



2025 Lake County Fair Breeding and Market Goat Skillathon Study Guide

Juniors (age 8-10 as of September 1, 2024)
Intermediates (age 11-13 as of September 1, 2024)
Seniors (age 14 and over as of September 1, 2024)

Skill-a-thon tests will be administered on March 17, 2025 between 5:00 and 8:00pm at the Lake County Fairgrounds Main Exhibit Hall located at:
2101 County Rd 452 Eustis, Fl. 32726.

All registered Lake County 4H and FFA members showing in the Lake County Fair are eligible to compete in the Skill-a-thon except for Cloverbuds (ages 5-7) who are not eligible to compete.

Exhibitors have two options:

Option one - Exhibitors can take the test for any of the divisions that they are registered in.

Option two- Exhibitors can take the test for all divisions to compete in the Overall Skill-a-thon.

Awards:

Individual area Skill-a-thon - Banners will be awarded to the top 3 scores in each age division for each animal division - only exhibitors that are showing animals in that division will be eligible to place for the banners.

Breeding and Market Goat Divisions:

1st Place Junior - Award

2nd Place Junior - Award

3rd Place Junior - Award

1st Place Intermediate - Award

2nd Place Intermediate - Award

3rd Place Intermediate - Award

1st Place Senior - Award

2nd Place Senior - Award

3rd Place Senior - Award

Overall Skill-a-thon - Buckles will be awarded to the top score in each age division.

Overall Skill-a-thon:

Junior: Belt Buckle

Intermediate: Belt Buckle

Senior: Belt Buckle

Skillathon Areas are as follows:

Beef Breeding

Steer

Poultry

Dairy Goat

Breeding and Market Goat

Market Lamb

Rabbit

Swine

*** Each age division will have a record book question as a tiebreaker.****

Market Record Book

[https://cdn.saffire.com/files.ashx?t=fg&rid=LakeCoFair&f=2025_Market_Book_FINAL\(2\).pdf](https://cdn.saffire.com/files.ashx?t=fg&rid=LakeCoFair&f=2025_Market_Book_FINAL(2).pdf)

Non Market Record book

[https://cdn.saffire.com/files.ashx?t=fg&rid=LakeCoFair&f=2025_Non_Market_Record_Book_FINAL\(1\).pdf](https://cdn.saffire.com/files.ashx?t=fg&rid=LakeCoFair&f=2025_Non_Market_Record_Book_FINAL(1).pdf)

** The following pages are from Florida State Fair Skillathon Book***

INTRODUCTION

This manual has been developed as a study guide for the Florida State Fair Goat Skillathon which is part of the Champion Youth Program. The topic for this year's Skillathon is **Products and Marketing**.

The Florida State Fair recognizes that agricultural education instructors, 4-H agents, parents, and leaders provide the traditional and logical instructional link between youth, their livestock projects and current trends in the animal agriculture industry. **PLEASE NOTE:** This manual is provided as a **study guide** for the Skillathon competition and should be used as an additional aid to ongoing educational programs.

Sections are labeled **Junior, Intermediate & Senior, Intermediate & Senior, or Senior** to help exhibitors and educators identify which materials are required for each age level.

******* Denotes additional information in the study manual for preparing for the Champion of Champions competition.

The knowledge and skills vary by age group and may include:

Juniors (age 8-10 as of September 1, 2024)

By-Products
Milk Classification
Wholesale Cuts

Intermediates (age 11-13 as of September 1, 2024)

all of the above plus...
Cookery
Pasteurization
Dairy Products & Grades
Goat Marketing Grades

Seniors (age 14 and over as of September 1, 2024)

all of the above plus....
Meat Product Grades
Quality Assurance
Shelf Life
Skeletal Anatomy

GOOD LUCK!

Products and Marketing***

Youth livestock projects focus on the selection, raising, showing and often selling of animals. By virtue of their participation in livestock projects, youth become part of an industry that provides food and fiber for the world. The steps involved in the movement of animals and animal products from producer to consumer are known as *processing and marketing*. Tremendous changes have occurred in over the years in the ways animal products are harvested and marketed but the fundamentals remain the same. Price is dependent on *supply and demand*. We can impact supply through increased or decreased breeding, but demand is more difficult to affect. In order to maintain a stable market for animal products, consumers must have confidence in the **wholesomeness and quality** of what they are buying. That means the products must be safe, nutritious, and tasty. Many livestock organizations have implemented promotion programs to increase market share, improve prices and increase export markets.

Marketing may be as simple as receiving a set price per pound or may involve a pricing system known as 'Value Based Marketing'. **Value based pricing systems** account for quality and apply deductions or bonuses as products deviate from an accepted *baseline*. This should ultimately improve the quality of products offered to consumers, therefore boosting consumer confidence. Animal products may be marketed at auctions, by direct sales, contracts or electronically with the use of computers and satellite technology. Regardless of the marketing method, the seller is trying to receive the highest *price* while the buyer is trying to receive the greatest *value* (high quality and reasonable price). Producer organizations like the American Dairy Goat Association and American Meat Goat Association offer breed registration services, education, and promotion programs.

Goat Products and Marketing

The goat industry in the U.S. is a small specialty industry made up of three main types of enterprises: dairy goats, meat goats and fiber-producing goats (Angora goats produce mohair). In 2024, the USDA reported that there were 400,000 dairy goats and about 2,000,000 meat and other goats in the United States. In Florida in 2024, the USDA reported 10,200 dairy goats and 45,500 head of meat and other goats. <https://downloads.usda.library.cornell.edu/usda-emsis/files/000000018/b8517891v/zw130s885/shep0124.pdf>

Dairy goats are a small but stable part of goat production making up about 17% of goats in the U.S. Consumption of dairy goat milk and goat cheese (chevre) continue to show steady growth.

Another portion of the industry that has shown steady growth is goats raised for meat (called chevon). **Chevon** is extremely lean and will increase in flavor strength with the age of the animal. Typically, chevon is harvested from goats 6-9 months of age that weigh about 48-60 pounds for best flavor and quality meat. Chevon from young kids 4-8 weeks of age is marketed as cabrito (Spanish for little goat) and is light pink, very tender, and mild in flavor. **Cabrito** is highly sought after by certain ethnic groups. Demographic shifts in the United States indicate that there are almost 53 million people who have a desire to purchase and consume goat meat. Based on consumption trends, goat demand exceeds inventory in the United States. In 2023, about \$4 million in chevon and cabrito was imported into the United States from Australia (the largest importer) and other countries to meet the growing US demand, because there are not enough goats produced and processed in the US to meet the demands. Opportunities exist to develop niche marketing and value-added opportunities for fresh goat with local ethnic or faith-

based populations. Challenges include understanding cultural differences, educating consumers and producers and having adequate places for harvest.

