

## Health Benefits of Grass-Fed Products

Meat, eggs, and dairy products from pastured animals are ideal for your health. Compared with commercial products, they offer you more "good" fats, and fewer "bad" fats. They are richer in antioxidants; including vitamins E, beta-carotene, and vitamin C. Furthermore, they do not contain traces of added hormones, antibiotics or other drugs.

Below is a summary of these important benefits. Following the summary is a list of news bulletins that provide additional reasons for finding a local provider of grass-fed food.

### Summary of Important Health Benefits of Grassfed Meats, Eggs and Dairy

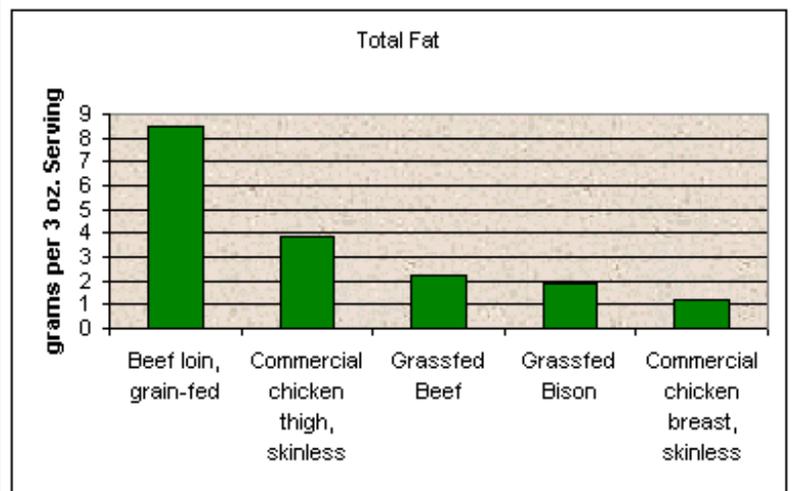
**Lower in Fat and Calories.** There are a number of nutritional differences between the meat of pasture-raised and feedlot-raised animals. To begin with, meat from grass-fed cattle, sheep, and bison is lower in total fat. If the meat is very lean, it can have one third as much fat as a similar cut from a grain-fed animal. In fact, as you can see by the graph below, grass-fed beef can have the same amount of fat as skinless chicken breast, wild deer, or elk.<sup>[1]</sup> Research shows that lean beef actually lowers your "bad" LDL cholesterol levels.<sup>[2]</sup>

*Data from J. Animal Sci 80(5):1202-11.*

Because meat from grass-fed animals is lower in fat than meat from grain-fed animals, it is also lower in calories. (Fat has 9 calories per gram, compared with only 4 calories for protein and carbohydrates. The greater the fat content, the greater the number of calories.) As an example, a 6-ounce steak from a grass-finished steer can have 100 fewer calories than a 6-ounce steak from a grain-fed

steer. If you eat a typical amount of beef (66.5 pounds a year), switching to lean grassfed beef will save you 17,733 calories a year—without requiring any willpower or change in your eating habits. If everything else in your diet remains constant, you'll lose about six pounds a year. If all Americans switched to grassfed meat, our national epidemic of obesity might diminish.

In the past few years, producers of grass-fed beef have been looking for ways to increase the amount of marbling in the meat so that consumers will have a more familiar product. But even these fatter cuts of grass-fed beef are lower in fat and calories than beef from grain-fed cattle.

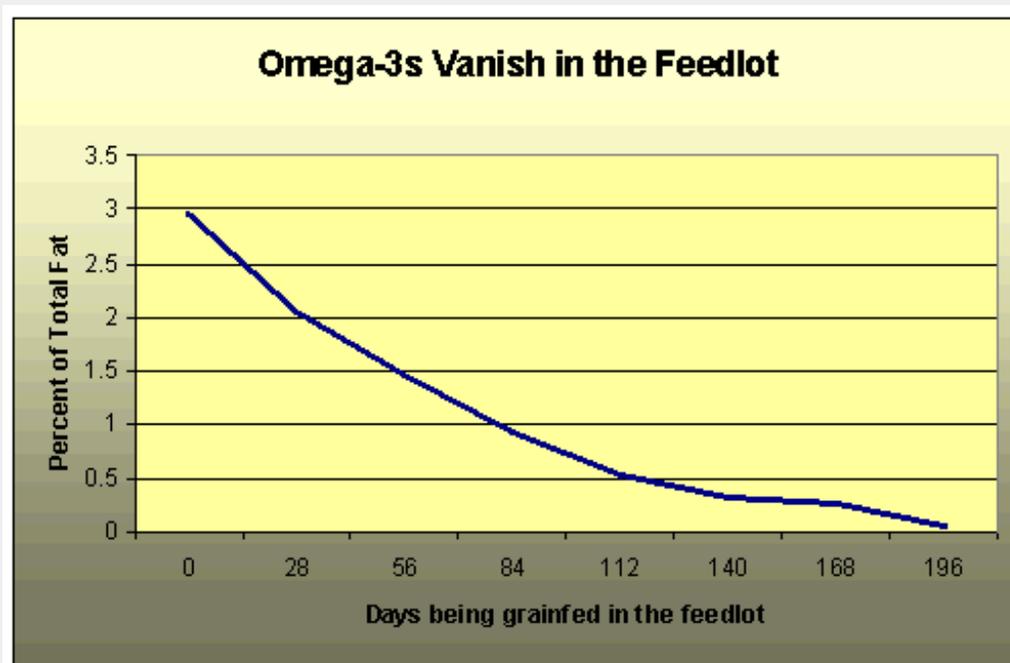


**Extra Omega-3s.** Meat from grass-fed animals has two to four times more omega-3 fatty

acids than meat from grain-fed animals. Omega-3s are called "good fats" because they play a vital role in every cell and system in your body. For example, of all the fats, they are the most heart-friendly. People who have ample amounts of omega-3s in their diet are less likely to have high blood pressure or an irregular heartbeat. Remarkably, they are 50 percent less likely to suffer a heart attack.[3] Omega-3s are essential for your brain as well. People with a diet rich in omega-3s are less likely to suffer from depression, schizophrenia, attention deficit disorder (hyperactivity), or Alzheimer's disease.[4]

Another benefit of omega-3s is that they may reduce your risk of cancer. In animal studies, these essential fats have slowed the growth of a wide array of cancers and also kept them from spreading.[5] Although the human research is in its infancy, researchers have shown that omega-3s can slow or even reverse the extreme weight loss that accompanies advanced cancer and also hasten recovery from surgery.[6,7]

Omega-3s are most abundant in seafood and certain nuts and seeds such as flaxseeds and walnuts, but they are also found in animals raised on pasture. The reason is simple. Omega-3s are formed in the chloroplasts of green leaves and algae. Sixty percent of the fatty acids in grass are omega-3s. When cattle are taken off omega-3 rich grass and shipped to a feedlot to be fattened on omega-3 poor grain, they begin losing their store of this beneficial fat. Each day that an animal spends in the feedlot, its supply of omega-3s is diminished.[8] The graph below illustrates this steady decline.



*Data from: J Animal Sci (1993) 71(8):2079-88.*

When chickens are housed indoors and deprived of greens, their meat and eggs also become artificially low in omega-3s. Eggs from pastured hens can contain as much as 10 times more omega-3s than eggs from factory hens.[9]

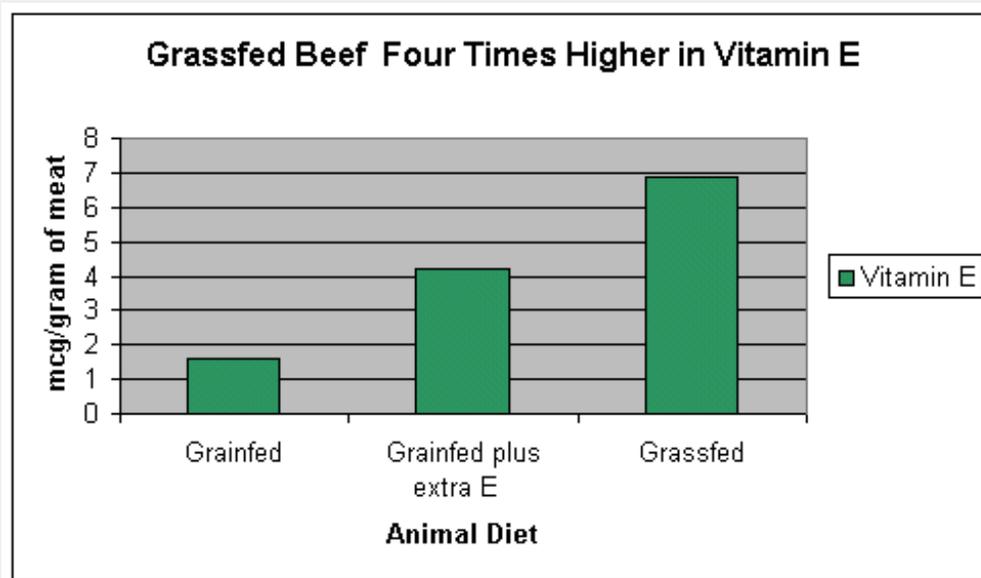
It has been estimated that only 40 percent of Americans consume an adequate supply of omega-3 fatty acids. Twenty percent have blood levels so low that they cannot be detected.[10] Switching to the meat, milk, and dairy products of grass-fed animals is one way to restore this vital nutrient to your diet.

The CLA Bonus. Meat and dairy products from grass-fed ruminants are the richest known

source of another type of good fat called "**conjugated linoleic acid**" or CLA. When ruminants are raised on fresh pasture alone, their products contain from three to five times more CLA than products from animals fed conventional diets.[11] (A steak from the most marbled grass-fed animals will have the most CLA ,as much of the CLA is stored in fat cells.)

CLA may be one of our most potent defenses against cancer. In laboratory animals, a very small percentage of CLA—a mere 0.1 percent of total calories—greatly reduced tumor growth. [12] There is new evidence that CLA may also reduce cancer risk in humans. In a Finnish study, women who had the highest levels of CLA in their diet, had a 60 percent lower risk of breast cancer than those with the lowest levels. Switching from grain-fed to grassfed meat and dairy products places women in this lowest risk category.13 Researcher Tilak Dhiman from Utah State University estimates that you may be able to lower your risk of cancer simply by eating the following grassfed products each day: one glass of whole milk, one ounce of cheese, and one serving of meat. You would have to eat five times that amount of grain-fed meat and dairy products to get the same level of protection.

**Vitamin E.** In addition to being higher in omega-3s and CLA, meat from grassfed animals is also higher in vitamin E. The graph below shows vitamin E levels in meat from: 1) feedlot cattle, 2) feedlot cattle given high doses of synthetic vitamin E (1,000 IU per day), and 3) cattle raised on fresh pasture with no added supplements. The meat from the pastured cattle is four times higher in vitamin E than the meat from the feedlot cattle and, interestingly, almost twice as high as the meat from the feedlot cattle given vitamin E supplements. [14#] In humans, vitamin E is linked with a lower risk of heart disease and cancer. This potent antioxidant may also have anti-aging properties. Most Americans are deficient in vitamin E.



Data from: Smith, G.C. "

Dietary supplementation of vitamin E to cattle to improve shelf life and case life of beef for domestic and international markets." Colorado State University, Fort Collins, Colorado 80523-1171

[Click here to read \*Super Healthy Milk\*, an article about the health benefits of dairy products from grass-fed animals.](#)

## Nearly half of US meat and poultry likely contaminated with Staph

Almost half the meat and poultry sold in the US is likely to be contaminated by highly dangerous bacteria, according to research published this month (April 2011) in the scientific journal, *Clinical Infectious Diseases*.

The study estimates that 47 percent of the meat and poultry on US supermarket shelves contains the bacteria *staphylococcus aureus* ("Staph"). It is not, however, among the four bacteria —*Salmonella*, *Campylobacter*, *E. coli*, and *Enterococcus*—routinely tested in meat by the US government.

