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The Differences Between Grass-Fed Beef and Grain-Fed Beef

Posted By *Mark Sisson* On April 7, 2011 @ 10:57 am In Diet & Nutrition, Grains, Protein | [227 Comments](#)

When making the transition into the Primal way of life, a lot of people get tripped up on the question of grass-fed beef. Is it necessary? (No.) Is there really that big a difference between conventional beef and grass-fed beef? (Kinda.) What does grass-fed actually mean? How do conventional cows live and what do they eat – and does that matter enough to me to make the effort to incorporate true grass-fed beef into my diet?

Hopefully, the following article will shed a bit of light on the subject, making it easier for you to make an informed decision based on your preferences, your needs, your budget, your personal ethics, and the objective information provided.

Cow's Diet

You'd think this would be a simple, single sentence section – grass-fed cows eat grass, grain-fed cows eat grain. Bam. Done, right? Not quite.

For the most part, all cows start on grass. Well, calves drink milk, obviously, and then "[milk replacement](#) ^[1]" (which appears to be a sort of high-powered protein shake made of milk proteins, lard, lactose, added minerals, and several choice supplements) upon separation from their mothers, but even the most [CAFOed out cow](#) ^[2] probably started with grass before being switched to concentrated feed. Concentrated feed can mean any number of things, but the base food is always a grain slurry, typically of [corn](#) ^[3] and corn byproducts (husks, cobs), soy and soy hulls, spent brewery grain, spent distiller's grain, and other cereals. CAFO nutritionists [can get pretty creative](#) ^[4], though, sometimes including cotton byproducts, old candy (including wrappers), beet and citrus pulp, and peanut shells in their cows' diet.

To say grass-fed cows eat grass isn't telling the entire story. It's more accurate to say they eat graminoids, which comprise hundreds of different species of sedges (found in wild marshes and grasslands; a famous sedge includes papyrus), rushes (a small but plucky family of herbaceous and rhizomatous plants), and true grasses (cereals, lawn grass, bamboo, grassland grass – the type of grass that produces the leaves Walt Whitman writes about). And that's just the graminoid. Cows will also nibble on shrubs, clovers, and random leaves if they can get to them. Basically, they'll eat whatever's in reach, green, and leafy. Legally, grass-fed cows may also eat cereal grain crops in the "pre-grain stage," hay, silage, and non-grain crop byproducts (one of my favorite farms gives their cows leftover [veggies](#) ^[5], for example, and it's fantastic; that would qualify).

There's yet another hazy category: the pasture-raised cow. These guys get steady lifelong access to open pastures, but those pastures are supplemented with feed bins containing grain feed. Not technically grass-fed, but not quite sucking down gumdrops like Grandma. Purveyors of pastured cattle who include grain in the feed are usually pretty conscientious stewards of their operation, and I've had great meat from cows that were fed grass and grain [6] concurrently.

Living Conditions

While both grass-fed and CAFO cows start out on grass and milk (many of those cows you see grazing on open grassland along highways end up in feedlots eventually), only exclusively grass-fed cows live out their entire lives on grassland. CAFO cows move to feedlots once they hit 650 or 750 pounds, a weight it takes the average cow twelve months to reach on pasture. Feedlot life lasts three to four months, plenty of time to boost the animal's weight above 1200 pounds and increase intramuscular fat deposition (marbling). Feedlots have the potential to be pretty grim places. While I'm sure "good" feedlots exist, nondescript, bleak pens crowded with sick, overweight [7] cattle and their manure are the norm. The purpose of the feedlot, after all, is to maximize weight gain and minimize overhead. You don't do either by recreating the cow's natural habitat.

Whenever I drive up the I-5 to Northern California, I pass the Harris Ranch feedlot in Coalinga. The Harris ranch feedlot is the largest I've ever personally seen – up to 250,000 head of cattle annually, 100,000 head at any one time, about 200 million pounds of beef [8] produced each year – but it's actually considered to be a moderate sized feedlot. If it's above 80 degrees, you smell the lot long before you see the signs for it. Now, I'm not citing any studies here, but I think it's a safe assumption that cows prefer a grassy paddock to a pond of their own manure. You don't have to care about the animal's welfare – after all, we're going to end up eating them – but I enjoy my meat more knowing that it comes from an honest operation that respects its participants' living conditions.

Does it matter?

I think so. I make no bones about my primary reason for supporting grass-fed beef (I, ahem, want to eat delicious animals and buying delicious animals promotes their production), but that doesn't mean I don't care about their welfare [9] while alive. I've been to grassland farms with families of cattle ranging, and if you get too close to a calf the mother will stomp and chase you down. I didn't even know cows could run like that. Are they cud-chewing ungulates with minimal brainpower in the grand scheme of things? Sure, but they care about stuff in their own beefy way. And I find that pretty touching. I've also hiked through cattle farms and watched the cows [10] roam and range all over for acres, contrary to the grass-fed detractor's claim that cows prefer to be confined to a single, safe spot.