Angora goat production has shown steady dramatic declines since the removal of wool and mohair incentives in the mid-1990's. They currently make up about 6% of the U.S. goat population and are located almost entirely in Texas. "Mohair production in the United States during 2023 was 505,000 pounds. Goats and kids clipped totaled 100,000 head. Average weight per clip was 5.1 pounds. Mohair price was \$6.35 per pound with a value of 3.21 million dollars." (<https://downloads.usda.library.cornell.edu/usda-emis/files/000000018/b8517891v/zw130s885/shep0124.pdf>)

Animal By-Products

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Animal by-products are anything of economic value other than the carcass that comes from animals during harvest and processing. They are classified as edible or inedible for humans. There may be some disagreement about what is edible, but we can all agree that there are many uses for what is left after the carcass is rolled into the cooler. In developing countries by-products may become jewelry, religious implements, tools, fuel, construction material, fly swatters, or musical instruments. In developed countries, advances in technology have created many products from non-animal sources (synthetics) which compete with animal by-products, thus reducing their value. Still, by-products represent multibillion-dollar industries in the United States and other developed countries. An added benefit of changing inedible parts of carcasses into useful products is that the decaying materials don't pile up and cause environmental problems. **Rendering** is the term for reducing or melting down animal tissues by heat and the rendering industry refers to itself as the "original recyclers". The creativity of meat processors in finding uses for by-product has led to the saying "the packer uses everything but the bleat".

Edible by-products

Raw Material

Brains, Kidneys, Heart, Liver, Testicles
Cheek and head trimmings
Blood
Fats
Intestines
Esophagus
Bones

Principal Use

Variety Meats
Sausage ingredient
Sausage component
Shortening (candies, chewing gum)
Sausage casings
Sausage ingredient
Gelatin for confectioneries, ice cream and jellied food products

Inedible by-products

Raw Material

Hides

Processed by-product

Leather
Glue
Hair

Principal Use

various leather goods
paper boxes, sandpaper, plywood, sizing
Felts, plaster binder, upholstery, brushes, insulation

Fats

Inedible tallow

Industrial oils, lubricants, soap, glycerin
Insecticides, weed killers, rubber, cosmetics, antifreeze, nitroglycerine, plastics, cellophane, floor wax, waterproofing agents, cement, crayons, chalk, matches, putty, linoleum

Tankage

Livestock and poultry feeds

Bones	Dry bone	Glue, hardening steel, refining sugar, buttons, bone china
	Bone meal	Animal feed, fertilizer, porcelain enamel,
Feet	Neatsfoot stock	Fine lubricants
	Neatsfoot oil	Leather preparations
Glands	Pharmaceuticals	Medicines
Lungs		Pet foods
Blood	Blood meal	Livestock and fish feeds
	Blood albumen	Leather preparations, textile sizing
Viscera and meat scraps	Meat meal	Livestock, pet and poultry feeds

Milk Classification

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Though most Americans drink cow milk, 65% of the world's population drinks goat milk. Produced correctly, goat milk is similar in all respects to cow milk (87% water, 13% solids - lactose, fat, protein, and minerals) and many people cannot tell the difference in taste tests. It is almost pure white in color due to the near 100% conversion of carotene to Vitamin A. The small, fragile fat molecules in goat milk make it easier for infants and people with sensitive stomachs to digest.

The Agricultural Marketing Agreement of 1937 says that all milk should be classified in accordance with the form in which or the purpose for which it is used. There are four classifications of milk. A detailed list can be found at:

<https://mymarketnews.ams.usda.gov/mars-faqs/what-are-milk-classes-under-federal-milk-order-system>

Class I	Fluid Milk: whole milk, skim milk, buttermilk, and flavored milk drinks (egg nog).
Class II	Milk used for soft products: Ice Cream, Sour Cream, Milk Shake Mix, Yogurt, Cottage & Ricotta Cheese, Custards, Puddings, Batter Mixes, candy, soup, bakery products.
Class III	Hard cheese other than for cottage cheese, spreadable cheese, cream cheese, butteroil.
Class IV	Butter, Dry Milk Products, Evaporated or Sweetened Condensed Milk and Sterilized Products (UHT Packaged).

