



Ground Beef Basics:

Navigating Regulations and Misconceptions

Christina Bakker | Assistant Professor and SDSU Extension Meat Science Specialist



**SOUTH DAKOTA STATE
UNIVERSITY EXTENSION**

Department of **Animal Science**
College of **Agriculture, Food & Environmental Sciences**

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Ground Beef

Cheeseburgers, chili, tacos, sloppy joes; ground beef is a major staple used in many American households. According to a report compiled by the National Cattlemen's Beef Association, a staggering \$11.02 billion was spent on retail ground beef in 2022. That same report indicated that ground beef sales made up 51% of all beef sales and 21% of all retail fresh meat sales on a volume basis. While it is safe to say that ground beef is a familiar product with American consumers, how much does the average consumer know about their most sought after beef product? This fact sheet will address some of the most common questions and misconceptions surrounding ground beef production and labeling.

Who inspects ground beef and regulates labeling?

Ground beef, along with other meat products, poultry, and eggs are inspected on the federal level by the United States Department of Agriculture Food Safety Inspection Service (USDA-FSIS). Individual states also have jurisdiction to inspect meat, poultry, and eggs if they have their own inspection service. A total of 29 states have some form of inspection program. For more information on meat inspection see extension.sdstate.edu/meat-inspection-south-dakota-requirements-and-resources-processing-and-selling-meat. The USDA-FSIS also set the standard of identity of all the variations of ground beef and regulates labeling standards.

What is in ground beef?

The short answer is beef and sometimes some seasoning. According to the Code of Federal Regulation (CFR) 9 CFR 319.15(a), ground beef (or chopped beef) is made of fresh and/or frozen beef, with or without seasoning, and without the addition of beef fat. It cannot contain more than 30% fat or contain any added water, phosphates, binders, or extenders.

What are phosphates, binders, and extenders?

Phosphates are ingredients that are added to meat products that improve the protein's ability to hold water. By adding phosphates, processors can improve the juiciness of meat products, and also increase the overall pounds of product produced which can reduce costs for the consumer. Binders and extenders are non-meat ingredients that can be used for many purposes including increasing yield, improving flavor, reducing cost, or improving characteristics such as slicing ability or emulsion stability. Examples of binders include carrageenan, isolated soy protein and modified food starch. Examples of extenders include soy flour, textured vegetable protein, and nonfat dried milk. While they are not permitted in ground beef, binders and extenders are regulated for how much can be used in products such as sausages and hams.

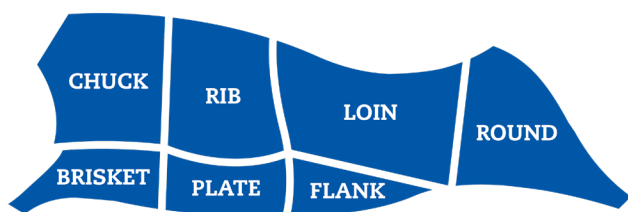
Where does ground beef come from?

Ground beef, like any ground red meat product, is made from pieces of meat called trim or trimmings.

Trim is simply the pieces of meat from a carcass that do not make good steaks or roasts. Cuts of meat fall into this category for several reasons. When a butcher or meat cutter is cutting steaks, one goal is to make them all equal in size and shape because consumers like to see consistency. If there is a portion of the meat left over after cutting that is too small to be sold as a steak, it goes into trim. There are also instances where a steak is trimmed to a certain shape and instead of throwing away the pieces that are cut off, they go into trim. Additionally, some cuts of meat do not make good steaks because they are too tough, too lean, or too fatty. Some of those cuts can be made into roasts, but in some cases, butchers may opt to increase the value of the product by grinding it into ground beef. Then, instead of selling it for \$3.99/lb as a roast, they can sell it for \$4.99/lb as ground beef. This is common during the summer months when consumers tend to shift their eating habits from roasts in the slow cooker to burgers on the grill and the practice helps to reduce food waste.

What is the difference between ground beef and ground chuck or round?

When a product is labeled as ground beef, the trim can come from any primal cut on a beef carcass. You may be wondering what a primal cut is. Much like a human can describe different parts of their body like arm, leg, and torso, the meat industry has the same kind of terms for carcasses collectively called primal cuts. The main primal cuts of a beef carcass are chuck, brisket, rib, plate, loin, flank, and round as shown in the graphic below. When a product is specifically called ground chuck or ground round, only trim taken from the chuck or round primal cut is used to make that product. The rest of the rules for ground beef as discussed earlier still apply to those products.



