to re-start
- Adjust processing equipment settings according to recipe instructions, for example:
    - ✓ weight or size of batch
    - ✓ temperature and humidity
    - ✓ speed and timing through stages
    - ✓ new or additional stages/processes
- Re-start processing line and introduce new batch/in-process product, as instructed
- Monitor beginning of processing run closely to ensure in-process product specifications are being met:
    - ✓ notify appropriate personnel (e.g. supervisor, quality control) if product is not meeting specifications
    - ✓ take corrective action, if applicable
- Store or transfer in-process products to next stage, e.g. belt, conveyer, slide, pipe:
    - ✓ date and label, as required

**Knowledge**

•Standard Operating Procedures (SOPs)
• Good Manufacturing Practices (GMP)
• Occupational Health and Safety practices
• Changeover standards, e.g. time allocation
• Production schedule
• Implications of a changeover, e.g. food safety requirements, coding changes, required downtime
• Product specifications for changeover product
• Organization's customers
• Organization's products and variations
• Organization's product codes
• Packaging equipment requirements
• Required tools
• Requirements for specific designations, e.g. halal, kosher, organic, gluten-free, as applicable
• Raw material/in-process product characteristics and properties, e.g. texture, viscosity, colour, odour
• Quality standards of raw material/in-process products and resulting mixture
• Food safety standards, e.g. cross-contamination, allergens
• Process flow from start to finish, for example:
    ✓ impact of preceding stage on current process stage
    ✓ effect of current process stage on next stage
• Importance of meeting task completion timeline

**Variables, Range of Context**

• Type and number of product(s) being produced
• Changeover product specifications
• Different capacities, sizes and configurations of product feed and processing equipment
• Changeover standards, depending on type of changeover product
• Availability of raw materials/ingredients
• Skill levels of personnel
• Size of operation, e.g. amounts being packaged
• Level of automation, e.g. number of packaging lines
• Equipment configuration, e.g. portioning and packaging together

**Glossary**

Changeover time: period required to prepare a device, machine, process or system to change from producing the last good/product of the batch to producing the first good piece of the new batch. A changeover is different than a set-up, although a changeover can include a set-up.

## Lock Out Equipment

### Purpose of the Task

When making adjustments and troubleshooting does not correct an equipment problem, it is necessary to lock out equipment and/or request technical assistance to correct the problem as quickly as possible. The lock out procedure is critically important to prevent use of the equipment while it is being repaired, which could cause death/injury to personnel and irreparable damage to equipment.

### Performance

- Use required PPE, e.g. safety glasses, safety footwear
- De-energize equipment and lock out main energy source
- Lock out equipment, e.g. electrical, mechanical, pneumatic, hydraulic
- Confirm equipment is locked out, e.g. there is no stored energy present
- Describe lock out reason on tag
- Affix tag to lock or equipment
- Report to appropriate personnel, as required
- Document action taken, if applicable

### Knowledge

- Standard Operating Procedures (SOPs)
- Good Manufacturing Practices (GMP)
- Occupational Health and Safety practices
- Lock out/tag out procedures and program
- Situations requiring lockout of equipment, e.g. equipment jams
- Equipment components and possible hazards, e.g. non-energized moving parts, chemical, physical, and biological hazards
- Isolation points
- How and what components are connected, e.g. pumps, tanks, vessels

### Variables, Range of Context

- Types of equipment
- Operating parameters of equipment
- Food processing requirements for different types of foods
- Equipment hazards/risks

## Use Food Processing Hand and Power Tools

### Purpose of the Task

Many hand and power tools are specifically designed for their use. Proper maintenance and use is important to ensure food safety and optimal operation.