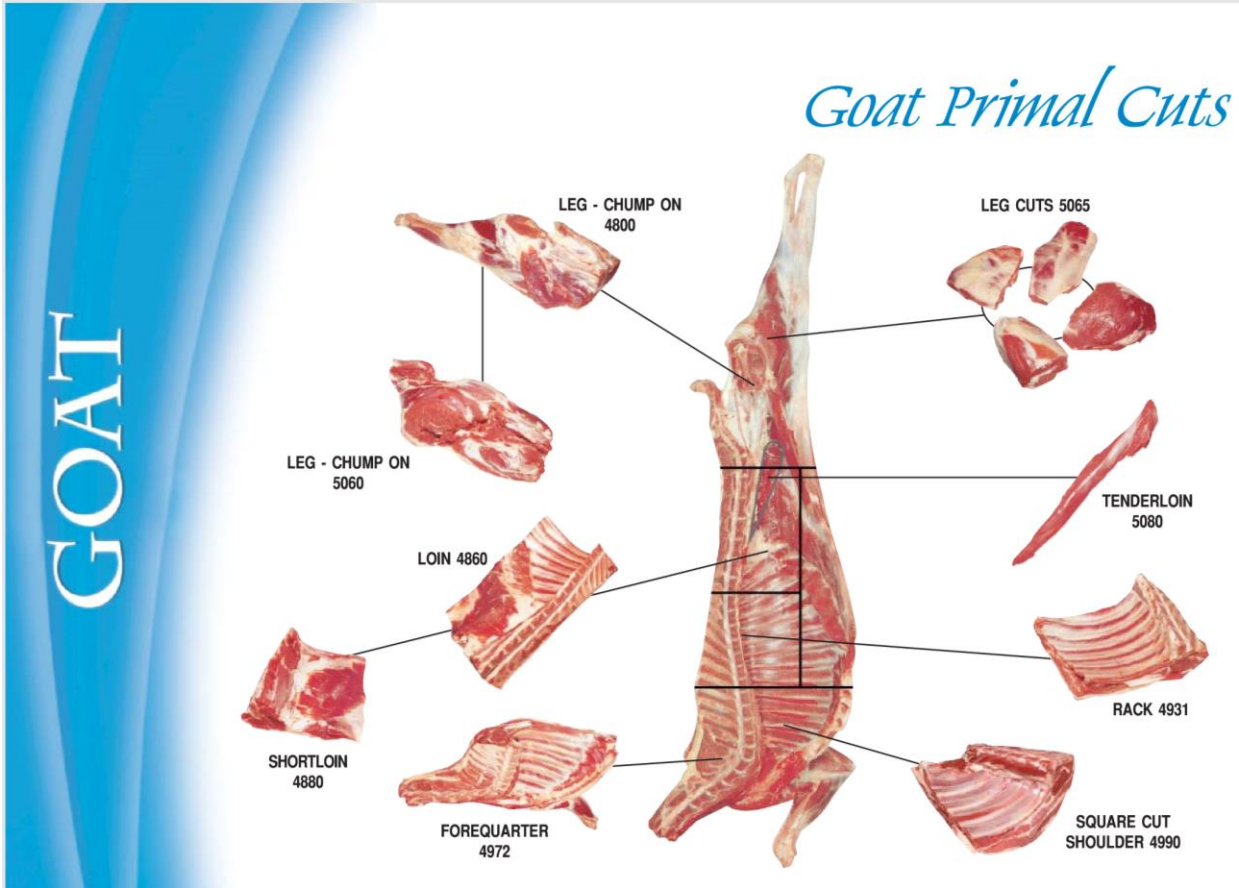
Wholesale Cuts

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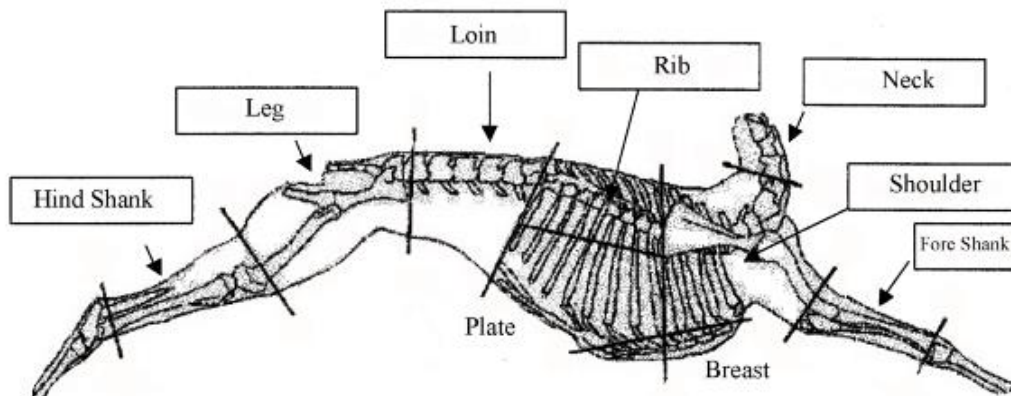
Fabrication of carcasses is the cutting of the carcass into wholesale and retail cuts for distribution to various markets. The size of the carcass and the preferences of the customer will determine how it is fabricated. For goat carcasses, wholesale cuts come from standard cutting methods developed to: a) *Separate fat from lean portions*; b) *Separate tough from tender sections*; c) *Separate thick from thin sections*; d) *Separate valuable from less valuable cuts*; e) *Separate retail cuts by cutting across the grain*.

Primal Cuts

Of the wholesale cuts, those that are lean, tender, thick, and valuable and that contain a large proportion of their muscles running in the same direction are called *primal* cuts. The ***primal goat cuts are shoulder, rack, loin and leg***.



Goat Primal Cuts. Source: <https://www.virtualweberbullet.com/wp-content/uploads/2018/08/goat.pdf>



Dairy Product Grades

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Grades are based on nationally uniform standards. Sellers can request grading services to show that the product meets specific grade or contract requirements. This can also demonstrate a product with good keeping quality. Buyers can request grading to determine that products have uniform high quality. Sellers and buyers must request services and pay a fee for the cost of the services. All dairy products offered for sale to the Federal Government under the dairy price support program or sanctioned under such programs are inspected by AMS dairy graders.

Product	U.S. Grades	Quality factors
Butter	AA, A, B (A & B wholesale only)	flavor, body, color
Cheddar cheese	AA, A, B, C (only AA for retail)	AA = consistently fine flavor
Instant nonfat dry milk Regular nonfat dry milk Dry buttermilk	U.S. Extra Grade shield U.S. Standard Grade shield	sweet flavor, natural color, satisfactory solubility excess moisture or scorched particles
Dry whey	U.S. Extra U.S. Standard	sweet flavor, appearance, milk fat, and moisture

There is a USDA program for official quality approval for products that do not have a grading system in place. These products may carry the “Quality Approved” rating based on the USDA inspection. The product must be wholesome and measure up to a specific level of quality to earn the rating. An explanation of all USDA Food Quality Labels, including these mentioned, are available here:

<https://www.ams.usda.gov/sites/default/files/media/AMSPProductLabelFactsheet.pdf>.

Home Pasteurization of milk

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For home use, a good, well managed dairy goat may produce an average of 3 quarts daily over a 10 month period for 8 years. Milk may be used at home. It is relatively easy to pasteurize milk at home.

Most of the bacteria found in milk from healthy goats are harmless if the milk is kept in clean surroundings. However, even with careful production, contamination of milk with disease-producing microorganisms is possible from infected animals, polluted water or soil, and other sources. Outbreaks of food poisoning, gastro-enteritis, typhoid fever, diphtheria, septic sore throat, dysentery, and Q-fever have been traced to raw milk. Diseases such as tuberculosis and undulant fever have been transmitted from infected cows to humans through raw milk.

In order to protect the health of the consumer, milk sold in Florida directly to the consumer is required to be pasteurized. Dairy farm families and others milking goats should pasteurize all other dairy products and milk used as an ingredient in foods that do not require cooking or baking.

Benefits of Pasteurization: Pasteurization destroys all disease-producing organisms that may be present, making milk safe to drink. Pasteurization reduces the number of harmless bacteria in milk that can produce off-flavors. The process also eliminates bacteria that can produce off-flavors and gas during the manufacture and storage of cheese and other cultured dairy products.

Raw Milk Quality: Pasteurization helps preserve the quality of milk. All raw milk contains microorganisms. Raw milk to be pasteurized must have a low microbial count to get the best flavor and keep quality and other desirable characteristics of milk and milk products. This low

microbial count raw milk is possible if goats are clean and healthy and if you use sanitary procedures. Utensils and equipment must be clean and properly sanitized.

Pasteurization Methods: Methods for pasteurizing milk are based on time-temperature relationships that ensure the complete destruction of any disease-producing organisms. The higher the temperature, the less time it takes to destroy the disease-producing organism.

