

## CORN-FED VERSUS GRASS-FED BEEF

### What is the difference between “grain-fed” or “corn-fed” and “grass-fed” cattle?

All cattle are grass fed for a portion of their lives, but some cattle are fed a diet that includes corn for part of their lives. Grain-fed or “corn-fed” beef is the most widely produced type of beef in the United States. It is a product prized around the world for its highly-marbled cuts that are especially tender and juicy. Grain-fed cattle spend most of their lives grazing on pasture before moving to a feedlot for approximately four to six months prior to harvesting.

At the feedlot, the cattle are fed a carefully balanced diet that usually includes corn, soybeans, by-products, forage (plant leaves/stems) and appropriate minerals and vitamins. Feeding cattle a grain-based ration for a small period of time helps improve meat quality and provides a more tender and juicy product for consumers.

While cattle are in feedlots, beef nutritionists ensure the animals have a balanced diet, good care, access to clean water and room to grow and roam.

In October 2007, U.S. Department of Agriculture (USDA) published standards that give beef farmers and ranchers specific guidelines about the type of diet acceptable for cattle qualifying for the “grass (forage)-fed” marketing claim: “The grass-fed standard states that grass and/or forage shall be the feed source consumed for the lifetime of the ruminant animal, with the exception of milk consumed prior to weaning.”

According to the National Cattleman’s Beef Association, it is difficult to produce large quantities of grass finished beef on a year-round basis due to seasonality and the lack of grassland available in the United States, as well as their slower growth rate. For this reason, grass-fed beef can be more expensive than corn- or grain-fed beef. Some grass-fed beef sold in the United States may be imported from countries with more temperate climates like Brazil or Argentina.

### Is corn an unnatural diet for cattle? Is it only fed to cattle because it is cheaper for ranchers?

No. Cattle can get the nutrients they need from eating a wide range of plants, including a variety of grains and grasses. Corn feeding isn’t a new practice. In the United States, cattle have been fed grain for at least 200 years.

Cattle are fed grains like corn because they are nutritious, energy-rich, and can be stored for use throughout the year. Because grass does not grow year-round in most of the United States, feeding grains like corn to cattle helps farmers and ranchers raise a consistent, year-round supply of great tasting beef.

### Is grass-fed beef healthier than corn-fed or grain-fed beef?

Research has shown that the proportion of saturated fatty acids in grass-fed beef is somewhat lower and the proportions of conjugated linoleic acids (CLA) and omega-3 polyunsaturated fatty acids (the

desirable fatty acids found most prominently in fatty fish) are somewhat higher than in grain-fed beef.

However, nutritionists say beef, whether grass-fed or corn-fed, is not a significant source of omega-3. To keep this nutritional claim in perspective, salmon contains 35 times more omega-3s than beef. Whether these differences translate to a truly meaningful health benefit in the context of a varied diet has not been established.

In terms of taste, some consumers prefer the taste of grass-fed beef and liken it to the taste of a game meat, while others prefer the taste of corn-fed beef.

While each type of beef offers specific value to those who buy it, *all* beef is safe and nutritious. Nearly 8,000 federal inspectors oversee 6,200 meat plants nationwide. Plants that process live animals have inspectors on site during every minute of operation ensuring that the safest meat in the world ends up on Americans’ tables.

Furthermore, lean beef is one of the most flavorful and efficient ways to meet the daily value for 10 essential vitamins and nutrients like iron, magnesium, zinc, niacin, selenium, riboflavin and B-vitamins that help your body turn food into energy. According to U.S. government guidelines, there are 29 different steaks, roasts and ground beef choices that meet qualifications for “lean.” Studies have shown that a diet consisting of these lean meats can aid with weight management by helping to control appetite and metabolize food more efficiently.

### Can *E. coli* O157:H7 be eliminated or reduced by feeding cattle grass instead of grain?

No. *Escherichia coli* O157:H7 is capable of living in the digestive system of all cattle, regardless of their diet. While research to reduce the prevalence of *E. coli* O157:H7 in healthy animals continues, meat and poultry industry efforts are focused on preventing it from entering the food supply. To this end, harvesting facilities have spent millions of dollars to eliminate this pathogen through technologies on the farm, at the feedlot and at the plant.