The researchers tested 136 samples from 80 brands of beef, pork, chicken and turkey, purchased from 26 grocery stores in five major US cities. DNA tests from staph-infected samples suggest that the farm animals themselves were the major source of contamination. "Densely-stocked industrial farms, where food animals are steadily fed low doses of antibiotics... [are] ideal breeding grounds for drug-resistant bacteria that move from animals to humans," according to the report.

The bacteria is not only linked to a number of human diseases, but is also resistant to at least three classes of antibiotics. Lance B. Price, Ph. D., senior author of the study, stated that "The fact that drug-resistant *S. aureus* was so prevalent, and likely came from the food animals themselves, is troubling, and demands attention to how antibiotics are used in food-animal production today."

"Antibiotics are the most important drugs that we have to treat Staph infections; but when Staph are resistant to three, four, five or even nine different antibiotics -- like we saw in this study -- that leaves physicians few options," Price said. [Click here to read more](#)

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## Grass-fed meats improve fat levels

Eating moderate amounts of grass-fed meat for only 4 weeks will give you healthier levels of essential fats, according to a 2011 study in the *British Journal of Nutrition*.

The British research showed that healthy volunteers who ate grass-fed meat increased their blood levels of omega-3 fatty acids and decreased their level of pro-inflammatory omega-6 fatty acids. These changes are linked with a lower risk of a host of disorders, including cancer, cardiovascular disease, depression, and inflammatory disease.

Interestingly, volunteers who consumed conventional, grain-fed meat ended up with *lower* levels of omega-3s and *higher* levels of omega-6s than they had at the beginning of the study, suggesting that eating conventional meat had been detrimental to their health.

*British Journal of Nutrition* (2011) Red meat from animals offered a grass diet increases plasma and platelet N-3 PUFA in healthy consumers. Volume 105, pages 80-89.

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## ALA keeps breast cancer away

The meat and dairy products of animals raised on pasture are higher in omega-3s than animals raised in factory farms. The most abundant omega-3 in pastured products is called "alpha-linoleic

acid” or ALA. A study of breast cancer survivors revealed that the women with the most ALA in their tissues---and therefore the most ALA in their diets---were one fourth as likely to have their cancers return as women with the least amount. Most women who die from breast cancer die from a tumor that has metastasized, not from the original tumor. This is yet another reason to eat cheese, milk, and meat from pastured animals.

*British Journal of Cancer*, 1994. Volume 70 pages 330-4.

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## How much arsenic did *you* eat for Thanksgiving?



Since the 1960s, large-scale poultry producers have added arsenic to their poultry feed. Although inorganic arsenic is a toxin, small amounts speed the growth of the birds, make their breast meat pinker, and kill certain bacteria. Is this practice harmful for humans? Chronic exposure to high levels of arsenic has been linked with cancer, heart disease, diabetes and a decline in brain function. But as long as poultry meat has fewer than 0.5 parts of arsenic per million, the USDA has decreed that it is safe to eat.

That ruling, set in the 1950s, must be revised. Within the past few years, studies show that arsenic is a more potent cancer promoter than first believed. It has to do with its effect on blood vessels. The reason that arsenic makes white meat pinker is that it increases the growth of blood vessels in the meat. The more blood, the pinker the color. That process, called “angiogenesis” also plays a key role in cancer promotion. Cancer cells cannot speed up their growth without the creation of new blood vessels to fuel them with nutrients. Arsenic does the trick, according to a study published in the journal *Environmental Health Perspectives*. (Citation below.)

The European Union banned the use of arsenic in poultry production in 1999. Several large U.S. producers have stopped the practice on their own, including Tyson Foods and Perdue Farms. Arsenic should be banned in all animal feed. Organic poultry and the poultry raised by [Eatwild Producers](#) are free of arsenic and other potentially harmful chemicals.

*Environmental Health Perspectives*, Volume 116, number 4, 2008.

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## “Omega-6 is like a fat producing bomb...”

So said French researcher Gerard Ailhaud, commenting on the results of a new study showing that mice fed the amount of omega-6 fatty acids present in the modern western diet grow fatter and fatter with each succeeding generation. In the picture shown, the mouse on the left was raised on the high levels of omega-6 fatty acids and low levels of omega-3 fatty acids typical of the American diet. In addition to being grossly overweight, it has the warning signs of diabetes. The healthy mouse on the right was raised on



standard mouse chow. The two mice got equal amounts of exercise. The mice are the fourth generation to be raised on the two types of diet.



Omega-6 fatty acids are essential for health, but the amount consumed by most Americans increases the risk of obesity, diabetes, inflammatory diseases, and cancer. Omega-6s are most abundant in vegetable oils such as corn oil, safflower oil, and cottonseed oils. (Olive oil is low in omega-6 fatty acids.) Few people realize that grain-fed animals are also a major source of omega-6s. Meat and dairy products from animals fed a high-grain diet, which is the typical feedlot diet, have up to ten times more omega-6s than products from animals raised on their natural diet of pasture.

This study suggests that if we switch to food with a healthy balance of omega-6 and omega-3 fatty acids, we will be leaner and healthier, and so will our children, grandchildren, and great grandchildren.

Massiera, F; Barbry, P; Guesnet, P; Joly, A; Luquet, S; Brest, CM; Mohsen-Kanson, T; Amri, E and G. Ailhaud. *A Western-like fat diet is sufficient to induce a gradual enhancement in fat mass over generations. Journal of Lipid Research.* August 2010. Volume 51, pages 2352-2361.

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## **Take care of your heart! Eat whole milk dairy products from grass-fed cows.**

For decades, we've been told that eating full-fat dairy products increases the risk of heart attack. Now, a study from the *Journal of Clinical Nutrition* says that the *more* full-fat dairy products people consume, the lower their risk of heart attack---*provided the cows were grass-fed.*

The reason grass-fed milk is protective is that it has up to five times more conjugated linoleic acid or CLA. CLA is a healthy fat found in the meat and milk of grazing animals. People who eat grass-fed dairy products absorb the CLA and store it in their tissues. In this new study of over 3,500 people, those with the highest levels of CLA in their tissues had a *fifty percent lower risk of heart attack* than those with the lowest levels. Keeping Bossy on grass could prevent more heart attacks than putting people on expensive pharmaceutical drugs with all their troubling side effects.

Smit, Liesbeth A, Ana Baylin, and Hannia Campos. 2010. Conjugated linoleic acid in adipose tissue and risk of myocardial infarction. *The American Journal of Clinical Nutrition.* Published ahead of print, May 12, 2010.

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## **New term you need to know: "by-product feedstuffs"**

Fresh pasture and dried grasses are the natural diet of all ruminant animals. In factory farms, animals are switched to an unnatural diet based on corn and soy. But corn and soy are not the only ingredients in their "balanced rations." Many large-scale dairy farmers and feedlot operators save money by feeding the cows "by-product feedstuffs" as well. In general, this means waste products from the manufacture of human food. In particular, it can mean sterilized city garbage, candy, bubble gum, floor sweepings from plants that manufacture animal food, bakery, potato wastes or a scientific blend of pasta and candy.

Here are some of the "by-product feedstuffs commonly used in dairy cattle diets in the Upper Midwest."\*

- **Candy.** Candy products are available through a number of distributors and sometimes

directly from smaller plants... They are sometimes fed in their wrappers.... Candies, such as cull gummy bears, lemon drops or gum drops are high in sugar content.

- **Bakery Wastes.** Stale bread and other pastry products from stores or bakeries can be fed to dairy cattle in limited amounts. These products are sometimes fed as received without drying or even removal of the wrappers.
- **Potato Waste** is available in potato processing areas, and includes cull potatoes, French fries and potato chips. Cull fresh potatoes that are not frozen, rotten, or sprouted can be fed to cows either whole or chopped. Potato waste straight from a processing plant may contain varying amounts of inedible or rotten potatoes. French fries and chips contain fats or oils from frying operations.
- **Starch.** Unheated starch is available from some candy manufacturers and sometimes may contain pieces of candy.
- **Pasta** is available from pasta plants and some ingredient distributors as straight pasta or in blends with other ingredients, such as candy.

\*This list is excerpted from “By-Product Feedstuffs in Dairy Cattle Diets in the Upper Midwest,” published in 2008 by the College of Agricultural and Life Sciences at the University of Wisconsin at Madison.

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## Life on the Pharm

People who are exposed to farm chemicals have a much greater rate of Parkinson’s Disease, according to recent studies. Whether they are farm workers who are applying the chemicals or people who happen to live nearby, exposure to chemicals such as paraquat or the fungicide “maneb” increases the risk of Parkinsonism by 75 percent. There is no cure for this progressive disorder of the central nervous system that affects movement, mood, and behavior.



Buying food that’s pesticide-free is good for you and for people in farming communities. (Beate Ritz, *et al.* 2009. Parkinson’s Disease Residential Exposure to Maneb and Paraquat from Agricultural Applications in the Central Valley of California. *American Journal of Epidemiology*. 169 (8): 919)

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## Score Ten for Grass-Fed Beef

Grass-fed beef is better for human health than grain-fed beef in ten different ways, according to the most comprehensive analysis to date. The 2009 study was a joint effort between the USDA and researchers at Clemson University in South Carolina. Compared with grain-fed beef, grass-fed beef was:

1. Lower in total fat
2. Higher in beta-carotene

3. Higher in vitamin E (alpha-tocopherol)
4. Higher in the B-vitamins thiamin and riboflavin
5. Higher in the minerals calcium, magnesium, and potassium
6. Higher in total omega-3s
7. A healthier ratio of omega-6 to omega-3 fatty acids (1.65 vs 4.84)
8. Higher in CLA (cis-9 trans-11), a potential cancer fighter
9. Higher in vaccenic acid (which can be transformed into CLA)
10. Lower in the saturated fats linked with heart disease

S.K. Duckett *et al*, *Journal of Animal Science*, (published online) June 2009, "[Effects of winter stocker growth rate and finishing system on: III. Tissue proximate, fatty acid, vitamin and cholesterol content.](#)"

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## Eggs from pastured hens are far richer in vitamin D

Eggs from hens raised outdoors on pasture have from *three to six times more vitamin D* than eggs from hens raised in confinement. Pastured hens are exposed to direct sunlight, which their bodies convert to vitamin D and then pass on to the eggs.



Vitamin D is best known for its role in building strong bones. New research shows that it can also enhance the immune system, improve mood, reduce blood pressure, combat cancer, and reduce the risk of some autoimmune disorders.

This latest good news about eggs comes from a study just released by [Mother Earth News](#), a magazine that plays a leading role in promoting health-enhancing, natural foods. The editors found that eating just two eggs will give you from 63-126% of the recommended daily intake of vitamin D.

Note that this benefit comes only from hens that are free to graze fresh greens, eat bugs, and bask in the sun. Most of the eggs sold in the supermarket do not meet this criterion. Even though the label says that the eggs are "certified organic" or come from "uncaged" or "free-range" hens or from hens fed an "all-vegetarian" diet, this is no guarantee that the hens had access to the outdoors or pasture.

Look for eggs from "pastured" hens. You are most likely to find these superior eggs at farmer's markets or natural food stores.

Better yet, purchase them directly from your local farmer. Click on the following link, then scroll down to the yellow map of the United States. Click on your state. [Find eggs from pastured hens on eatwild.com](#)

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## The European Union refuses to buy U.S. chicken

Few people realize that the European Union has banned the import of all US poultry since 1997.

This month, EU agriculture ministers voted to continue the ban despite aggressive pressure from the United States. The issue? The standard practice in the US poultry industry is to wash the carcasses in chlorinated water to kill bacteria.

European health authorities are not convinced that it's safe to ingest the small amounts of chlorine that remain on the meat and concluded that lifting the ban would "threaten the community's entire set of food production standards."