### Performance

- Use required Personal Protective Equipment (PPE), e.g. safety glasses, safety footwear, gloves
- Confirm hand tools and power tools are clean, available for use and appropriate for the task
- Use tools that are in safe working condition, e.g. power cords are not frayed, no cracks or pieces broken off
- Inform supervisor if tools are not safe for use and do not use:
    - ✓ remove from production area
    - ✓ lock/tag-out, as required
    - ✓ document actions, if applicable
- Use hand and power tools only for intended purpose in designated production area
- Ensure personal hand tools are stored in appropriate holder on person and are clean and sanitized before use
- Care for tools after use
    - ✓ check tools for damage, e.g. pieces of blade missing
    - ✓ disassemble/assemble hand tools for cleaning and sanitizing
    - ✓ only clean specified components of power tools, e.g. blades
    - ✓ sanitize, as appropriate
    - ✓ account for hand and power tools before end of shift
- Store in designated location, for example:
    - ✓ in colour-coded bins
    - ✓ on designated hooks
    - ✓ in tool scabbards

### Knowledge

- Standard Operating Procedures (SOPs)
- .Good Manufacturing Practices (GMP)
- Occupational Health and Safety Practices
- Types and purpose of hand tools
- Critical control points
- Cross contamination risks
- Equipment sanitation protocols
- Types of processes that require hand tools
- Types of processes that require power tools
- Documentation requirements

**Variables, Range of Context**

- Types of processes requiring specific hand tools
- Types of construction of same tools for different purposes
- Capacities, sizes and configurations of hand tools
- Size of operation, e.g. amounts being processed
- Level of automation
- Equipment configuration

## Use knives and saws

**Purpose of the Task**

Knives, electric blades, and saws are a very specific hand tool typically used in meat and seafood processing. These specialized tools require skill and technique to use properly and efficiently and require specific maintenance and care. There is a high potential risk for injury when using knives and electric blades and saws.

**Performance**

- Use required Personal Protective Equipment (PPE), e.g. safety glasses, safety footwear, mesh gloves
- Use knives and saws for intended purpose
- Use correct type of knife for cutting task, for example:
    - ✓ boning knife to cut meat away from bones
    - ✓ scimitar to fabricate meat cuts
    - ✓ electric blades to remove hides from carcasses
    - ✓ filleting knife to remove fish from skin
    - ✓ box cutters to open packaging
- Use knives:
    - ✓ select best knife for task
    - ✓ check knife condition, do not use if:
        - dull
        - blade is loose
        - handle is broken or damaged or not a non-slip material
    - ✓ use knives to trim, portion, de-bone, chop, fillet, gut, skin, peel meat and other food products:
        - make clean and efficient cuts, minimizing waste
    - ✓ notify supervisor if knives need to be repaired, sharpened, or replaced
- Maintain knives:
    - ✓ clean and sanitize knives:
        - do not leave submerged in water
        - sharpen knives as needed, using a stone or sharpening service
        - steel knives before and during use
        - store separately, away from other tools

- store in designated location in designated holders, e.g. sheaths, rolls

- Use correct type of saw for cutting task, for example:
  - ✓ electric band saw to cut through bone or frozen product and for uniform slicing
  - ✓ power saws to cut carcasses
  - ✓ hand saw with correct size blade to cut bone and cartilage of carcasses
- Operate power saw:
  - ✓ verify physical set-up
  - ✓ ensure safety guards are in place
  - ✓ set specific equipment controls, e.g. speed
  - ✓ wear appropriate Personal Protective Equipment (PPE)
  - ✓ use checklist for start-up, if required
  - ✓ energize/power up equipment
  - ✓ monitor operations
  - ✓ troubleshoot problems as needed
  - ✓ report and document changes or deviations from Standard Operating Procedures (SOPs)
- Maintain saw, for example :
  - ✓ replace blade for specific purposes or when dull
  - ✓ carry out preventative maintenance
- Complete documentation, as required, e.g. report lost or damaged tools

**Knowledge**

- Standard Operating Procedures (SOPs)
- Good Manufacturing Practices (GMP)
- Occupational Health and Safety
- Required knives and saws for specific tasks
- Cutting techniques, e.g. positions for holding knife and knife manipulation
- Indicators of wear and dullness of knife and saw cutting edges
- Sharpening procedures for knives
- Indicators of unsafe operating condition for powered equipment, e.g. lack or malfunctioning safety guards
- Frayed power guards
- Personal Protective Equipment specific for working with knives, e.g. cutting gloves and apron
- Effective cutting techniques to cut accurately and efficiently
- Documentation procedures