Nutrition

I've been one to bang the omega-6 in feedlot beef drum, perhaps as loudly as anyone, but I think a revisiting is in order. Simply put, while the omega-6:omega-3 ratio in CAFO beef is worse than the ratio in grass-fed beef, it's not because the omega-6 content of beef fat skyrockets with grain

feeding; it's because the omega-3 content is basically nonexistent. The absolute totals of omega-6 in grass-fed and grain-fed are roughly similar. Grass-fed is even richer in PUFA ^[11] by percentage, owing to the increase in omega-3s. As long as you're avoiding or limiting the real big sources of linoleic acid ^[11] in the diet, like seed oils ^[12], bushels of nuts ^[13], and conventionally raised poultry fat, the omega-6 content of conventional beef fat won't throw your tissue ratios off by much (if at all). What will, however, is the lack of omega-3 fats in grain-fed ^[14]. Eat some fatty fish ^[15] or take some high quality fish oil ^[16] to round it out.

Grass-fed beef is also higher ^[17] in B-vitamins, beta-carotene (look for yellow fat ^[18]), vitamin E (alpha-tocopherol), vitamin K, and trace minerals like magnesium, calcium, and selenium. Studies show grass feeding results in higher levels of conjugated linoleic acid ^[19], the "good" naturally occurring trans fat. Studies also typically show lower total levels of saturated ^[20], monounsaturated ^[21], and polyunsaturated fats in grass-fed cows, but that's just looking at the trimmed cuts. If you look at the whole carcass post-slaughter, you'll find it's encased in a thick shell of saturated animal fat that gets removed because consumers are scared of it and many grass-fed producers love to market their meat as low in "bad fat" and low in cholesterol. Kurt Harris, who regularly hunts "lean" wild bucks and miraculously discovers ample stores of body fat, just put up a post dealing with this exact issue ^[22]. Long story short: grass-fed beef has plenty of fat, it's just distributed differently. More subtle marbling and more subcutaneous deposition.

Grass-fed truly shines in the micronutrient profile for one reason. Grass-fed cows get more nutritious food. Remember: they aren't munching on monoculture lawn cuttings (let alone soy and corn). They're eating a wide variety of (often wild) grasses, sedges, rushes, shrubs, and herbs, each with its own nutrient profile. Of course, how nutritious those graminoids are depends on the quality of the soil, or the terroir ^[23]. If we care about what our food eats, we should also care about what the food that our food eats is eating, right? Grass-fed isn't just miraculously higher in selenium because of some magic process; it's higher because grass grown in good wild soil patrolled by plenty of mobile, self-perpetuating organic fertilizer machines contains more selenium than soybeans or corn grown on nutrient deficient land. It should follow that pastured, grain-supplemented beef raised on good soil by good ranchers also contains higher levels of micronutrients when compared to the CAFO cow, albeit not as high as the purely grass-fed.

Eat beef, first and foremost. **Get the highest quality beef you can afford, whether that ends up being premium grass-finished from the farm up the road or USDA Prime from Costco.** Don't let the perfect be the enemy of the good ^[24]. Man cannot live on wild caught canned sardines and crushing angst alone.

Cost and Accessibility

For the average grocery store shopper, conventional meat is cheaper and easier to get. You drive your car to the grocery store parking lot, walk twenty feet to the entrance, walk to the meat counter, balk at the \$9/lb grass-fed ground round, grab a few Styrofoam containers of ground beef

for a few bucks per pound instead, and you're done. Not much thinking, hard work, or money required. This is how most people handle their meat acquisition.

If you want that same deal for the grass-fed beef, you have several options.

Wait for a sale at the grocery store and stock up. It probably won't hit \$3/lb, but you might save a few bucks.

[Find a farmers' market nearby](#) ^[25] (if any exist and the season permits) that has a grass-fed beef vendor. Hope they sell for a reasonable price, haggle if not. Buying large quantities might lower costs for you.

Buy direct from a farm. Search [Eatwild](#) ^[26] or browse the [list from this post](#) ^[27] for the nearest provider. Oh, and you'll need a freezer to store all the meat, since you'll have to buy in bulk to reduce costs. If you go this route, you can sometimes get a quarter, half, or entire cow for as little as \$4/lb. (Hint: remember to ask for the fat!)

Each route involves more effort, more money, and/or more time. All three are worth pursuing (grass-fed is that much better, in my opinion), but I can understand why the barrier to entry appears so high – a combination of price and time. To reduce the former requires more of the latter, usually. And if you do it right and get a freezer to go with your side of beef, you're still incurring a big initial investment. Not everyone can do that.

To my knowledge, "average" price figures don't exist. Grass-fed from one Whole Foods can be a dollar cheaper per pound than in another Whole Foods two zip codes over; the same farmer who gives me grass-fed ground round for four bucks a pound at the Santa Monica farmers' market might charge five dollars at the Beverly Hills market.

Bottom line? Paying \$12/lb for grass-fed flat iron steak regularly isn't worth it, to me, but spending extra time researching farms/visiting farmers' markets/scoping out sales to obtain [affordable grass-fed beef](#) ^[28] definitely is worth doing.