John Bowis from the UK was more outspoken. He told reporters that "lifting the ban would be "outrageous" and would degrade EU citizens to the status of "guinea pigs."

Meanwhile, hundreds of millions of US citizens are unwittingly playing that role.

"EU Ban Remains on US Chickens" December 19, 2008, Meatprocess.com

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## Healthy Eggs: What We Knew in 1932

In the 1930s, scientists and food producers were creating the first plans to take poultry off family farms and raise them in confinement. To enact their plans, they needed to create "feed rations" that would keep the birds alive and productive even though they were denied their natural diet of greens, seeds, and insects. It was a time of trial and error.

In a 1932 experiment conducted by the U.S. Department of Agriculture, breeding hens were taken off pasture and fed a wide variety of feed ingredients. When the birds were fed a diet that was exclusively soy or corn or wheat or cottonseed meal, the chickens didn't lay eggs or the chicks that developed from the eggs had a high rate of mortality and disease.

But when birds were fed these same inadequate diets and put back on pasture, their eggs were perfectly normal. The pasture grasses and the bugs made up for whatever was missing in each of the highly restrictive diets.

"The effect of diet on egg composition." *Journal of Nutrition* 6(3) 225-242. 1933.

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## How Spreadable is Your Butter?

Take a cube of butter from your refrigerator, slice it with a knife, and spread it on a slice of bread. Did it coat the bread evenly or did it remain in hard lumps? Researchers have determined that the easier butter spreads, the better it is for your health.

Why is this? The firmness of butter depends on its ratio of saturated and unsaturated fat. At refrigerator temperatures, saturated fat is hard and unsaturated fat is soft, or even liquid. Therefore, butter that is relatively easy to spread has less saturated, artery-clogging fat and more (healthier) unsaturated fat.

In addition, a 2006 study shows that the softer the butter, the more fresh pasture in the cow's diet. Cows that get all their nutrients from grass have the softest butterfat of all. Butter from grass-fed cows also has more cancer-fighting CLA, vitamin E, beta-carotene, and omega-3 fatty acids than butter from cows raised in factory farms or that have limited access to pasture.

(For more information about the benefits of dairy products from grass-fed cows, read Jo Robinson's essay, [Super Healthy Milk](#). To find a local farmer who raises cows on grass, go to our

[Eatwild Directory of Farms and Ranches.](#))

*Journal of Dairy Science*, 2006. 89:1956–1969. “The Linear Relationship between the Proportion of Fresh Grass in the Cow Diet, Milk Fatty Acid Composition, and Butter Properties” [Note: this study is available free of charge at the [Journal of Dairy Science website.](#)]

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## Be a “Meat and Spinach” or a “Meat and Red Wine” Kind of Guy

Eating red meat—but not white meat or fish—is linked with a moderately increased risk of colon cancer. Why is that? Some experts believe that the amount of iron in the food, specifically, a type of iron called “heme” iron, is part of the problem. Red meat has considerably more heme iron than its paler counterparts. Iron is essential for survival, but heme iron can irritate the lining of the colon and set up the preconditions for cancer. Another possible link with red meat and cancer is the amount of oxidized fat in the meat. You create oxidized fat when you grill meat, sear it, or cook it above medium rare.



Do you have to cut back on grilled sirloin steak and lamb chops to lower your risk of colon cancer? Perhaps not. Eating foods high in antioxidants *along* with the meat could do the trick. Research shows that antioxidants have the potential to neutralize the ill effects of both the iron and the oxidized fat. For example, a 2005 study showed that eating spinach along with red meat eliminated all irritation of the colon. Now a 2008 study reveals that drinking a glass of red wine with your meal could do the same thing. It is likely that other foods high in antioxidants will offer similar protection.

Does eating grass-fed meat also reduce your risk of colon cancer? Meat from pastured animals has more antioxidants than feedlot meat, so it is a distinct possibility. To date, no one has studied this hypothesis.

Gorelik, S., M. Ligumsky, et al. (2008). "The Stomach as a 'Bioreactor': When Red Meat Meets Red Wine." *J Agric Food Chem*.

De Vogel, J., Denise Jonker-Termont et al. (2005). "Green vegetables, red meat and colon cancer: chlorophyll prevents the cytotoxic and hyperproliferative effects of haem in rat colon." *Carcinogenesis*.

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## Grass-fed Beef Clearly Superior, Says New German and Canadian study

Yet another study shows that grass-fed meat is nutritionally superior to feedlot meat. This newest study examined the differences in fat content between four breeds of cattle that were either 1) raised on pasture or 2) given grain and other feedstuff in a feedlot.

As in previous research, the results showed that meat from cattle raised on pasture had much healthier fats. The researchers concluded that grass-fed meat is “clearly superior” and “remarkably beneficial.” They stated that grass-fed meat “should be promoted as an important part of a healthy balanced diet.” [Read the study summary.](#)

*(Journal of Agriculture and Food Chemistry, June 2008, 56:4775-4782.)*

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## Free Range Eggs Nutritionally Superior

As it turns out, all those choices of eggs at your supermarket aren't providing you much of a choice at all.

Recent tests conducted by *Mother Earth News* magazine have shown once again that eggs from chickens that range freely on pasture provide clear nutritional benefits over eggs from confinement operations.

*Mother Earth News* collected samples from 14 pastured flocks across the country and had them tested at an accredited laboratory. The results were compared to official US Department of Agriculture data for commercial eggs. Results showed the pastured eggs contained an amazing:

- 1/3 less cholesterol than commercial eggs
- 1/4 less saturated fat
- 2/3 more vitamin A
- 2 times more omega-3 fatty acids
- 7 times more beta carotene

Full results of the tests are available in the October/November 2007 issue of *Mother Earth News*, or on their website at <http://www.MotherEarthNews.com/eggs>. Check Eatwild's [Pastured Products Directory](#) to find free-range eggs near you.

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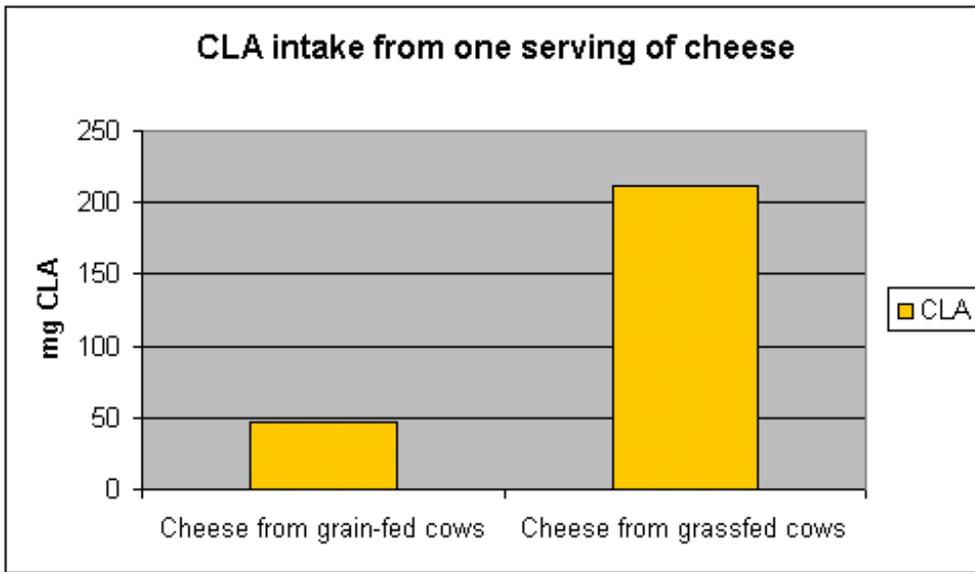
## Lambs raised on pasture are higher in protein, lower in fat

A team of scientists from the USDA compared grassfed lambs with lambs fed grain in a feedlot. They found that "lambs grazing pasture had 14% less fat and about 8% more protein compared to grain-fed lamb." The researchers acknowledged that "consumer desires for healthier meats have shifted the emphasis to leaner, trimmer carcasses.." and that raising more sheep on pasture will "benefit our economy by reducing reliance upon expensive grain supplements..." For more information, refer to [Autumn-grazed Orchardgrass-white Clover Pasture: Nutritive Value Of Herbage And Lamb Performance](#).

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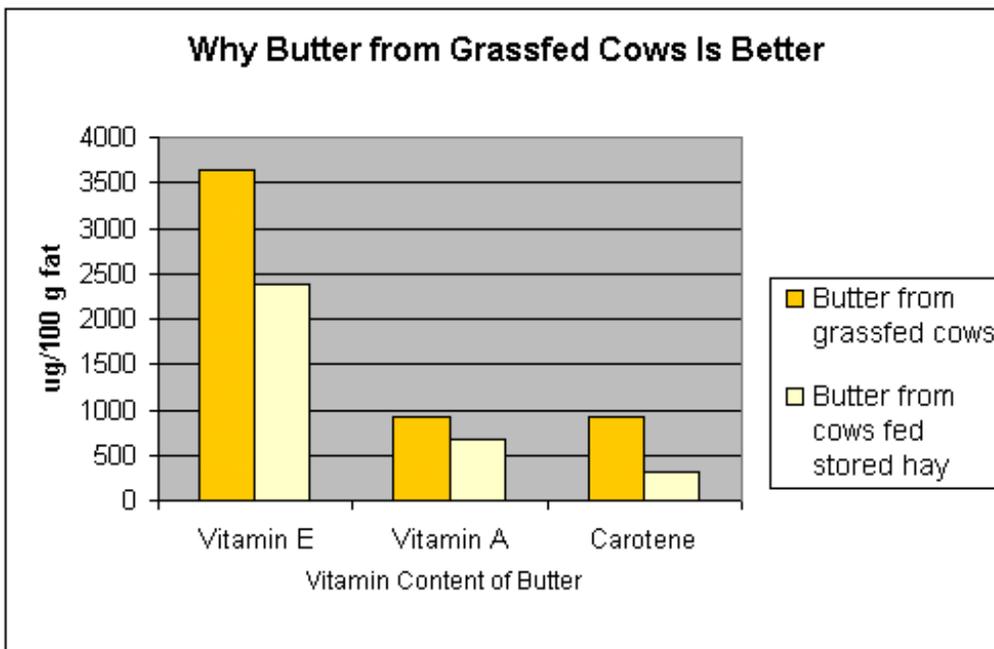
## Why Grassfed Cheese Is Better

Cheese from grassfed cows is more than four times richer in conjugated linoleic acid—a cancer-fighting, fat-reducing fat—than cheese from standard, grain-fed cows. (Dhiman, T.R., "Conjugated linoleic acid: a food for cancer prevention." Proceedings from the 2000 Intermountain Nutrition Conference, pages 103-121.)



### Why Grassfed Butter Is Better

Because living grass is richer in vitamins E, A, and beta-carotene than stored hay or standard dairy diets, butter from dairy cows grazing on fresh pasture is also richer in these important nutrients. The naturally golden color of grassfed butter is a clear indication of its superior nutritional value. (Searles, SK *et al*, "Vitamin E, Vitamin A, and Carotene Contents of Alberta Butter." *Journal of Dairy Science*, 53(2) 150-154.)



### Two new studies suggest that grassfed meat and dairy products may reduce the risk of breast cancer

CLA (conjugated linoleic acid) is a cancer-fighting fat that is most abundant in grassfed products.

Two new European studies link a diet high in CLA with a lower risk of breast cancer. In Finland, researchers measured CLA levels in the serum of women with and without breast cancer. Those women with the most CLA had a significantly lower risk of the disease. Meanwhile, French researchers measured CLA levels in the breast tissues of 360 women. Once again, the women with the most CLA had the lowest risk of cancer. In fact, the women with the most CLA had a staggering 74% lower risk of breast cancer than the women with the least CLA.

The most natural and effective way to increase your intake of CLA is to eat the meat and dairy products of grassfed animals.