Several time-temperature combinations are used for the commercial pasteurization of milk. There are practical methods for pasteurizing milk in the home. One is the batch method, which requires that every particle of milk, including the foam, be heated to a minimum of 145 degrees F and held at that temperature for no less than 30 minutes; or 165 degrees F for at least 15 seconds.

Home Pasteurization: Milk can be pasteurized in the home in a double boiler, in canning jars or glass milk bottles, or in a batch type home pasteurizer. General procedures for pasteurizing milk are as follows <https://extension.oregonstate.edu/sites/default/files/documents/8836/sp50932homepasteurizationofrawmilk.pdf> :

Double Boiler

1. Place the milk in the top and water in the bottom of the double boiler.
2. Place an accurate, metal-stem thermometer and spoon in the milk during the entire pasteurization process. A metal-stem thermometer is preferred over glass because it will not break.
3. Heat the milk, while stirring constantly to 165 degrees F and hold it at that temperature for no less than 15 seconds. Constant stirring is important for obtaining even distribution of the heat and to ensure that all the milk is heated to 165 degrees F.
4. At the end of the 15-second holding time, place the top portion of the double boiler containing the milk in a pan of cold water. Continue stirring the milk to achieve rapid cooling.
5. When the milk temperature is below 130 degrees F, replace the cooling water with ice water and continue to cool the milk, with occasional stirring, until the temperature is 40 degrees F or below.
6. Pour the cooled milk into clean containers, cover, and store in the refrigerator at 40 degrees F or colder until used.

Whole cow milk contains cream separates which rises to the top. Skim milk has had almost all of the cream removed. Homogenized milk has had the fat globules of cream mechanically broken up into such small sizes that the cream will remain dispersed in the milk and will not rise up. Goat milk is naturally homogenized.

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Dairy Products

Butter – Solid dairy product made by churning fresh or fermented cream to separate the butterfat from the buttermilk.

Cream Cheese - Cream cheese is a soft, mild-tasting, white cheese with a high fat content. Traditionally, it is made from unskimmed milk enriched with additional cream. In the United

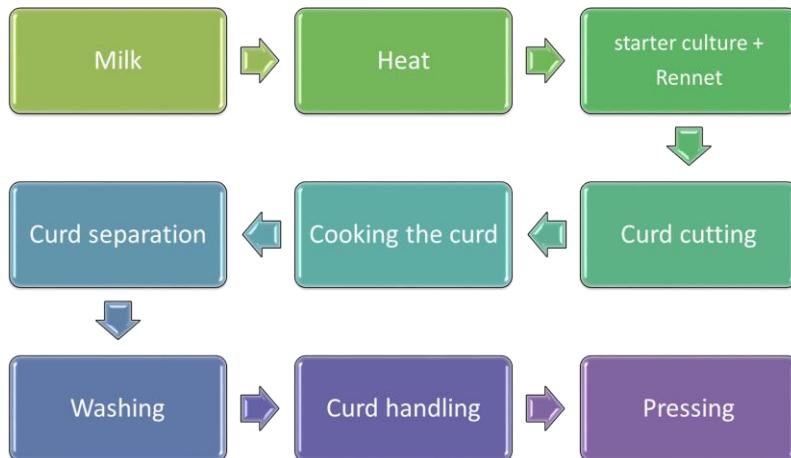
States of America it is defined by the US Department of Agriculture as containing at least 33% milkfat (as marketed) with a moisture content of not more than 55%, and a pH range of 4.4 to 4.9. Cream cheese is a fresh cheese not meant to be ripened.

Sour Cream - **dairy product** rich in **fats** obtained by fermenting **cream** by certain kinds of **lactic acid bacteria**. The **bacterial culture**, which is introduced either deliberately or naturally, sours and thickens the cream. Its name stems from the production of lactic acid by bacterial fermentation, which is called **souring**. The taste of sour cream is only mildly **sour**.

Yogurt - Dairy yogurt is produced using a culture of *Lactobacillus* and *Streptococcus* bacteria. The milk is first heated to about 80 °C (176 °F) to kill any undesirable bacteria and to **denature** the milk proteins so that they set together rather than form curds. The milk is then cooled to about 45 °C (112 °F). The bacteria culture is added, and the temperature is maintained for 4 to 7 hours to allow fermentation.

Processed Cheese - **Processed cheese, process cheese, cheese slice, prepared cheese, or cheese food** is a food product made from normal **cheese** and sometimes other **unfermented** dairy ingredients, plus **emulsifiers**, extra **salt**, **food colorings**, or **whey**. Many flavors, colors, and textures of processed cheese exist.

Cheese Making <https://www.youtube.com/watch?v=y9wLhRrj5Ug>



CHEDDAR - American-made Cheddar is based on the cheese made in England and has become one of the most popularly produced cheeses to date. In 2023, about 4 billion pounds of Cheddar were produced in the USA.

Appearance – Light yellow or golden orange, usually pre-cut in square slices.

Taste – Mild and delicate

Melting Potential – melts well

SHARP – More tangy, acidic flavor. Can be aged up to a year, as opposed to normal 2-3 months.

COLBY - Colby was first made by Joseph Steinwand in Colby, Wisconsin. Though it is similar in taste to Cheddar, it's made differently. Colby is relatively lightly pressed and requires no aging at all. (Colby Jack cheese is a mix between Colby and Monterey Jack; it is a stirred curd cheese not meant for aging)

Appearance – Light yellow to rich orange with tiny holes

Taste – Mild to mellow; lightly sweet to sharp and tangy

Melting Potential - Melts best when grated

MOZZARELLA - When talking Mozzarella, there's two ways to go; Fresh Mozzarella: soft, white and stored in water - or the Pizza (or String) variety - pale yellow with a smooth texture. Either one has a delicate, milky flavor. Cheddar may come in first, but Mozzarella is the most popular cheese in the United States.

