GRAIN-FINISHED VS. GRASS FINISHED BEEF
Understanding Beef Production Practices and Their Impact on Nutrition Quality

You may see statements reflecting the different production practices on beef packages. The U.S. Department of Agriculture (USDA) approves these labels for beef based on specific criteria.

**GRAIN-FINISHED**
- Spend the majority of their lives eating grass or forage
- Spend 4-6 months at a feedyard eating a balanced diet of grains, local feed ingredients, like potato hulls or sugar beets, and hay or forage
- May or may not be given U.S. Food and Drug Administration (FDA)-approved antibiotics to treat, prevent or control disease and/or growth-promoting hormones

Most beef is from cattle that are raised this way and the packages likely don’t have a specific label claim.

**GRASS-FINISHED or GRASS-FED**
- Spend their whole lives eating grass or forage
- May also eat grass, forage, hay or silage at a feedyard
- May or may not be given FDA-approved antibiotics to treat, prevent or control disease and/or growth-promoting hormones

**CERTIFIED ORGANIC**
- Never receive any antibiotics or growth-promoting hormones
- May be either grain- or grass-finished, as long as the USDA’s Agriculture Marketing Service (AMS) certifies the feed is 100% organically grown
- May spend time at a feedyard

**NATURALLY RAISED**
May be referred to as “never-ever”
- Never receive any antibiotics or growth-promoting hormones
- May be either grain- or grass-finished
- May spend time at a feedyard

**WHAT CATTLE EAT**
Most cattle spend the majority of their lives grazing on pasture, and for grain-finished cattle, less than 11% of their lifetime feed is grain. All grain-finished and some grass-finished cattle spend their last months in a feedyard. Some grass-finished cattle may spend their entire lives on pasture.

**TYPICAL U.S. CATTLE LIFECYCLE**

**IS GRASS-FINISHED MORE SUSTAINABLE?**
Yes and no! Grain-finished beef has a lower carbon footprint since the cattle reach production weight at a younger age. However, grass-finished cattle can contribute to sustainability by using forage from grasslands that sequester carbon.
NUTRITION FACTS

The only nutritional differences between the various beef choices relate to the fatty acid content and profile of grain-finished beef versus grass-finished beef. Many cuts of both grain-finished and grass-finished beef meet USDA guidelines for lean.* In general, grass-finished beef tends to be leaner than grain-finished beef; however, as shown below, with its higher monounsaturated fat content, the fatty acid profile of grain-finished beef may be more conducive to better health outcomes.

- The predominant fatty acids in both are MUFA and saturated fat (SFA)
- MUFA’s are the same type of fat found in avocado and olive oil

The only nutritional differences between the various beef choices relate to the fatty acid content of both grain-finished and grass-finished beef. Many cuts of both grain-finished and grass-finished beef may be important for increasing plasma HDL cholesterol content among beef consumers.1

ESSENTIAL NUTRIENTS IN BEEF

Nutrition experts agree that all beef, consumed in the context of an individual’s total diet, essentially provides the same health benefits. Beef is a natural source of 10 essential nutrients including protein, iron, zinc and many B vitamins.2

- Protein helps strengthen, preserve and build muscle
- Iron helps the body transport and use oxygen to power through the day
- Zinc helps maintain a healthy immune system and is required for proper growth and body function
- Vitamins B6, B12, Riboflavin and Niacin support brain function and energy production from food

SUSTAINABILITY FACTS

- Compared to other cattle-producing countries, U.S. beef has one of the lowest carbon footprints in the world, 10 to 50 times lower than some nations. Greenhouse gas (GHG) emissions from cattle account for only 2 percent of U.S. GHG emissions.
- U.S. farmers and ranchers produce 18% of the world’s beef with only 8% of the world’s cattle.
- Cattle play a unique role as upcyclers, as grain-finished beef cattle provide 19% more human-edible protein than they consume.

About one-third of the SFA in beef is stearic acid, a unique SFA which studies show has a neutral effect on blood total and low-density lipoprotein (LDL) cholesterol levels.4,5

FATTY ACID CONTENT COMPARISON6

<table>
<thead>
<tr>
<th></th>
<th>Grain-finished</th>
<th>Grass-finished</th>
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</thead>
<tbody>
<tr>
<td>MUFA</td>
<td>1.90</td>
<td>1.26</td>
</tr>
<tr>
<td>SFA</td>
<td>0.90</td>
<td>0.69</td>
</tr>
<tr>
<td>Stearic Acid</td>
<td>0.57</td>
<td>0.37</td>
</tr>
<tr>
<td>Omega-6</td>
<td>0.13</td>
<td>0.06</td>
</tr>
<tr>
<td>Omega-3</td>
<td>0.02</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Total Fatty Acids
- Grain-finished - 3.89 grams
- Grass-finished - 2.06 grams

A The total fatty acids do not equal the total fat value because the fat value may include some non-fatty acid material, such as glycerol, phospholipids and sterols.
B minus stearic acid

FATTY ACID PROFILE COMPARISON6

<table>
<thead>
<tr>
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<th>Grain-finished</th>
<th>Grass-finished</th>
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</thead>
<tbody>
<tr>
<td>MUFA</td>
<td>49%</td>
<td>44%</td>
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<tr>
<td>SFA</td>
<td>41%</td>
<td>37%</td>
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<tr>
<td>Stearic Acid</td>
<td>18%</td>
<td>15%</td>
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<tr>
<td>Omega-6</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Omega-3</td>
<td>2%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Percent of total fatty acids

PERCENT OF TOTAL GREENHOUSE GAS EMISSIONS10


References
1. Rotz et al., 2019. Ag Syst. 169 (Feb.):1-13
7. 9 CFR § 317.362 - Nutrient content claims for fat, fatty acids, and cholesterol content
11. UN FAOSTAT database. Available at: http://www.nass.usda.gov/Quick_Stats/

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