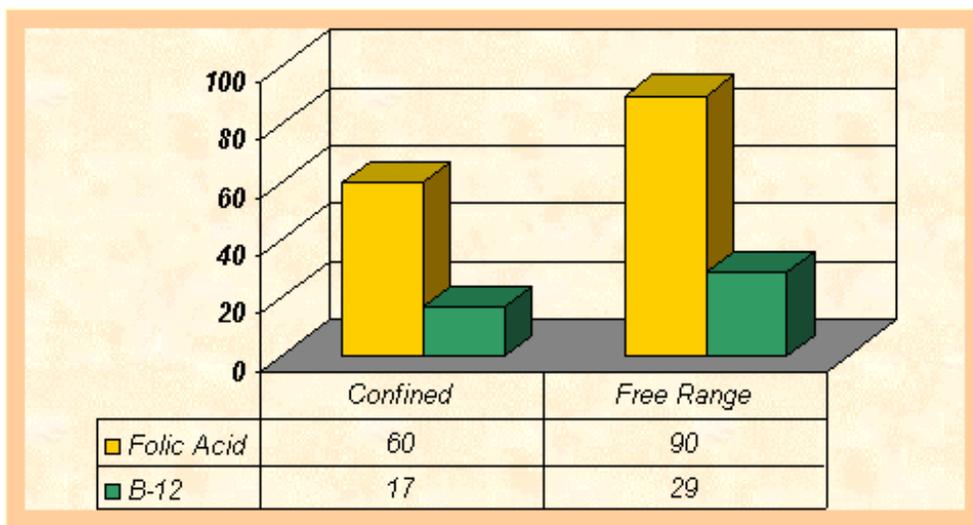
(A. Aro *et al*, Kuopio University, Finland; Bougnoux, P, Lavillonniere F, Riboli E. "Inverse relation between CLA in adipose breast tissue and risk of breast cancer. A case-control study in France." *Inform* 10;5:S43, 1999)

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## Eggs from free-range hens are higher in folic acid and vitamin B12

Now there's another good reason to purchase eggs from pastured poultry farmers: you may be getting more folic acid and vitamin B12, two very important vitamins. This information comes from a British study published in 1974. At the time, British consumers were concerned about the trend toward factory farming. Specifically, they thought factory eggs might not be as nutritious as eggs from free-ranging birds. An elaborate study confirmed their suspicions. The eggs from free-range hens contained significantly more folic acid and vitamin B12, as you can see by the graph below.

The researchers also looked for differences in the fatty acid content of the eggs but did not find any. Now we know why. In the 1970s, little was known about the benefits of omega-3 fatty acids, so the researchers didn't even bother to look for them in the eggs.



(A. Tolan *et al*, "Studies on the Composition of Food, The chemical composition of eggs produced under battery, deep litter and free-range conditions." *Br. J. Nutrition*, (1974) 31:185.)

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## The more milk a cow produces, the more dilute the vitamin content of her milk

The goal of the commercial dairy industry is to coax the maximum amount of milk out of each cow through a high-tech combination of selective breeding, confinement housing, synthetic hormones, and a high-energy grain diet. It has succeeded admirably. Today's super cows produce as much as

17,000 pounds of milk per cycle—20 times more milk than a cow needs to sustain a healthy calf. Unfortunately for consumers, the cow transfers a set amount of vitamins to her milk, and the greater her milk volume, the more dilute the vitamin content of the milk, especially vitamins E and beta-carotene. According to the journal article cited below, "It follows that continuing breeding and management systems that focus solely on increasing milk and milk fat yield will result in a steady dilution in the milk fat of these vitamins and antioxidants..."

Dairy cows raised on pasture and free of hormone implants produce less milk than commercial cows, but the milk is therefore richer in vitamin content. This is one of those times when less is more.

(Jensen, S. K. "Quantitative secretion and maximal secretion capacity of retinol, beta-carotene and alpha-tocopherol into cows' milk." J Dairy Res 66, no. 4 (1999): 511-22. )

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## **Milk from grassfed cows has hidden benefits**

Until recently, all of the experiments demonstrating the cancer-fighting properties of [CLA \(conjugated linoleic acid\)](#) have used synthetic CLA. To see whether the CLA that occurs naturally in cow's milk has similar cancer-fighting properties, researchers recently compared the two. They fed one group of rats butter that was high in CLA and fed another group of rats an equivalent amount of synthetic CLA. As one would expect, the natural CLA proved to be just as effective in blocking tumor growth as the man-made variety. (In both cases, cancer yield was reduced by about 50 percent.) However, the high CLA butter had an added benefit: the rats eating the butter accumulated even more CLA in their tissues than the rats fed an equivalent amount of synthetic CLA. The reason? Researchers believe that the rats were converting another "good" fat found in the butter, trans-vaccenic acid or TVA, into CLA, giving them a second helping of this cancer-fighting fat. (Click here for more information about TVA.)

(Ip, C., S. Banni, *et al.* (1999). "Conjugated Linoleic Acid-Enriched Butter Fat Alters Mammary Gland Morphogenesis and Reduces Cancer Risk in Rats." J Nutr 129(12): 2135-2142.)

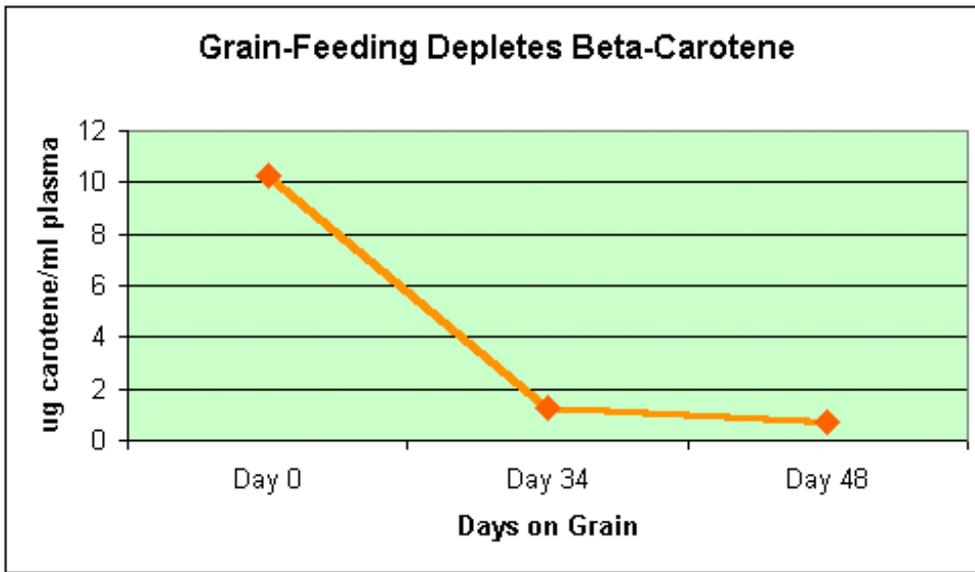
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## **New Zealanders try to satisfy Japanese market and lose valuable nutrients.**

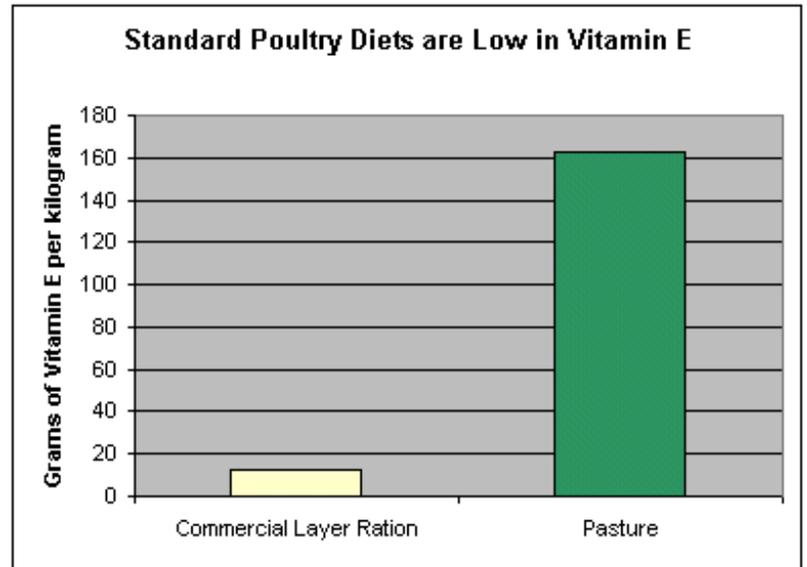
Japanese importers place a premium on beef with ultra-white fat, which is difficult for New Zealand ranchers to achieve because they fatten their cattle on pasture. (Grass is rich in the antioxidant vitamin beta-carotene, which lends a healthy, creamy color to meat fat.) In a recent experiment, New Zealand researchers experimented with taking cattle off pasture and fattening them American-style on grain. Because grain is more expensive in New Zealand than it is in the States, grain-feeding was limited to less than 2 months. The experiment failed. The fat color did not change appreciably, even though serum levels of beta-carotene dropped 97 percent. What's more, 1) the animals weighed less than animals that were allowed to stay on pasture, 2) their meat was tougher, and 3) the meat lost more moisture when cooked.

The scientists concluded that animals need to be fed grain for a longer period of time to use up all the beta-carotene stored in the fat. Also, longer grain-feeding is required to overcome the initial weight loss of cattle that are switched from pasture to a feedlot diet. The increased toughness was unexpected and without explanation.

("Short-term Grain Feeding and its Effect on Carcass and Meat Quality." Proceedings of the New Zealand Grasslands Association 1997. 57:275-277. )



## Pastured Poultry Get a Bounty of Vitamin E from Grass

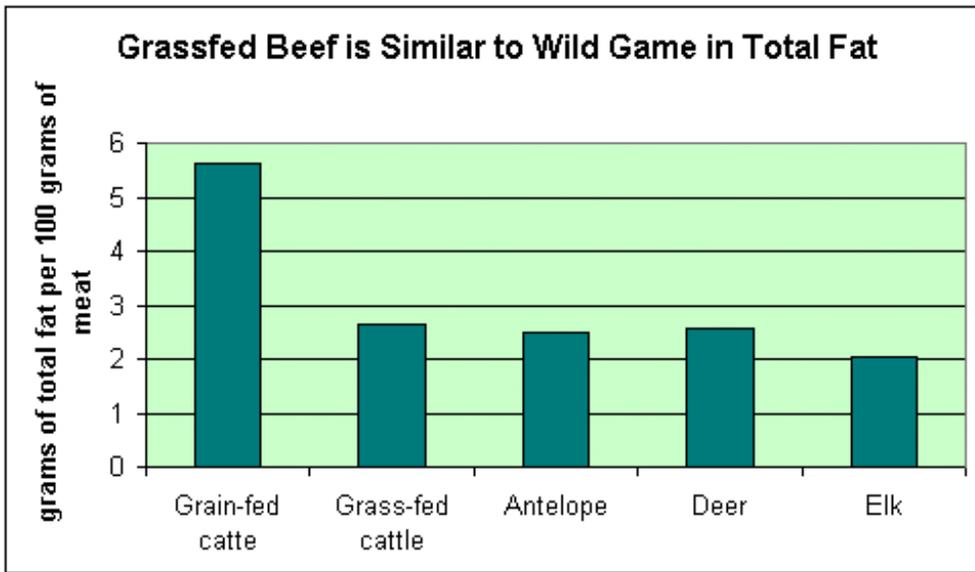


Standard poultry feed is supplemented with small amounts of vitamin E. But as you can see by the graph below, it doesn't come close to the bounty of vitamin E that chickens glean from fresh pasture. This vitamin E gets passed on to the consumer. An egg from a pastured hen has 30 percent more vitamin E than the kind you buy in the supermarket.