**Variables, Range of Context**

- Sizes and types of ingredients that may be cut
- Types of knives and power cutting tools
- Level of automation
- Employees may or may not be authorized to sharpen blades

# 5. GLOSSARY

- **Calibration** - includes measures taken to ensure that an instrument is accurate by adjusting to a known standard. If instrument measurement has an impact on food safety, it must be included in a calibration
- **Changeover time** - period required to prepare a device, machine, process or system to change from producing the last good/product of the batch to producing the first good piece of the new batch. A changeover is different than a set-up, although a changeover can include a set-up
- **Critical Control Point (CCP) -** point or step in process where control measures must be applied to prevent or eliminate the occurrence of a safety hazard or reduce the hazard to an acceptable level.
- **Hold** in-process product that is held back until cleared to proceed or removed from process stream.
- **Lock-out/Tag-out -** Lockout is defined in the Canadian standard CSA Z460-13 "Control of Hazardous Energy - Lockout and Other Methods" as the "placement of a lockout device on an energy-isolating device in accordance with an established procedure." A lockout device is "a mechanical means of locking that uses an individually keyed lock to secure an energy-isolating device in a position that prevents energization of a machine, equipment, or a process."
- Lockout is one way to control hazardous energy. See the OSH Answers Hazardous Energy Control Programs for a description of the types of hazardous energy, and steps required in a control program. In practice, lockout is the isolation of energy from the system (a machine, equipment, or process) which physically locks the system in a safe mode.
- The energy-isolating device can be a manually operated disconnect switch, a circuit breaker, a line valve, or a block (Note: push buttons, selection switches and other circuit control switches are not considered energy-isolating devices). In most cases, these devices will have loops or tabs which can be locked to a stationary item in a safe position (de-energized position). The locking device (or lockout device) can be any device that has the ability to secure the energy-isolating device in a safe position.
- **Material Safety Data Sheet (MSDS) -** a document that contains information on the potential hazards (health, fire, reactivity and environmental) and how to work safely with the chemical product.
- **Non-conforming product -** finished and in-process product that does not conform to specifications.
- **Organoleptic -** refers to any sensory properties of a product involving taste, colour, odour and feel. Organoleptic testing involves inspection through visual examination, feeling and smelling of products.
- **Out of specifications -** not within the limits of acceptability.
- **Policy -** a written statement that clearly indicates the position and values of the organization on a specific topic. It contains rules and stipulates what to do.
- **Rework** - a product that initially has been removed from production and is returned into production stream to be reprocessed.
- **Sanitizing** - is the treatment of a clean surface with a chemical or physical agent (e.g. heat) to reduce microorganisms that cause disease and/or spoilage to levels considered safe for public health. By definition, sanitizing a food contact surface must reduce the population of specific bacteria by 99.999 percent in 30 seconds. Non-food contact surfaces require a reduction of 99.9 percent, also within 30 seconds. When microbial populations are reduced to these levels, the surfaces are considered to be microbiologically clean.

- **Silverskin** - sinew/connective tissue located on the outside of muscles that connects to the inside muscles of the ham
- **Standard** - criteria or specifications that can be judged or evaluated and that define the limits of acceptability associated with prerequisite programs and process controls.
- **Standard Operating Procedures (SOPs)** - a written set of instructions that describe how to perform the required steps for a particular task or sequence of tasks.
- **Sub-standard** - below or not meeting the requirements of the standard.
- **Traceability** - ability to trace and follow raw material, components and products, through all stages or receipt, production, processing and distribution, both forwards and backwards.
- **Workplace Hazardous Materials Information System (WHMIS)** - a comprehensive plan for providing information on the safe use of hazardous materials used in Canadian workplaces. Information is provided by means of product labels, Material Safety Data Sheets (MSDS) and worker education programs.


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