Appearance – Creamy, white color; often molded into shapes

Taste – Delicate, mild and milky

Melting Potential – Melts best when sliced or shredded

MONTEREY JACK - Because this mild cheese has a slightly zesty taste, it's often paired with fiery foods like jalapeños and salsas. As Monterey Jack ages, its semi-soft texture hardens some, and its flavor gets nuttier. David Jacks, a Scottish immigrant and dairy-owner in Monterey, California created Monterey Jack in the 1890s. Jacks followed a Swiss-method of cheesemaking, which is why Monterey Jack has its semi-soft, cracked texture. (Pepper Jack is Monterey Jack with jalapeno's in it)

Appearance – Buttery-ivory color with tiny cracks

Taste – Mild and slightly zesty; nutty with age

Melting Potential - Melts best when shredded or sliced

SWISS – There are two categories of Swiss cheese: Swiss and Baby Swiss. The distinction between the two is due to the color and size of the holes. Swiss will be shiny and pale yellow, with large holes. Baby Swiss will be ivory to pale yellow, with small holes. Swiss can range from sweet to sharp, and is generally nutty and semi-hard. Since its flavor is mellow, it enhances sandwiches made with ham or prosciutto, salami and pumpnickel. For nibbling, try it with cherries, apples, pears, green grapes or toasted almonds. Baby Swiss is buttery, sweet and only slightly nutty, and generally semi-soft and creamy. Try it with sweet fruits and berries, croissants and muffins. The holes that distinguish Swiss are formed when air pockets pop as the cheese ripens

Appearance – Swiss: Shiny and pale yellow, large holes; Baby Swiss: Ivory to pale yellow, small holes

Taste – Swiss: Sweet to sharp, nutty; Baby Swiss: Buttery, slightly nutty and sweet

Melting Potential - Melts well when shredded

GOUDA - Gouda and Edam are essentially identical cheeses in terms of flavor, texture and appearance. Their main difference is that while Edam is always made from partially skimmed milk, Gouda is always made from whole.

Appearance – Baby: Red wax exterior, golden interior | Aged: Yellow wax exterior, golden interior | Smoked: Black or brown exterior, golden interior

Taste – Mellow, rich caramel

Melting Potential – Melts best when shredded

FETA - Usually thought of as only a Greek goat's milk cheese, Feta is now deliciously produced in the states using cow's milk. Its preservation process gives Feta a salty, pickled Mediterranean flavor. Feta acquires its unique flavor from being pickled in brine - a salt-water solution that prevents it from ripening.

Appearance – White and bumpy; often packaged in blocks or containers of crumbled chunks.

Taste – Salty, pickled.

Melting Potential – Melts well over heat.

BLUE - When you dig into Blue, you may find a creamy, blue-veined interior - or a crumbly, blue-veined interior - depending how it is made. Today, the blue in Blue Cheese is due to the mold spores that are put into the milk in the vat, and the lines that you see are where the cheese has been "needled". It is punched with the needles so that the mold gets oxygen. It is most common to add the mold spores directly to the milk in the vat. Blue's tangy, ripe flavor intensify as it ripens. Scrumptious on salads or served with pears, raisins, figs, walnuts and fruit or nut breads, Blue is guaranteed to add some kick to any meal. The blue in Blue Cheese is due to the injection of *penicillium roqueforti*. After the cheese has been seeded with the mold, it's pierced - allowing air to enter and encourage growth of the mold.

Appearance – white or yellow with blue veins.

Taste – Tangy, ripe, earthy.

Melting Potential – melts best when crumbled.

GOAT CHEESE - Unlike some feta cheese, goat cheese is traditionally made from 100% goats' milk. Most common in France, goat cheeses are usually aged for a shorter period than feta cheeses. While feta must be aged at least three months, many variants of goat cheese are ready for consumption very soon after the cheese has been formed and salted during the goat cheese making process.

LIMBURGER – Limburger is best known for its pungent aroma and very robust flavor. What used to be a prevalent beer cheese has dwindled in popularity somewhat, but those that love it, stand by it. Limburger goes through several rounds of rind-washing in brine, which is what gives

it that distinctive aroma. Today, almost all Limburger is made at the Chalet Cheese Co-op near Monroe, Wisconsin.

Appearance – Creamy ivory body with brownish exterior.

Taste – Very strong, robust and aromatic.

Melting Potential - Melts best when sliced.

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Meat Cookery

Methods of cooking meat include dry heat or moist heat. Dry heat cookery methods improve flavor of meat through crust formation and caramelization but increase chewiness and decrease tenderness because of protein hardening. Moist heat cookery methods increase the tenderness of meat cuts that are comprised of muscles containing large amounts of connective tissue. Cookery under moist conditions for long periods at relatively low temperatures generates steam that then converts the collagen in connective tissue into gelatin. Methods should be selected based on initial tenderness of the cut, desired quality characteristics of the resulting product, available cooking facilities/equipment, and the amount of time available for preparation.

Dry Heat

Dry Heat methods of cooking are suitable for tender cuts of meat or less tender cuts which have been marinated. Use cuts low in collagen and elastin.

Roasting - This method of cooking is recommended for larger cuts of meat. Meat is seasoned and placed in an open roasting pan with a cooking thermometer placed in the center to determine degree of doneness.

Broiling - This method is most suitable for tender, usually thin cuts of meat. Less tender cuts may also be broiled when marinated. Meat is directly exposed to the source of heat from above or from both sides at the same time. It involves high heat and produces a distinct caramelized flavor.

Grilling - This method is actually a method of broiling. Meat can be grilled on a grid or rack over coals, heated ceramic briquettes or an open fire.

Pan-Broiling - This method is faster and more convenient than oven broiling for cooking thinner steaks or chops. It involves conduction of heat by direct contact of the meat with hot metal. Fat drippings are poured off as they accumulate.

Pan-Frying - This method differs from pan-broiling in that a small amount of fat is added first, or allowed to accumulate during cooking. Pan-frying is for ground meat, small or thin cuts of meat.

Stir-Frying - This method is similar to pan-frying except that the food is stirred almost continuously. Cooking is done with high heat, using small or thin pieces of meat.

Deep-Fat Frying - This method is cooking meat immersed in fat. This method is only used with very tender meat.

Microwave Cookery - High frequency electrical energy causes molecules inside the product to vibrate creating friction and heat without heating the surrounding air. The rapid speed of microwave cooking makes it ideal for frozen cuts in institutions and restaurants. Consumers complain that microwaved meat is inferior in flavor.

Moist Heat

Moist Heat methods of cooking are suitable for less tender cuts of meat. Moist heat cooking

helps to reduce surface drying in those cuts requiring prolonged cooking times. With moist heat cookery, meat may lose some water-soluble nutrients into the cooking liquid. However, if the cooking liquids are consumed, as in stews or soups, nutrients are transferred and not totally lost. Meat should never be boiled because high temperatures toughen protein.

Braising - In some regions of the country the term “fricassee” is used interchangeably with braising. The surface of the meat is seasoned, covered with flour and browned. Afterward the meat is placed in a covered pan with a small amount of liquid and cooked at low temperatures to soften the connective tissue and yield a tenderer product.

Stewing – Small pieces of lean meat can be browned on the surface then covered with liquid and gently simmered in a covered pan until tender. Care should be taken not to let the temperature of the liquid exceed 195°F, because boiling toughens meat protein.

Simmering - Involves cooking in water at low temperatures (180°F) like stewing except more water is used and the meat is usually not browned first.