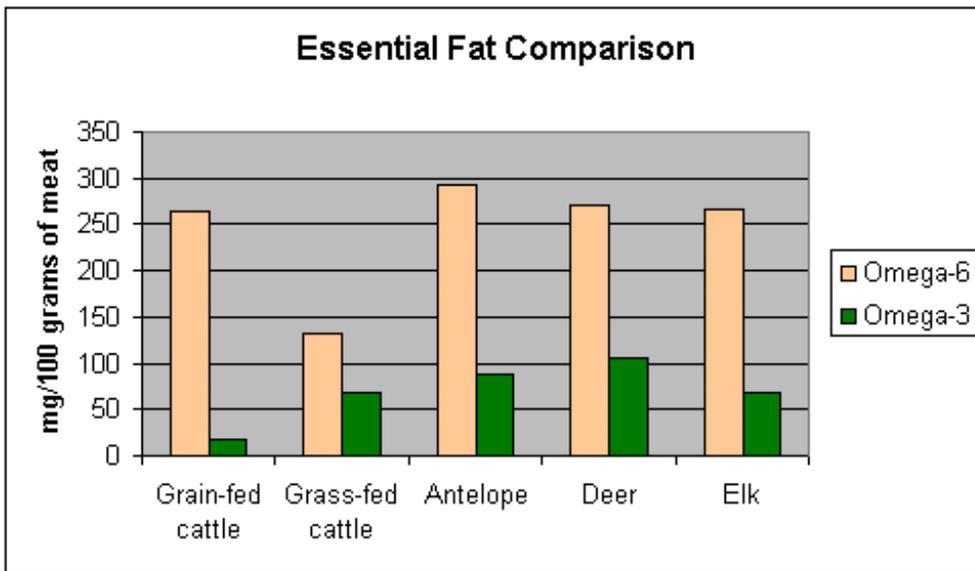
(Lopez-Bote *et al*, "Effect of free-range feeding on omega-3 fatty acids and alpha-tocopherol content and oxidative stability of eggs." *Animal Feed Science and Technology*, 1998. 72:33-40.)

## Grassfed meat has a similar fat profile to wild game

When cattle are free to forage on their natural diet of grass, their meat is almost as lean as wild game. The graph below shows that grassfed beef has an overall fat content similar to antelope, deer, and elk.



This second graph shows that grain-fed beef has a much higher ratio of omega-6 to omega-3 fatty acids than wild game or grass-fed beef. A high ratio of omega-6 to omega-3 fatty acids has been linked with an increased risk of cancer, cardiovascular disease, allergies, depression, obesity, and auto-immune disorders. (Simopoulos and Robinson, *The Omega Diet*, published by HarperCollins in 1999.) A ratio of four or lower is considered ideal. The ratio in grain-fed beef is more than 14 to 1. In grassfed beef, it is approximately two to one.



(Data for both graphs comes from G.J. Miller, "Lipids in Wild Ruminant Animals and Steers." J. of Food Quality, 9:331-343, 1986.)

### Feedlot cattle fattened on stale gummy bears

Some commercial feedlots feed stale candy to cattle in an effort to reduce costs. According to a recent review, milk chocolate and candy "are often economical sources of nutrients, particularly fat. They may be high in sugar and/or fat content. Milk chocolate and candy may contain 48% and 22% fat, respectively. They are sometimes fed in their wrappers. Candies, such as cull gummy bears, lemon drops, or gum drops are high in sugar content." The article recommends that "upper feeding limits for candy or candy blends and chocolate are 5 and 2 lb. per cow per day,

respectively."

As long as beef producers are not accountable for the ultimate nutritional value of the meat, they will continue to formulate feedlot diets on a least cost basis and American consumers will continue to eat meat that is artificially high in fat and low in vitamin E, beta carotene, omega-3 fatty acids, and [CLA](#).

("

By-Product Feedstuffs in Dairy Cattle Diets in the Upper Midwest." Randy D. Shaver, Ph.D. Associate Professor, Extension Nutritionist, Department of Dairy Science, College of Agricultural and Life Sciences, University of Wisconsin)

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## Grassfed Jerky

Beef and buffalo jerky fit well into a busy lifestyle. Jerky needs no refrigeration and can be easily tucked into a pocket, purse, or lunch bag to provide a satisfying, high-protein snack. When the jerky is made from the meat of grassfed animals, you're also getting superior nutritional value and no questionable additives.

If you're purchasing grassfed meat in quantity, consider making your own jerky. Be aware, however, that most traditional recipes do not specify the high temperatures necessary to eliminate the risk of E. coli and other pathogenic organisms. To solve the problem, food scientists from Colorado State University Cooperative Extension developed three different recipes for making safe jerky at home. You'll find the recipes on line at [SafeFood Rapid Response Network](#).

No time to make jerky? Order it ready made from one of five different suppliers in the [Eat Wild Pastured Products Directory](#) (Click on the directory and then use your browser to search in the page for the word "jerky.")

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## Feed them grass, not grease!

In yet another short-sighted experiment, researchers at Washington State University are feeding recycled restaurant grease to feedlot cattle in an attempt to raise the [CLA](#) levels of their meat. Although grease will indeed enhance CLA levels, it cannot compete with grass when the total nutritional value of the meat is taken into consideration. Meat from cattle raised on grass and legumes is not only five times higher in CLA than meat from feedlot cattle, it is also higher in vitamin E, beta carotene, and omega-3 fatty acids. Also, restaurant grease is high in a type of fat called "linoleic acid" or LA that is known to stimulate tumor growth. Although grease-fed cattle will have more of the cancer-fighting CLA, they will also have higher levels of the cancer-promoting LA, perhaps canceling out the anticipated benefits.

Comments: As long as researchers focus on artificial ways to raise CLA levels in animals, we will continue to have beef that is nutritionally inferior in other areas. We will also be plagued with all the problems linked with the feedlot industry including nutrient leaching, odor, diseased animals, and the indiscriminate use of growth promoting hormones and antibiotics.

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## Grassfed bison — the original "Happy Meal?"

Martin Marchello at the Carrington Research Extension Center has found that grassfed bison have

as much as four times more selenium (an essential trace mineral) than grainfed bison. Eating just three ounces of grassfed bison, for example, can give you over 100 mcg. of selenium, which is several times the daily minimum requirement.

Most of the selenium research has focused on its potential to reduce the risk of cancer, but a 1990 study found that selenium also promotes a sunnier disposition! In this study, volunteers were given either 100 micrograms of selenium or a sugar pill. Those who were given the selenium noticed an improved mood in just two weeks. Eating a small portion of grassfed bison on a daily basis should produce the same results.

(Benton, D. and R. Cook (1990). "Selenium supplementation improves mood in a double-blind crossover trial." *Psychopharmacology* 102(4): 549-50.)

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## **New findings on CLA clarify the benefits of meat and dairy products**

[Conjugated linoleic acid or CLA](#) has demonstrated a multitude of benefits in animal studies, including fat reduction, increase in lean muscle mass, reduced risk of diabetes, reversal of arteriosclerosis, and a marked reduction in tumor growth.

Many people do not realize, however, that there are 16 different types of CLA, each with a slightly different molecular shape. New research reveals that each type of CLA has a different set of benefits. The type of CLA most abundant in meat and dairy products (referred to by chemists as "cis-9, trans-11, CLA") appears to be the champion cancer fighter. Compared with another common type of CLA (trans 10, cis 12, CLA) it was a third more effective in blocking the growth of human cancer cells. (78% versus 58% reduction)

But the type of CLA found in meat and dairy products does not appear to reduce fat or increase lean muscle mass in humans. (That property is linked with trans 10, cis 12, CLA)

It will be some time before researchers match each type of CLA with its particular benefits.

(Information gleaned from abstracts presented at the 91st American Oil Chemists Society April 25-28, 2000 annual meeting. Special supplement to *Inform*, vol 11, no 5, 2000)

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## **French cheese has more CLA than ordinary American cheese**

French cheeses are among the most carefully crafted and coveted in the world. Now there's another reason to seek them out: they're especially high in cancer-fighting CLA . A 1998 survey found that CLA levels in French cheese range from 5.3 to 15.8 mg/g of fat. American cheese from conventional dairies has half this amount, with levels ranging from 2.9 to 7.1. The reason? Typically, American dairies raise their cows in confinement and feed them a grain-based diet. French dairies are more likely to raise their cows on pasture, resulting in naturally high levels of CLA

Fortunately, cheese from American pasture-based dairies has the same CLA advantage as French cheese. Search the [Eat Wild Pastured Products Directory](#) for cheese suppliers and treat yourself to an extra helping of CLA.

(JAOCS 75, 343352 (1998))

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## **TVA — yet another good fat in grassfed products?**

Evidence is mounting that dairy products from grassfed cows supply yet another "good" fat to our diet---trans-vaccenic acid or TVA. Technically, TVA is classified as a "trans-fatty acid," a type of fat nutritionists tell us to avoid. But TVA appears to behave differently from the man-made fat that comes from the hydrogenization of vegetable oil. Unlike the trans-fatty acids found in fast foods and margarine, TVA is not linked with an increased risk of cardiovascular disease and may help inhibit tumor growth and obesity.

Interestingly, TVA may perform these feats by being converted into CLA in our own bodies. In fact, dairy scientist David Schingoethe from South Dakota State University suggests that eating dairy foods high in TVA may be a more effective way to increase CLA levels than ingesting CLA itself.

Schingoethe and colleagues are experimenting with increasing TVA in dairy cows by feeding them fish meal and soybeans. But raising cows on fresh pasture and withholding all grain may prove just as effective. In fact, grassfed cows produce milk that is naturally high in both CLA and TVA, a potentially lifesaving combination. Stay tuned!

(To learn more, read ["Making Milk Better," by Jamie Lammers.](#))

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## **The Irish are making the most of their "unfair" advantage**

Milk from grassfed Irish cows is 2–3 times higher in [conjugated linoleic acid \(CLA\)](#) than milk from grainfed American cows. Experiments are underway in Ireland to increase this CLA advantage. Recent experiments show that feeding oilseeds to grassfed dairy cows boosts their CLA production even more. Rapeseeds (the seeds that make canola oil) increase the CLA content of the milk an extra 60%. (To read more, refer to ["Milk and Dairy Products for Better Human Health," by D. McDonagh, et al.](#))

The Irish get added health benefits from their grassfed beef as well, according to a soon-to-be-published study. Compared with animals fed supplemental grain, meat from cattle raised on pasture alone was lower in saturated fat, but higher in the "good fats," including monounsaturated fats, omega-3 fats, and CLA. Commented the researchers, "These data indicate that many Irish beef producers, due to their grass-based production systems, have a natural advantage in producing beef that is more beneficial to human health than beef produced from concentrate-based systems." (For study details, refer to [R&H Hall Technical Bulletin Issue No. 4 ~1999](#))

(French, P., Stanton, C., Lawless, F., O'Riordan, E.G., Monahan, F., Caffrey, P.J. and Moloney, A.P. 1999a. Fatty acid composition, including conjugated linoleic acid, of intra-muscular fat from steers offered grazed grass, grass silage or concentrate-based diets. Journal of Animal Science. Submitted)

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## **The deadliest form of E. Coli is more common than originally thought. Fortunately, grassfed animals are much less likely to transmit the disease.**