A word of caution: Some publications and Web sites that promote the use of organic or grass-fed beef suggest that these products may have advantages in terms of microbiological safety. A few even imply that some of the food safety precautions like cooking ground beef to at least 160°F may not be necessary with these products. This is incorrect and irresponsible. There is no scientific evidence demonstrating that organic or grass-fed beef is free from bacterial contamination.

Consumers should handle and prepare all types of beef carefully, following the safe handling instructions on the package, always cooking them to the recommended temperatures and taking precautions to prevent cross-contamination of other foods.

### I hear people say that eating grass-fed beef is better for the environment. Is that true?

Despite claims to the contrary, animal agriculture and meat consumption contribute only a small part of U.S. greenhouse gas (GHG) production. According to Environmental Protection Agency

---

## NAMI FACT SHEET: CORN-FED VERSUS GRASS-FED BEEF - CONTINUED

(EPA), in 2007 only 2.8 percent of U.S. GHG emissions came from animal agriculture through a process called enteric fermentation (the digestion of feed by ruminant animals like cattle and sheep) and through manure management. Since 1990, animal agriculture's contribution to greenhouse gas emissions has remained nearly constant. This is impressive considering the U.S. has increased its meat production by almost 50 percent, milk production by 16 percent and egg production by almost 33 percent.

The fact that GHG emissions from U.S. animal agriculture have remained relatively constant while protein production has increased dramatically reflects improved feed efficiencies of cattle, better manure management strategies and efficient use of cropland.

Specifically, in terms of grass-fed vs. corn or grain-fed cattle, researchers from Washington State University, University of California-Davis, University of New South Wales (Australia) and the Hudson Institute Center for Global Food Issues found that pound-for-pound, beef produced with grain produces significantly less greenhouse gas emissions than grass-fed beef.

A grain diet, researchers point out, is more easily digestible than the cellulose fibers of grass, producing less methane. Furthermore, grass-fed cattle take longer to reach slaughter weights, and in that time produce more methane than grain-fed cattle in feedlots.

In addition, grass-fed cattle require more than five acres to produce a pound of beef, while less than 1.7 acres are needed in a grain-fed feedlot system, conserving a significant amount of land

There are more studies underway to further clarify the issue. Most recently, in January 2010, the World Organization for Animal Health (OIE) announced plans to study the impact of meat output on climate change in the light of debate about meat's contribution to greenhouse gas emissions.

---

### HELPFUL LINKS

*NAMI's Fact Sheet on Climate Change and Animal Agriculture:*  
<http://www.meatinstitute.org/ht/d/sp/i/47385/pid/47385>.

*Demystifying the Environmental Sustainability of Food Production, Washington State and Cornell Universities and Elanco Animal Health:*  
[http://wsu.academia.edu/documents/0046/7264/2009\\_Cornell\\_Nutrition\\_Conference\\_Capper\\_et\\_al.pdf](http://wsu.academia.edu/documents/0046/7264/2009_Cornell_Nutrition_Conference_Capper_et_al.pdf)

*E. coli O157:H7 in Hay- or Grain-fed Cattle:* <http://bit.ly/9oENMO>

*Clearing the Air: Livestock's Contribution to Climate Change, Advances in Agronomy, September 2009:* <http://bit.ly/9XMiFl>

---

### THIRD-PARTY EXPERTS

#### **Frank Mitloehner, Ph.D.**

Professor and Air Quality Extension Specialist  
Department of Animal Science  
University of California Davis  
(530) 752-3936  
[FMMitloehner@ucdavis.edu](mailto:FMMitloehner@ucdavis.edu)

#### **Guy Loneragan, Ph.D.**

Professor  
College of Agricultural Sciences & Natural Resources  
Texas Tech University  
(806) 742-2805  
[guy.loneragan@ttu.edu](mailto:guy.loneragan@ttu.edu)

#### **Ty E. Lawrence, Ph.D.**

Associate Professor of Animal Science  
West Texas A & M University  
(806) 651-2560  
[tlawrence@wtamu.edu](mailto:tlawrence@wtamu.edu)