Pressure Cooking – Cooking under pressure produces steam which aids in softening connective tissue. Pieces of meat may be browned then cooked with a small amount of water in a special vented pressure cooker.

Poaching - Cook in a liquid that is not actually bubbling at 165 to 180 degrees. It is usually used to cook delicate foods such as fish and eggs. It takes one third less time than roasting. Poaching helps to keep shrinkage of the meat to a minimum.

Meat Facts ***

<i>100g Roasted</i>	<i>Calories (g)</i>	<i>Fat (g)</i>	<i>Sat'd Fatty Acids (g)</i>	<i>Protein (g)</i>	<i>Iron (mg)</i>
<i>Beef</i>	216	9.9	3.79	29.58	2.9
<i>Chicken</i>	190	7.41	2.04	28.93	1.21
<i>Goat</i>	108	2.58	.79	29	3.3
<i>Lamb</i>	206	9.52	3.4	28.22	2.05
<i>Pork</i>	212	9.66	3.41	29.27	1.1
<i>Rabbit (stewed)</i>	206	8.41	2.51	30.38	2.37

Goat Selection Criteria and Grades

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The IMPS Selection Criteria for live goats and carcasses are based on consideration of conformation (muscling). Selection No. 1 goats or carcasses have a high proportion (by weight) of meat to bone. Selection No. 3 goats and carcasses have a low ratio of meat to bone.

a) Selection No. 1 live goats and/or carcasses have a superior meat type conformation without regard to the presence of fat cover. They shall be thickly muscled throughout the body as indicated by a pronounced (bulging) outside leg (biceps femoris and semitendinosus), a full (rounded) back strip (longissimus dorsi), and a moderately thick outside shoulder (triceps brachii

group).

b) Selection No. 2 live goats and/or carcasses have an average meat type conformation without regard to the presence of fat cover. They shall be moderately muscled throughout the body as indicated by a slightly thick and a slightly pronounced outside leg (biceps femoris and semitendinosus), a slightly full (flat or slightly shallow) back strip (longissimus dorsi), and a slightly thick to slightly thin outside shoulder (triceps brachii group).

c) Selection No. 3 live goats and/or carcasses have an inferior meat type conformation without regard to the presence of fat cover. The legs, back and shoulders are narrow in relation with its length and they have a very angular and sunken appearance.

Source and more information:

<https://www.ams.usda.gov/sites/default/files/media/GoatIMPS%5B1%5D.pdf>

Goat Carcass Grades

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Goat meat is not a traditional food for most Americans, but annual consumption of chevon is fairly high mostly due to ethnic consumers. Approximately 1.5 million goat carcasses are sold each year in the U.S.. Carcass weights range from less than 15 to more than 60 pounds. Standard fabrication techniques have only recently been established. Likewise, quality and yield grades are fairly new to this commodity.

Market Kid Goats

Selection Classification Comparisons



Selection 1 1⁵⁰



Selection 2 2⁵⁰



Selection 3 3⁷⁰

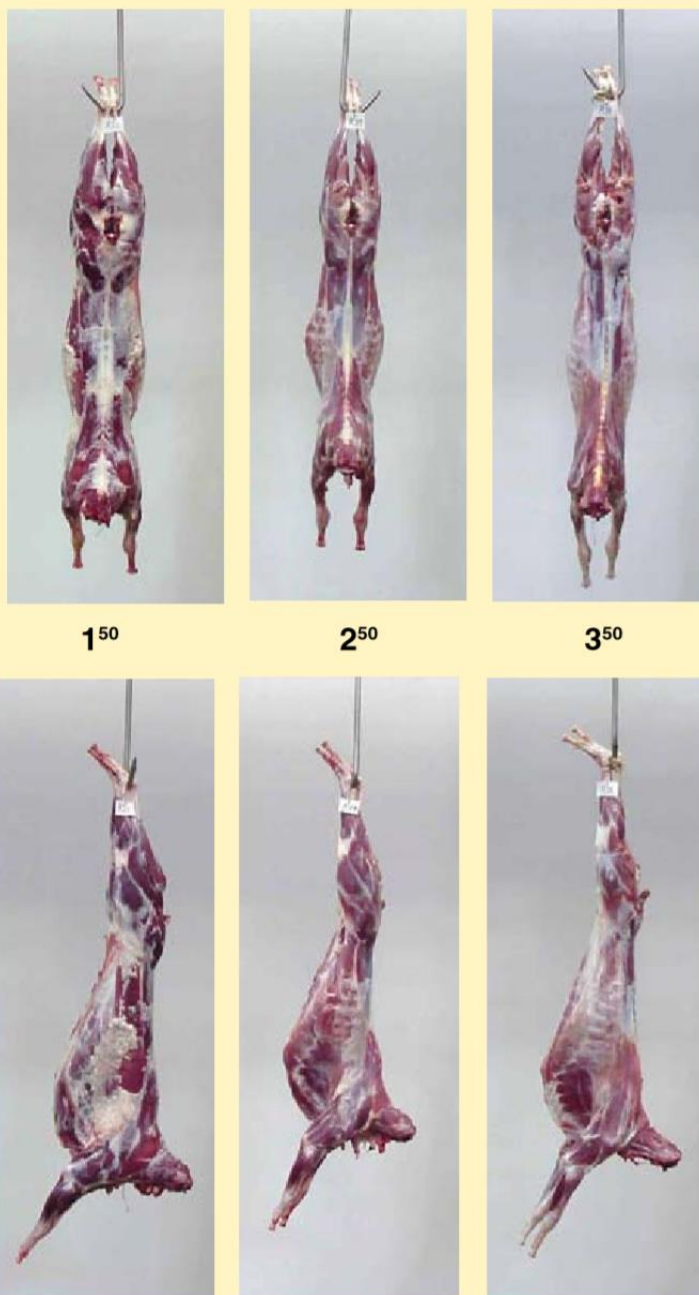
These pictures also show that goats will appear different in different lighting conditions. The three views above show the same goat, but under different light, so that the coat color is a different shade in the three pictures. Shadows also will change the visual impressions of live animals.

Goat Carcass Evaluation

Selection Classification Comparisons

Carcasses of meat species are evaluated to give an estimation of the ratio of muscle to fat and bone or the amount of edible meat that will be obtained. Goats and their carcasses have unique muscle, fat and bone growth and development that require evaluation of different carcass traits than the characteristics usually used to estimate meat yield in the other red-meat species. The major back muscle, the *Longissimus dorsi*, is often too small to be measured accurately in most carcasses weighing less than 60 pounds, so the relative thickness of muscles in the different carcass parts is used to determine the carcass conformation. The same descriptive terminology for muscling used for live goats is applicable for describing the conformation of meat goat carcasses.