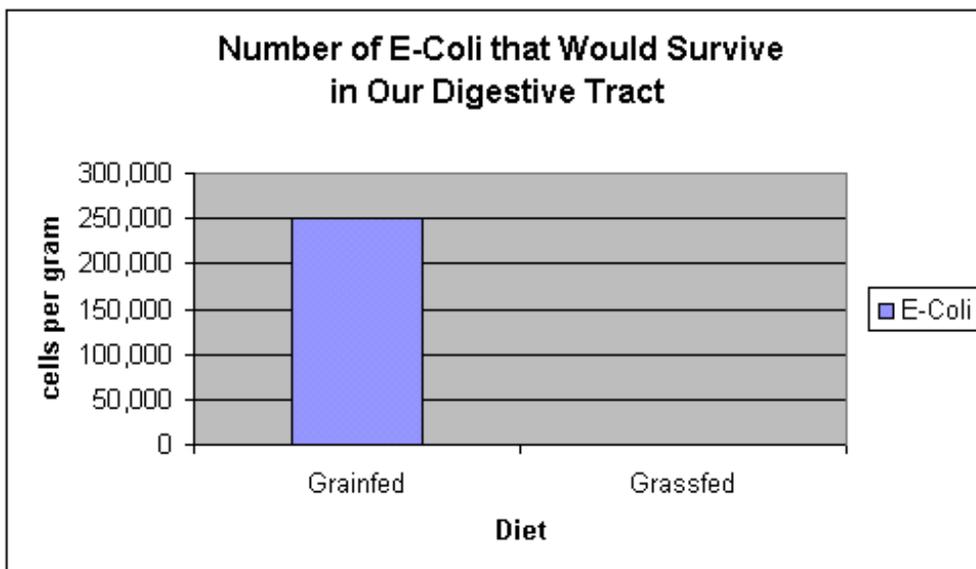
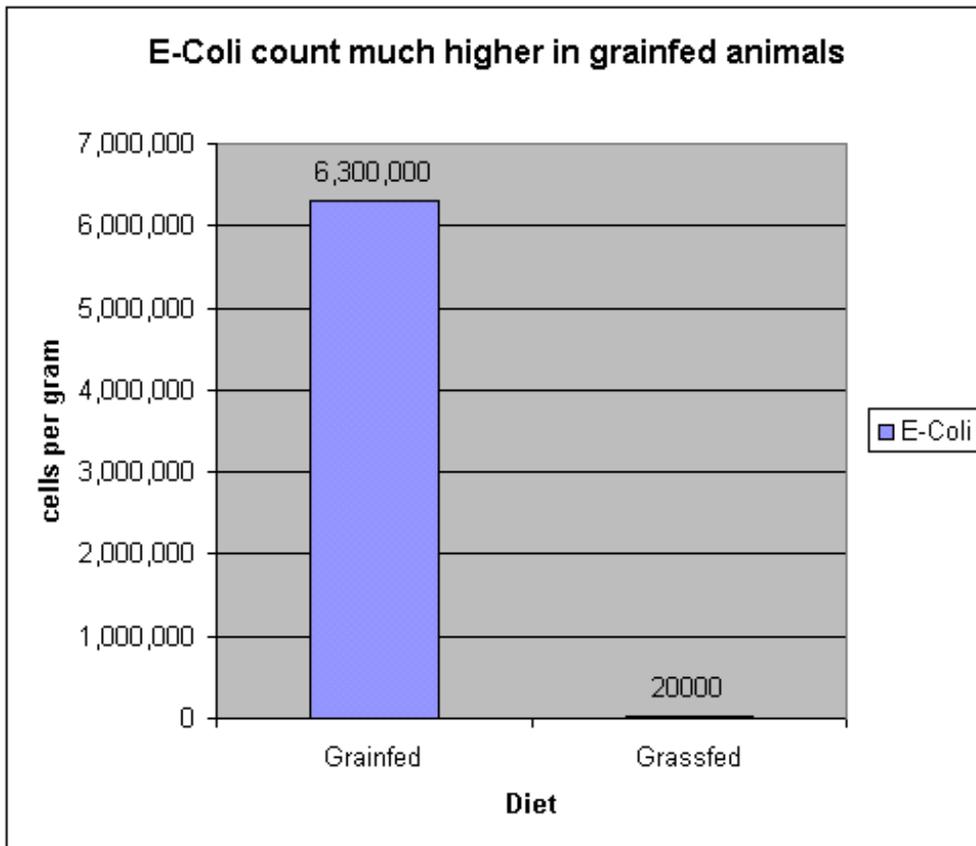
A study in the March 28th, 2000 issue of the Proceedings of the National Academy of Sciences reports that as many as one out of every three cattle may play host to the deadliest strain of E. coli bacteria (O157:H) This is ten times higher than earlier estimates.

As explained in more detail in *Why Grassfed Is Best!*, feeding cattle their natural diet of grass instead of grain greatly reduces the risk of disease transmission. Why? First, it keeps the overall bacteria count low. Second, it prevents the bacteria from becoming acid resistant. Acid-resistant bacteria are far more likely to survive the acidity of our normal digestive juices and cause disease.

The first graph below illustrates the absolute numbers of E. coli bacteria found in grassfed versus grainfed animals. The second graph shows how many of the bacteria are likely to withstand our gastric juices. (Note: Grassfed animals have so few acid-resistant bacteria that the number fails to register on the scale of the graph.)

One of the lead researchers on the project, USDA microbiologist James Russell, told a reporter for Science Magazine, "We were absolutely shocked by the difference. WE never found an animal that didn't agree with the trend."

You should still take the normal precautions when handling and cooking grassfed meat, however. As few as ten E. coli bacteria can cause disease in people with weakened immune systems.



(Diez-Gonzalez, F., *et al.* (1998). "Grain-feeding and the dissemination of acid-resistant *Escherichia coli* from Cattle." *Science* 281, 1666-8.)

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## Consumers are searching for healthier eggs

Pastured poultry producers take heart: Consumers are finally getting the message that some eggs are better than others. In 1999, sales were up 50% for "all natural" eggs and 37.5% for "organic" eggs, according to Alan Andrews, an industry analyst. The fact that specialty eggs cost about twice as much as ordinary eggs (\$2.20 versus \$1.09 a dozen) has not been a deterrent. Andrews predicts that "this segment will see accelerated growth in 2000 and may hit 50MM units."

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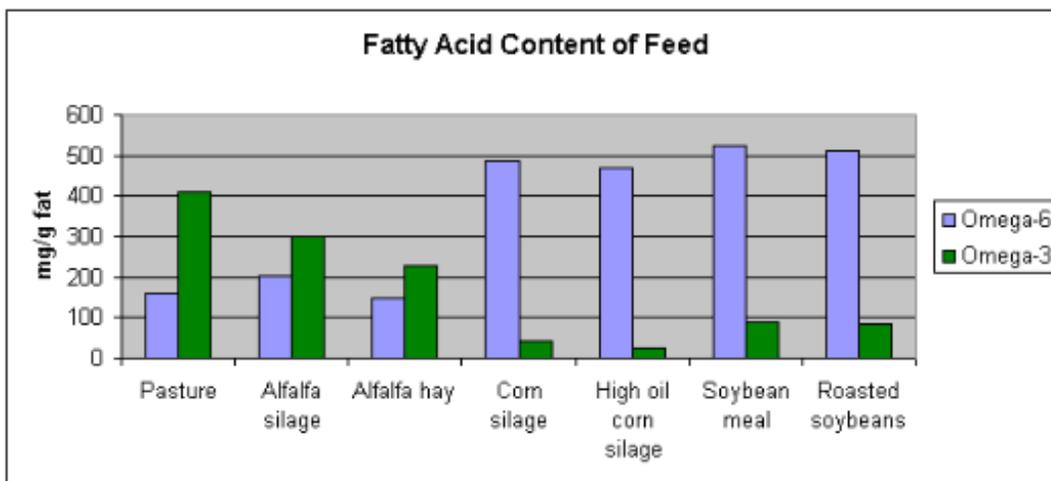
Retail Fresh Eggs: Which Came First, Increased Consumption or Increased Sales?" by Alan Andrews, Pactiv Corporation.)

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## Switching to grassfed products helps balance the essential fats in your diet

There are two types of fats that are essential for your health—omega-6 and omega-3 fatty acids. The typical western diet is overloaded with omega-6 fatty acids and deficient in omega-3s, upsetting a critical balance. Look at the graph below and you will see that fresh pasture has two times more omega-3 than omega-6 fatty acids. Grain and soy, on the other hand, have far more omega-6s than omega-3s.

Therefore, when you switch to grassfed products, you are helping to correct the gross imbalance in the western diet. Eating a balanced ratio of essential fatty acids is linked with a lower risk of cancer, heart disease, diabetes, obesity, and mental disorders. (To learn more about this essential balance, read *The Omega Diet* by Simopoulos and Robinson, HarperCollins 1999.)



( US Dairy Forage Research Center, 1995 Research Summaries.)

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## Some types of cheese have more CLA than others

The way that cheese is made influences its CLA (conjugated linoleic acid) content. In general, the longer cheese is aged, the lower the CLA. Thus, hard cheeses such as Parmesan and Romano

tend to have less CLA than softer cheeses such as cream cheese, cottage cheese, feta, farmer's cheese, ricotta, and Brie. In addition, cheese that is aged through "bacterial surface ripening" (Brick and Muenster) has more CLA than cheese that does not go through this process. Finally, a serving of high-fat cheese will have more CLA than a similar serving of low-fat cheese. (The CLA is measured in terms of grams of CLA per gram of total fat; the more total grams of fat in a serving of cheese, the more CLA it will have Reduced fat swiss is an anomaly, for unknown reasons..)

The table below shows CLA levels in cheese purchased at a grocery store in 1992. In all likelihood, the milk came from confinement dairy operations. If the milk had come from grassfed animals, the CLA content would have been five times higher.

TYPE OF CHEESE	CLA (mg/gram of fat)
Brick	7.1
Reduced Fat Swiss	6.7
Natural Muenster	6.6
Colby	6.1
Blue	5.7
Ricotta	5.6
Velveeta	5.2
Medium Cheddar	4.1
Sharp Cheddar	3.6
Parmesan	3.0
Romano	2.9

(Chin *et al*, "Dietary Sources of Conjugated Dienic Isomers of Linoleic Acid, a Newly Recognized Class of Anticarcinogens." J. of Food Composition and Analysis 5:185-197 1992)

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## **Switching from grainfed to grassfed meat is a healthy, natural way to lose weight**

Obesity has reached epidemic proportions in the United States, with one out of every two adults burdened by excess weight. To help trim the fat, Procter and Gamble has given us Olestra, "the no-fat cooking oil with the full-fat flavor." There are a couple of problems with Olestra. First, it cuts down on your body's absorption of beta-carotene and vitamin E. Second, it can cause "bloating, cramping, nausea, and loose stools or diarrhea."

Nature has given us a healthier alternative to weight control—eat meat from animals raised on fresh pasture. Meat from grassfed animals has about half the fat as meat from grainfed animals and significantly fewer calories. It also gives you a bonus supply of vitamins E, A, D, and beta-

carotene.

(Burton P. Koonsvitsky *et al*, "Olestra Affects Serum Concentrations of Alpha-Tocopherol and Carotenoids" *J of Nutrition*, Vol. 127 No. 8 August 1997, pp. 1636S-1645S)

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## **Chefs from fine restaurants pay a premium for grassfed poultry and meat**

If people haven't tasted grassfed meat, they wonder how it's going to taste. "Terrific!" say a growing number of chefs. Kerry Engel, a rural development specialist, surveyed executive chefs from six, high-end hotels, restaurants and catering businesses. He reports that "a few meat products that the chefs specifically inquired about include free-range poultry and grassfed meats and ducks. They're especially interested in unusual, exciting and new specialty products." He found that the chefs were also committed to supporting local farmers. "They'll pay 10 per cent more for regional products if the supply meets their specifications."

Help spread the word. Ask for grassfed (range-fed) meat the next time you're dining out!

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## **Grassfed lambs have more lutein**

The more that nutritionists learn about naturally occurring antioxidants, the more they like lutein. Lutein is closely related to beta-carotene, but is absorbed more readily. Lutein reduces the risk of macular degeneration (a leading cause of blindness) and may also help prevent breast and colon cancer.

Meat from sheep raised on pasture has twice as much lutein as meat from grain-fed sheep—yet another nutritional advantage of raising animals naturally.

(Kruggel, W.G., "Influence of sex and diet on lutein in lamb fat." *J of Animal Science* 54: 970-975, 1982.)