Are ground beef and hamburger the same thing?

No. While many people use the term hamburger for all ground beef products, hamburger has a slightly different definition. The CFR allows hamburger to have added beef fat while ground beef cannot. This means that the

fat from ground beef must come from the trim that is used, but the fat in hamburger can come from the trim or the addition of pieces of beef fat not associated with trim.

Ground beef can be made of trim from several animals. Is the safety of ground beef that comes from one single animal different from the safety of ground beef from many animals?

One common concern many consumers have about buying beef from the grocery store is the fact that the trim used to make that ground beef can come from several animals. There is a misconception that meat products that only come from one animal are inherently safer than products made from the meat of several animals. Regardless of how many carcasses meat products come from, all products are held to the same safety standards and are regularly tested for the presence of pathogens such as E. coli O157:H7.

What do the percentages on the package mean?

When purchasing ground beef, you have probably noticed different percentages on the packaging such as 90/10, 85/15, or 70/30. These numbers indicate the fat content of the product. A package that says 90/10 is 90% lean meat and 10% fat. Generally ground beef that is 90% lean or higher is best used as an ingredient in a dish such as tacos, hot dish, or chili. Ground beef with lower percentages of lean is best used for burgers because they will be juicier and more forgiving than leaner blends if they are overcooked. There are also different price points for the different blends of lean to fat. Leaner products with less fat are typically more expensive than products with more fat because there is more product left after rendering the fat through cooking.

What is the red liquid that comes out of ground beef?

Many consumers see the red liquid at the bottom of meat packages and incorrectly assume that it is blood. Others believe that it is a red dye that is injected into meat to make it red. To clarify that point, no red dye is ever used to change the color of fresh meat products sold for human consumption. The liquid is called purge, and it is water colored with a protein called myoglobin. Myoglobin is the protein within muscle that carries oxygen to the muscle cells in the same way that

hemoglobin in blood carries oxygen throughout the body. Where did the water come from? Fresh meat is made up of approximately 75% water held within the structure of meat by electrical charges. The chemical makeup of water is H₂O which results in water having a positively charged “end” and a negatively charged “end”, kind of like a battery. The proteins in muscles also have charges that attract water like a magnet. The water molecules closest to the proteins irreversibly bind to the muscle proteins, but other molecules that are farther away from the proteins are more easily separated and can leak, or purge, out of the structure of the meat.

Why does ground beef from a chub darker than an overwrap tray?

If you have ever bought ground beef that was in a plastic tube, called a chub, you probably noticed that the color is a darker, almost purple color. This is quite different than overwrap or modified atmosphere tray packed ground beef that is usually bright red. This is because when myoglobin, the protein discussed earlier, is in an environment where oxygen is restricted, as in the plastic chub casing, the myoglobin turns that darker purple color. When myoglobin is exposed to oxygen or carbon dioxide, it turns bright red. If you open a chub of ground beef and let it sit exposed to air for 15 to 20 minutes, oxygen will bind to myoglobin again and it will brighten and turn the same color as product in an overwrap tray. Additionally, the color of ground beef is highly influenced by other factors like fat content as ground beef with more fat is going to be more pink than product with less fat.

Summary

Ground beef is a common feature on the plates of many consumers. However, with so many types of ground beef and a variety of misconceptions surrounding ingredients and safety, it is easy to get overwhelmed when making purchasing decisions. The intent of this fact sheet is to shed light on the various labeling claims and misconceptions commonly associated with retail ground beef.

Resources

9 CFR 319.15(a)

National Cattlemen’s Beef Association. *Ground Beef Performance: Sales Trends by Leanness, Form, and Primal*. Accessed 4/27/23. beefresearch.org/resources/market-research-planning/white-papers/ground-beef-performance-sales-trends-by-leanness-form-and-primal

Blair, A. (2022). *Meat Inspection in South Dakota: Requirements and Resources for Processing and Selling Meat*. South Dakota State University Extension. extension.sdstate.edu/meat-inspection-south-dakota-requirements-and-resources-processing-and-selling-meat



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