Goats deposit fat in the kidney and pelvic regions before developing a pocket of fat behind the shoulders and over the ribs. The fat will be trimmed when the carcass is fabricated into cuts, so fat will reduce the lean yield from the carcass. Unless a goat is overly fat, subcutaneous fat will not be deposited over the top (dorsal) surface of the *L. dorsi* muscle. The amount of fat is judged subjectively by assigning an external fat score. Color of the lean is not necessarily related to overall palatability, but a lighter, pinker flank muscle indicates a goat with less physiological maturity. The meat from younger goats is generally preferred by consumers to meat from yearling or older goats.



Source: <http://counties.agrilife.org/wi> 1

Specifications

Classes: buck, doe, kid

Maturity: kid, yearling, goat

Breed: as specified by purchaser; meat or dairy breeds

Diet: as specified by purchaser

Organically raised: as specified by purchaser

Carcass quality evaluation factors include: hot carcass weight, fat over ribeye, adjusted fat over ribeye, marbling, carcass conformation, lean color, lean firmness, bone maturity, lean maturity, flank firmness, feathering, flank streaking

Carcass yield evaluation factors include: Hot carcass weight, fat over ribeye, adjusted fat over ribeye, marbling, leg conformation, kidney fat

Meat Goat Grade Standards are described at:

<https://www.ams.usda.gov/sites/default/files/media/GoatIMPS%5B1%5D.pdf>

Grades have been defined for live meat goats for Selection 1, Selection 2 and Selection 3 and those same grades also are currently used on carcasses. A Power Point Presentation can be viewed at: https://www.slideserve.com/van/meat-goat-carcass-merit#google_vignette

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Quality Assurance for Youth Producers

Well-informed livestock producers recognize the importance of following quality assurance guidelines to ensure they provide safe and wholesome food animal products to the public. However, young producers may have a bit of trouble understanding the market livestock projects they raise will ultimately appear on a consumer's plate. Below is a list of recommended actions producers of all ages can take to minimize threats to animal health and product wholesomeness. At the bottom of the page are links to several fun and active learning exercises that can be used with youth to help them appreciate the importance of producing safe, wholesome, high-quality food products for consumers to enjoy.

Producing High Quality Market Animals

- Get all prior identification and treatment records from breeder.
- Use a permanent identification system on each animal.
- Select project animals based on good health, proper weight for age and genetic potential for adequate growth during feeding period.
- Practice low-stress methods of animal handling: slow, quiet, no hitting or crowding.
- Minimize use of medications.
- Use proper injection techniques: Use subcutaneous injections whenever possible. Give intramuscular injections in neck muscle. Divide large injections into multiple sites. Clip and disinfect injection site when possible. Use a sterile syringe for each treatment and a sterile needle for each animal. Use the smallest size needle possible for the injection. Restrain animals well to prevent needle breakage or excessive tissue damage.
- Keep excellent records (feeds, medications, illness, sales, etc.) throughout the animal's life and maintain for five years after sale.
- Abide by all medication use guidelines, including storage, dosages, withholding times and legal extra-label drug use on the advice of your veterinarian.
- Calculate rate of gain needed to meet target weights by target dates, feed for that rate of gain.
- Do not hold or push animals with feeding programs.

- Do not hold animals off water or feed.
- Feed animals a balanced diet.
- Practice routine preventive health care practices such as hoof trimming, vaccinating, and deworming as needed.
- Provide a clean, safe and healthy environment for animals.
- Exercise animals a reasonable amount for adequate muscling.
- When possible, obtain carcass data from market animals; study and learn from the results.
- When possible, interview consumers about what they thought about the food products you raised.
- Make sure market animals are not cryptorchids or have any other disqualifications.
- Avoid offspring of animals known to produce progeny with poor carcass characteristics.
- Practice routine biosecurity measures such as minimizing visitors, isolating sick animals, disinfecting equipment, and quarantining new animals or returning show animals.
- Make sure all family members and farm employees are aware of and perform quality assurance practices

Shelf Life and Sell By Date

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What types of food are dated?

Open dating is found primarily on perishable foods such as meat, poultry, eggs and dairy products. "Closed" or "coded" dating might appear on shelf-stable products such as cans and boxes of food. <https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/food-safety-basics/food-product-dating>

Types of Dates

A **"Sell-By"** date tells the store how long to display the product for sale. You should buy the product before the date expires.

A **"Best if Used By (or Before)"** date is recommended for best flavor or quality. It is not a purchase or safety date.

A **"Use-By"** date is the last date recommended for the use of the product while at peak quality. The date has been determined by the manufacturer of the product.

"Closed or coded dates" are packing numbers for use by the manufacturer.

Safety After Date Expires Foods can develop an off odor, flavor, or appearance due to spoilage bacteria. If a food has developed such characteristics, you should not use it for quality reasons.

If foods are mishandled, however, foodborne bacteria can grow and cause foodborne illness — before or after the date on the package. For example, if milk is taken out of the refrigerator and left out several hours, it might not be safe if used thereafter, even if the date hasn't expired.

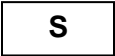
What does the "Sell By" date on the milk carton mean? The "Sell By" date means that the product should remain fresh up to that date when unopened and properly stored. Dairy products are very perishable. For best quality, you should use the product before the expiration or "Sell By" date. The number of times the product has been opened and resealed and the amount of time left out of the refrigerator during each use impacts how long it will last. Also, drinking straight from the container affects perishability as bacteria from your mouth may cause the product to spoil faster.

Average shelf life at 40°F is ten days. Note rapid decrease in shelf life occurs at higher

temperature. Storage temperature of milk and milk products has a direct relationship to keeping quality or shelf life. Florida law requires that milk and milk products be stored at 45°F or lower until sold to consumers. For best protection, store at 33°F to 44°F. Besides temperature, age of the product affects keeping quality. Proper rotation in the dairy case is very important. Proper rotation plus storage below cooling level in a display use equals good products for the consumer.