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## **Not so fast, FDA!**

In 1993, when the Food and Drug Agency approved the use of synthetic hormones to increase milk production in dairy cows, the FDA assured a worried public that recombinant bST would not diminish the nutritional value of the milk. In an interview, Commissioner David A. Kessler, M.D., stated that "there is virtually no difference in milk from treated and untreated cows. In fact, it's not possible using current scientific techniques to tell them apart."

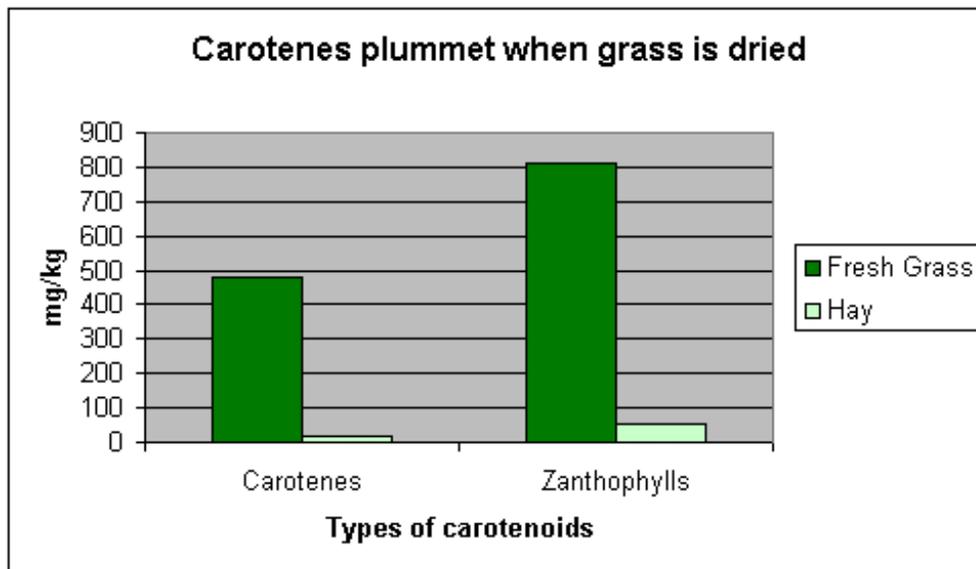
Seven years later, there is new evidence that synthetic hormones reduce levels of conjugated linoleic acid or CLA in beef, depriving consumers of a naturally occurring and potentially lifesaving substance. It is not known at this time whether bST has a similar effect on milk products. Nonetheless, this is yet another example of researchers altering a natural product before fully understanding its many benefits.

(Fritsche S, Rumsey TS, Yurawecz MP, Ku Y, Fritsche J. "Influence of growth promoting implants on fatty acid composition including conjugated linoleic acid isomers in beef fat. *Eur. Food Res. Technol.* 212:621-629 (2001))

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## **Afternoon hay may be better than morning hay, but fresh grass is best!**

Nothing beats fresh pasture for nutritional value. Once the grass is cut and dried, there is a dramatic decline in vital nutrients, including omega-3 fatty acids, vitamin E, and the carotenes (beta-carotene and related antioxidant vitamins.) The graph below shows the difference in carotene content between fresh Bermuda grass and the same grass that has been field dried.



In the winter months or other times of year when the grass is dormant, even grassfarmers must rely on stored forages such as hay. But, typically, the animals are harvested in the early fall when the animals are fresh from green pasture. This insures that their meat will have its full allotment of health-enhancing vitamins. Feedlot animals never eat living grass.

(Bailey, C.A. and B.H. Chen, "Research Note: Carotene and Zanthophyll Changes During Growth and Processing of Turf Bermudagrass." Poultry Science, 1988. 67:1644-6.)

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## **Egg yolks are the richest known source of lutein and zeaxanthin, essential vitamins not found in your multi-vitamin tablet**

Eggs are gaining new respect from nutritionists, partly for their abundance of two carotenes --- lutein and zeaxanthin. These antioxidant vitamins are essential for the protection of the macula, an area of the retina that provides our best central vision. Eggs are the richest known source. "Macular degeneration," the term for damage to this area of the retina, is the leading cause of blindness in people over 55 years of age. Lutein and zeaxanthin protect the macula from the destructive effects of light. The deeper the yellow-orange color of yolks, the more lutein and zeaxanthin they contain and the more eye-protection they offer.

There is also new evidence linking lutein and zeaxanthin with a lower risk of colon cancer. According to a recent study, "Of all the carotenoids investigated, only lutein and zeaxanthin showed a protective effect against colon cancer, with an enhanced effect in younger people."

(Slattery, M. L., Benson, J., Curtin, K., Ma, K. N., Schaeffer, D., and Potter, J. D. (2000). Am J Clin Nutr 71, 575-82.)

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## **Grassfed products supply much needed vitamin E**

Researchers at the Centers for Disease Control recently determined the vitamin E status of 16,000 American men and women. Twenty-percent per cent of white Americans, 41 per cent of African Americans, and 28 per cent of Mexican Americans were deficient in vitamin E. Vitamin E deficiencies have been linked with diabetes, immune disorders, AIDS, muscle damage in exercise, Parkinson's disease, eye diseases, and lung and liver diseases. As you can see by several of the posts below, switching to the products of animals raised on grass (which is far richer in vitamin E than grain) would help prevent this widespread deficiency. (Ford, Earl S. and Sowell, Anne. "Serum alpha-tocopherol status in the United States population: findings from the Third National Health and Nutrition Examination Survey."

American Journal of Epidemiology, Vol. 150, August 1, 1999, pp. 290-300.)

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## **Medical "experts" promulgate the myth that eggs from pastured poultry are no better than supermarket eggs**

Many people turn to internet websites for their health information, and few sites are as highly regarded as the Mayo Clinic Health Oasis site which professes to offer "Reliable information for a healthier life." (<http://www.mayohealth.org/index.htm>) In a recent posting, the Mayo Clinic experts proclaimed, "Whether hens are raised free-range or in cages has no effect on the nutrients in the eggs they lay," and, then later on in the same article, "Feed and yolk color don't alter the nutritive content of the egg."

The experts should be more thorough in their research. As you will see by the posts below and by reading Why Grassfed Is Best!, eggs from pastured poultry are higher in omega-3 fatty acids, vitamin E, and vitamin A. Meanwhile, they are lower in total fat, saturated fat, and cholesterol. In addition, there is a direct relationship between feed, yolk color, and the nutrient content of the egg. The more orange the yolk, the higher the level of health-enhancing carotenoids. Compared to supermarket eggs, eggs from pastured poultry are a vivid yellow/orange—proof of a richer store of disease-fighting carotenes.

(Bornstein, S. and I. Bartov (1966). "Studies on egg yolk pigmentation. I. A comparison between visual scoring of yolk color and colorimetric assay of yolk carotenoids." *Poult Sci* 45(2): 287-96.)

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## **How researchers determine what we eat**

When animals are removed from their natural habitat, they are at the mercy of humans for everything they eat. Regrettably, very little research is aimed at recreating what the animals would normally glean in the wild. Instead, the goal is to create the lowest cost diet that will maintain the highest possible production levels. This "least cost production" mentality will prevail as long as consumers remain ignorant of the many compromises involved.

For example, a team of researchers determined that "the vitamin E requirement norm of laying hens for consumer egg production is achieved at a vitamin E content of 7 mg/kg laying hen feed. The supplement of synthetic antioxidant is unnecessary." By contrast, pastured poultry have the luxury of foraging for greens that have as much as 200 mg/kg of vitamin E. This extra helping of vitamin E may not increase egg production, but it does yield healthier eggs for the consumer. Savvy consumers are becoming more aware of these invisible differences.

(Richter, G., I. Rodel, *et al.* (1985). "Evaluation of laying-hen feed with varied vitamin E and antioxidant supplementation.." *Arch Tierernahr* 35(10): 707-14.)

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## **TLC increases meat tenderness**

Many people assume that the degree of marbling in meat is a major determinant of tenderness. Not so. Marbling accounts for only 10 percent of the variability in tenderness. There are numerous other factors involved, including the amount of stress animals are subjected to prior to slaughter. Researchers in New Zealand and Australia report that beef is consistently on the tender end of the scale when pre-slaughter stress is minimized, regardless of breed. [Read "The Meat Tenderness Debate."](#)

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## **Eggs from pastured layers are higher in omega-3 fatty acids and vitamin E**

In a recent study, one group of chickens was confined indoors (the conventional system) and another was allowed to free-range. Both groups were fed the same commercial mixed diet. The chickens that were able to add grass to the menu produced eggs that were higher in omega-3s and alpha-tocopherol (vitamin E.) Both omega-3 fatty acids and vitamin E have been linked with lower rates of cancer and cardiovascular disease in humans. (Lopez-Bote *et al*, "Effect of free-range feeding on omega-3 fatty acids and alpha-tocopherol content and oxidative stability of eggs.")

Animal Feed Science and Technology, 1998. 72:33-40.)

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## **Red clover increases CLA levels in the milk of grassfed dairy cows**

The type of grasses and legumes growing in a pasture can influence the amount of CLA in cow's milk. When dairy cows grazed pasture that contained 20 percent red clover, they produced 50 percent more cancer-fighting, fat-busting CLA than cows that grazed on grasses alone. (Search for the study titled, "Paddocks containing red clover compared to all grass paddocks support high CLA levels in milk.")

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## **Milk from cows that graze on intensively managed pasture has fewer undesirable bacteria**

Management Intensive Grazing or "MIG" is the practice of shifting livestock from paddock to paddock on a frequent basis to enhance the yield and quality of the pasture. Milk from cows raised under this system was found to be lower in bacterial count than milk from cows raised in standard confinement dairies. (Goldberg, J. J., E. E. Wildman, *et al*. (1992). "The influence of intensively managed rotational grazing, traditional continuous grazing, and confinement housing on bulk tank milk quality and udder health.")

(*J Dairy Sci* 75(1): 96-104).

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## **Cattle are smart grazers**

Canadian researchers compared the nutrient value of randomly selected grass clippings with the grass the cattle themselves selected. Invariably, the cattle selected grass that was higher in protein and mineral content. Judging by their results, the researchers cautioned that a standard analysis of pasture grasses is likely to underestimate the actual amount of nutrients that cattle glean from

the pasture. (J. D. Poppet al, "Nutrient selection by cattle from grass and grass/legume pastures."

*(Canadian Journal of Animal Science*

*79 (3) 391-5. September 1999)*

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## **Pastured pigs are vitamin enriched — naturally**

Pigs raised on pasture have 300 percent more vitamin E and 74 percent more selenium (a vital antioxidant) in their milk than pigs raised in confinement, according to Don C. Mahan Professor of Animal Sciences at Ohio State University. This bounty of nutrients promotes healthier litters, shorter farrowing times, and good milk let down. The pigs' meat is enriched with vitamins as well. Fortifying the pigs' diet with synthetic vitamins, the standard practice in confinement operations, does not achieve the same results because the artificial vitamins are more poorly absorbed.

(Mutetikka, D.B., and D.C. Mahan, 1993. Effect of pasture, confinement, and diet fortification with vitamin E and selenium on reproducing gilts and their progeny. *J. Anim. Sci.* 71:3211.)

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## **Consumers will pay more for omega-3 enriched eggs**

In a survey of 500 Texans, 60% were willing to pay \$1.00 more per dozen if the eggs were rich in omega-3s. Eggs from pastured hens have 2 to 20 times more omega-3s. (The amount varies depending on the quality of the pasture and the omega-3 content of the supplemental feed.)

(Elswyk, M.E. *et al*, "Poultry-based alternatives for enhancing the omega-3 fatty acids content of American diets." *World Rev Nutr Diet*, 1998. 83:102-115.)