Availability

From 1998 to 2009, the number of serious grass-fed producers in the United States grew from just 100 to over 2,000. [Market share grew](#) ^[29] in the same time frame from just \$2 million to \$380 million (to over \$1 billion if you include imported grass-fed beef). Today, you can find grass-fed beef (and [lamb](#) ^[30] and bison, even) in standard supermarkets, not just your specialty upscale grocers. [Farmers' markets](#) ^[31] are exploding (I gotta arrive earlier every weekend, it seems), and the Slow Food/locavore movements are picking up steam. **Clearly, the availability of grass-fed beef is growing with growing consumer awareness and demand – funny how that works out, eh?**

Taste

In the end, what else matters? The final arbiter of a food's worthiness is always taste. Food should – must – taste good for us to eat it, especially food that is responsible for a big portion of our caloric intake. Typical grass-fed beef is intramuscularly leaner, more robust, and "beefier" than typical CAFO beef, which I find to be somewhat mushy and bland.

Still, stringy, tough, unpalatable grass-fed beef exists along with incredible grain-finished beef. I've had both. I've eaten great conventional chuck roasts purchased for a few bucks per pound at the Hispanic supermarket and I've had excellent steaks from Prather Ranch ^[32], a Northern California producer that goes purely grass-fed until the last few weeks of a cow's life, when its diet is supplemented with chopped forage, rice, and barley. While good grass-fed is better than anything else, the grass-fed label can't make up for a bad rancher (or poor foraging) and a good rancher can make up for some grain in the diet (taste-wise; perhaps not nutritionally).

For me, the clearly superior version of beef comes from the grass-fed and –finished cows raised by ranchers committed to providing excellent stewardship of both soil and cattle. Next, cows that have been grass-fed, pastured, and grain-finished by similarly committed producers with similarly maintained soil quality.

After that? Just eat beef. Whatever you can get on a regular basis. Grab the occasional grass-fed cut when you can, see how it tastes, and figure out if it's worth it to you.

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URLs in this post:

- [1] milk replacement: http://www.merricks.com/tech_milkreplacerguide.htm
- [2] CAFOed out cow: <https://www.marksdailyapple.com/concentrated-animal-feeding-operations/>
- [3] corn: <https://www.marksdailyapple.com/corn-is-not-a-vegetable/>
- [4] can get pretty creative: <http://www.aces.edu/pubs/docs/A/ANR-1237/>
- [5] veggies: <https://www.marksdailyapple.com/spring-vegetables/>
- [6] grain: <https://www.marksdailyapple.com/grain-pain/>
- [7] overweight: <https://www.marksdailyapple.com/trusting-authorities-or-not-based-on-appearance/>
- [8] beef: <https://www.marksdailyapple.com/beef-burgundy-recipe/>
- [9] care about their welfare: <https://www.marksdailyapple.com/the-human-animal-connection/>
- [10] cows: <https://www.marksdailyapple.com/lessons-in-food-respect/>
- [11] PUFA: <https://www.marksdailyapple.com/polyunsaturated-fat/>
- [12] seed oils: <https://www.marksdailyapple.com/healthy-oils/>
- [13] bushels of nuts: <https://www.marksdailyapple.com/nuts-omega-6-fats/>
- [14] lack of omega-3 fats in grain-fed: <https://www.marksdailyapple.com/monday-musings-new-grass-fed-study/>
- [15] fatty fish: <https://www.marksdailyapple.com/salmon-factory-farm-vs-wild/>
- [16] fish oil: http://www.primalblueprint.com/product/Vital_Omegas/Supplements
- [17] is also higher: <http://jas.fass.org/cgi/content/short/jas.2009-1850v1>
- [18] yellow fat: <http://www.tribeofive.com/2010/11/just-watch-animals.html>
- [19] conjugated linoleic acid: <https://www.marksdailyapple.com/grass-fed-butter/>
- [20] saturated: <https://www.marksdailyapple.com/saturated-fat-healthy/>
- [21] monounsaturated: <https://www.marksdailyapple.com/fats/>

- [22] post dealing with this exact issue: <http://www.archevore.com/panu-weblog/2011/4/5/wild-vs-grass-vs-grain-fed-ruminants.html>
- [23] terroir: <http://en.wikipedia.org/wiki/Terroir>
- [24] Don't let the perfect be the enemy of the good: <https://www.marksdailyapple.com/dont-let-the-perfect-be-the-enemy-of-the-good/>
- [25] Find a farmers' market nearby: <http://www.localharvest.org/>
- [26] Eatwild: <http://eatwild.com/>
- [27] list from this post: <https://www.marksdailyapple.com/where-to-buy-grass-fed-beef/>
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- [29] Market share grew: http://www.agriview.com/articles/2011/01/livestock_news/livestock01.txt
- [30] lamb: <https://www.marksdailyapple.com/lamb/>
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- [32] Prather Ranch: <http://www.pratherranch.com/page/1010/our/practices.html?inet=aD1iaGUtY2VucGd2cHJmLXlhcZyaD1iZXRuYXZwLWlmLWFuZ2hbnkteWF4>

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