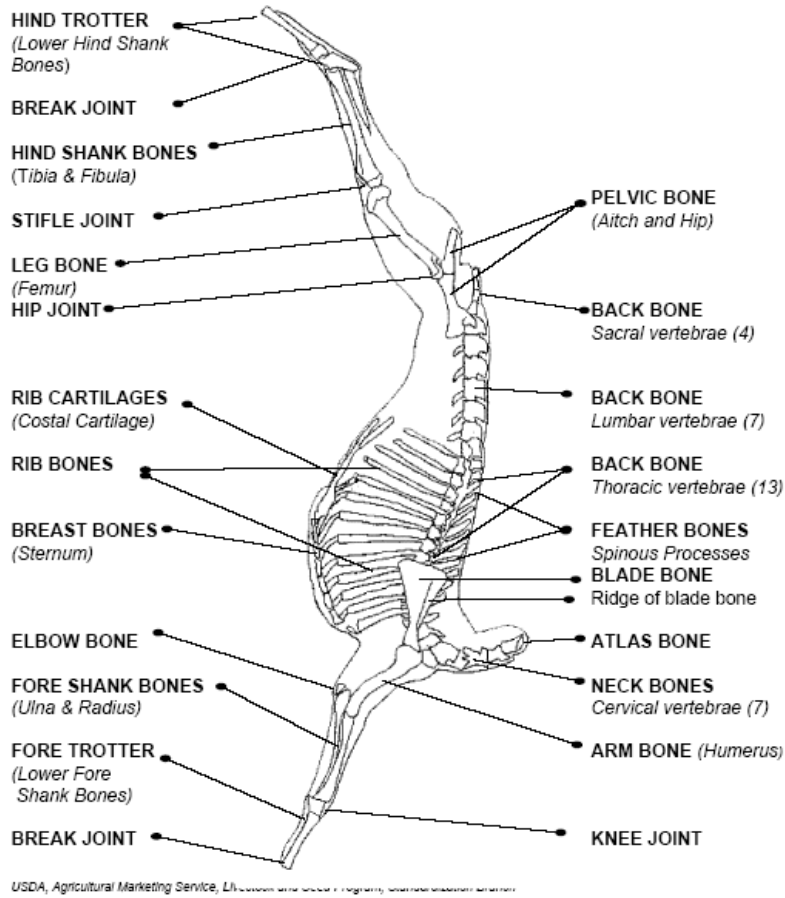
Milk storage temperatures and shelf life time:	30 to 40°F	24 to 10 days
	40 to 45°F	5 days
	45 to 50°F	2 days
	50 to 60°F	1 day
	60°F and up	<1 day

Goat Skeletal Anatomy

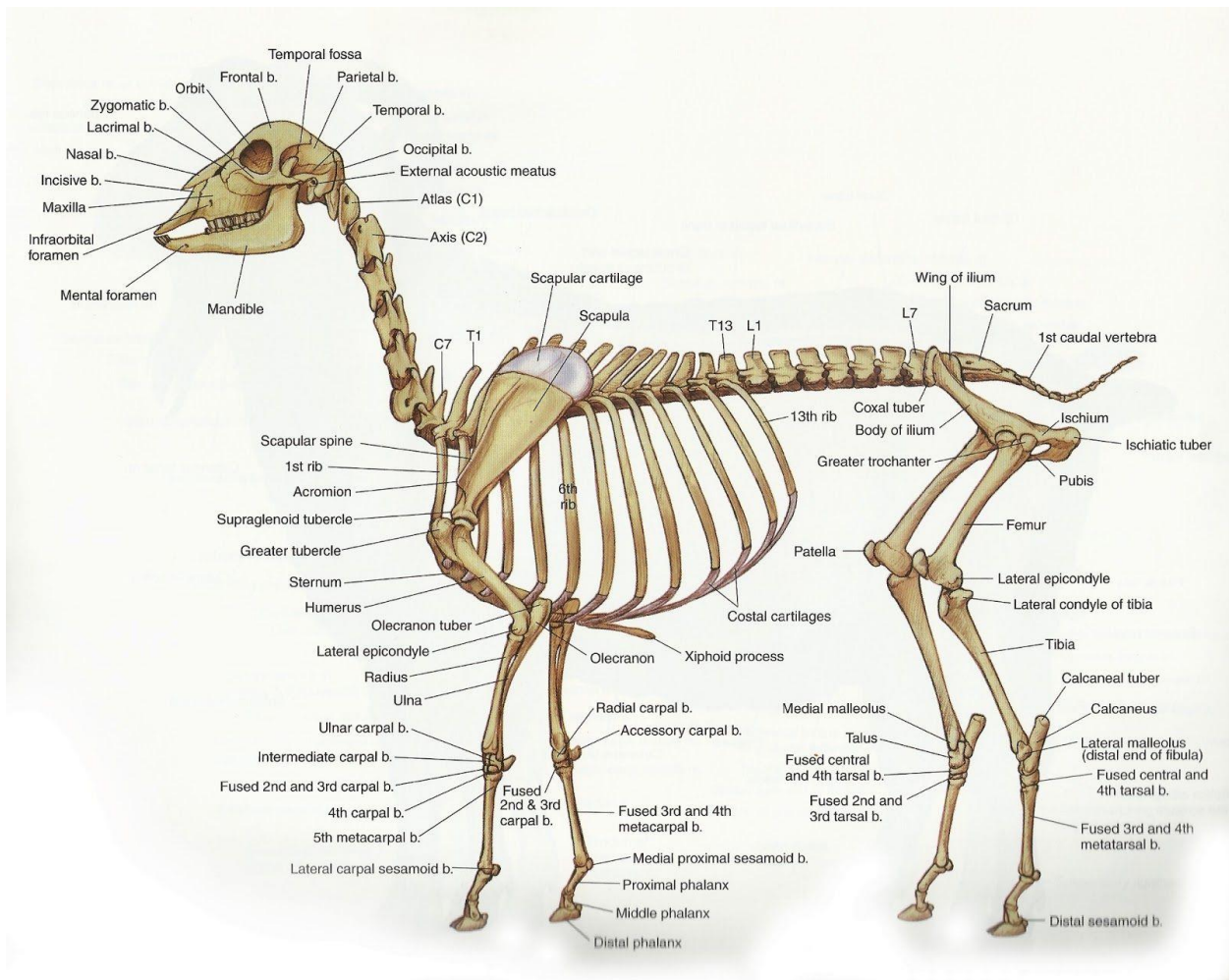


When fabricating the carcass into wholesale and retail cuts, skeletal anatomy provides the framework and landmarks for each of the cuts. Identification of bone-in retail cuts is much simpler when you have a good grasp of the bones associated with each region of the carcass. The USDA has specified a variety of styles to fabricate carcasses to facilitate marketing of particular sizes of goats as well as intended audience. These include Platter Style, Roasting Style, Barbecue Style, Food Service Style, and Hotel Style. Details on each of these styles of fabrication is available at:

<https://www.ams.usda.gov/sites/default/files/media/GoatMPS%5B1%5D.pdf>



Meat Goat Skeletal Anatomy: courtesy of the USDA



Goat skeletal illustration: <https://www.pinterest.com/pin/244179611021254986/>