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## **The excess fat on grain-fed cattle costs the meat industry billions of dollars a year**

To achieve marbled beef, feedlot cattle are fed a high-grain diet. This results in a significant amount of external fat that has to be trimmed away. Consumers trim away yet more fat when they bring the meat home. In 1973, the cost of "producing, shipping, and trimming the excess fat on beef alone was more than \$2 billion." One wonders how much is spent on this superfluous fat today.

(Pierce, John C., "The Federal Grading System for Animal Products.")

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## **Wild turkeys thrive on grass, bugs, berries, seeds, and nuts**

Turkeys raised on pasture have a diet that resembles their original diet. Zoologists studying wild turkeys found that "the youngsters instinctively peck at moving things - which are usually protein-rich bugs or larvae." While adult turkeys "prefer grass and other plant leaves, along with berries and bugs." For more information, read ["Turkeys' Success Won't Trigger A Grouse Egress."](#)

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## **Sheep are the CLA winners**

Dr. Gerhard Jahreis from the Institut Ernährung und Umwelt in Germany has studied the CLA content of human milk and milk from a variety of animals. He reports that horses have the lowest CLA content and sheep the highest. Human milk is in the middle. (Mare's milk < sow's milk < human milk < goat's milk < cow's milk < ewe's milk.)

There are fewer than 100 sheep dairy farms in the United States (we imported 66 million pounds of sheep's milk cheese in 1994, valued at \$118 million.) With this new finding about CLA, perhaps more US farmers will consider milking sheep.

(Jahreis, G. *et al*, The potential anticarcinogenic conjugated linoleic acid in milk of different species: cow, goat, ewe, sow, mare, woman." *Nutr Res* 1999. 19:1541-9.)

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## **Eating eggs does not appear to increase the risk of cardiovascular disease or stroke**

Cutting back on egg consumption has been widely recommended as a way to lower blood cholesterol levels and prevent coronary heart disease. Is this valid advice? Recently, researchers took a close look at the egg-eating habits and heart health of 118,000 men and women. The scientists reported that "we found no evidence of an overall significant association between egg consumption and risk of CHD [coronary heart disease] in either men or women." In fact, they found that people who ate from 5 to 6 eggs per week had a lower risk of heart disease than those who ate less than one egg per week.

One wonders what the scientists would find if they looked at the heart health of those lucky people who eat eggs from pastured hens?

(Hu, F. B., M. J. Stampfer, *et al*. (1999). "A prospective study of egg consumption and risk of cardiovascular disease in men and women." *JAMA* 281(15): 1387-94.)

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## **Agribusiness underestimates the consumer revolt against hormone-implanted meat**

Sometimes it helps to look at an issue from the other side of the fence. Here's a paragraph excerpted from an on-line publication of the beef industry about the economic benefits of implanted synthetic hormones. "'There's probably nothing else we can do chute-side with a critter that is as economically important as a quality implant job,' says Gerry Kuhl, extension feedlot specialist at Kansas State University (KSU). For round-numbers perspective, Kuhl explains implanting calves adds 15-25 lbs. to weaning weight. A single implant in the stocker pasture is worth 15-40 lbs., while implants in the feedlot routinely serve up an extra 30-40 lbs. ... 'That's a response we can't afford to ignore, given the narrowing profit margins,'" says Kuhl."

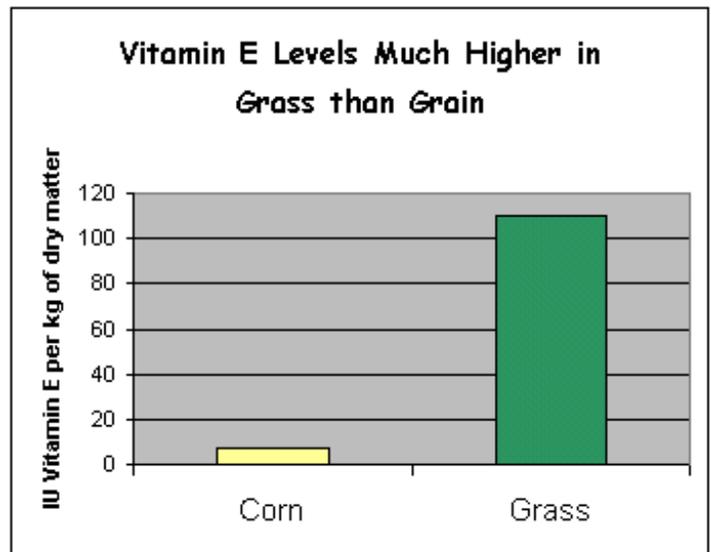
Grassfarmers have a refreshingly different approach to encouraging growth in their livestock. Rather than implant their animals with hormones, they plant their fields with high quality forage. As in nature, the richness of the environment—not drugs—determines the growth rate of grassfed animals.

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## **Grassfed animal products have a bonus supply of vitamin E**

The chart below shows the relative amounts of vitamin E in corn and grass. As you can see, when animals are raised on fresh pasture, they get considerably more of this important vitamin. When

consumers choose grassfed products, they, too get an extra helping of this immune-boosting, age-defying antioxidant. To learn more, read ["Vitamin E Requirements for Protection of Dairy Cows Against Infections at Parturition."](#)



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## Soft cheese has more CLA than aged cheese

All cheese made from the milk of grassfed cows is rich in conjugated linoleic acid (CLA). However, the cheese making process itself can increase or decrease this amount. In a comprehensive survey, the highest amounts of CLA were found in soft cheeses aged approximately three months. Longer aging periods reduced this highly desirable fat.

(Chin, S. F. *et al* (1992)). "Dietary Sources of Conjugated Dienoic Isomers of Linoleic Acid, a Newly Recognized Class of Anticarcinogens." *J of Food Composition* 5: 185-97.)

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## Finishing lambs on pasture cuts costs and enhances the quality of the meat

According to this North Carolina study, lambs raised on alfalfa pasture had "higher carcass weight average dressing percentage, yield grade and carcass value ( $P < .05$ ) than those fed on the grain-based ration. . . The high quality carcasses were produced at a much reduced cost as compared to traditional feeding management." All told, the net return for the lambs raised on pasture was \$15.97/head higher. For more details, read [Use Of Alfalfa Pasture For Finishing Lambs](#).

In a second grazing experiment, meat from lambs finished on pasture had 14 percent less fat and 8 percent more protein than grain-fed lambs. [Click here for details of this study](#).

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## Turkeys make CLA, too

CLA (conjugated linoleic acid) is highest in products from grazing animals on a diet of fresh pasture, and it is very low in non-ruminants such as chickens and pigs. But turkeys appear to be an exception, having about 2.5 mg of CLA per gram of fat. (For comparison, chickens have 0.9 and pigs 0.6 mg. per gram of fat.) To date, no one has tested the CLA content of turkeys raised on pasture rather than in confinement, an experiment that begs to be done. It is possible that turkeys with a significant amount of greens in their diet will have even more CLA.

(Chin, S. F. *et al.* (1992)). "Dietary Sources of Conjugated Dienoic Isomers of Linoleic Acid, a Newly Recognized Class of Anticarcinogens)

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## **Cows that graze on "ecologically managed" pasture may have more CLA**

Raising dairy cows on fresh pasture instead of a standard dairy diet increases the CLA content of their milk five-fold. Now there is some evidence that grazing on organic pasture may boost the CLA even further. In a study conducted in Germany, cows on organic pasture had almost twice as much CLA as those grazing on a nearby, non-organic farm. More research is needed.

(Jahreis, G. *et al.* (1997). "Conjugated linoleic acid in milk fat: high variation depending on production system." *Nutrition Research* 17(9): 1479-1484.)

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## **Finishing cattle on fresh pasture increases the omega-3s in their meat more than fishmeal**

Researchers have been laboring diligently to try to increase the omega-3 content of beef. In a 1998 study, letting cattle forage on fresh pasture alone resulted in higher levels of omega-3 fatty acids than feeding them a diet that contained 10% fishmeal for 168 days.

For more information, see: I.B. Mandell *et al.*, *The Return of Omega-3 Fatty Acids into the Food Supply*, *World Rev Nutr Diet*, 83:144-59, 1998.

Once again, Nature's original plan is proving to be the better plan.

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## **Raising pigs on pasture reduces the risk of fostering antibiotic-resistant bacteria**

A herd of pigs that had not been exposed to antibiotics for 126 months was divided into two groups and either housed on pasture or in standard indoor units. Over a 20-month period, fecal coliforms from both groups of pigs were tested for resistance to standard antibiotics. Samples taken from the pastured pigs were far less likely to be antibiotic resistant.

"The data from this study suggest that exposure to antibiotics is not the only factor that influences the prevalence of bacteria that are resistant to single and multiple antibiotics in the feces of domestic animals and that considerable research is needed to define the factors influencing antibiotic resistance in fecal bacteria."

Langlois, B. E., K. A. Dawson, *et al.* (1988). "Effect of age and housing location on antibiotic resistance of fecal coliforms from pigs in a non-antibiotic-exposed herd." *Appl Environ Microbiol* 54(6): 1341-4.

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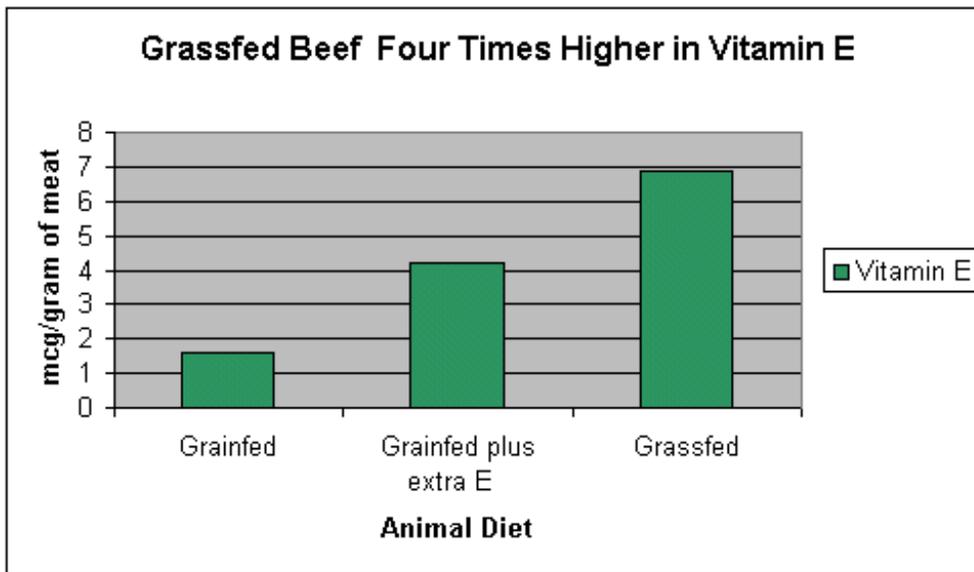
## **Meat from grassfed cattle is four times higher in vitamin E**

In addition to being higher in omega-3s, CLA, and beta-carotene, grassfed beef is much higher in vitamin E. The graph below shows vitamin E levels in meat from: 1) feedlot cattle, 2) feedlot cattle given high dose supplements of vitamin E (1,000 IU per day), and 3) cattle raised on fresh pasture with no added supplements.

The meat from the pastured cattle is four times higher in vitamin E than the meat from the feedlot cattle and, interestingly, almost twice as high as the meat from the feedlot cattle given vitamin E supplements. The reason for the very high vitamin E content in the meat of grassfed cattle is the very high vitamin E content in fresh grass. (Scan down for earlier postings on vitamin E levels in animal feed.)

In humans, vitamin E is linked with a lower risk of heart disease and cancer. This potent antioxidant may also have anti-aging properties. Most people tend to be deficient in vitamin E.

("Dietary supplementation of vitamin E to cattle to improve shelf life and case life of beef for domestic and international markets." G.C. Smith Colorado State University, Fort Collins, Colorado 80523-1171)



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