

MYTHS & FACTS ABOUT BEEF PRODUCTION

1. FOOD RESOURCES

Myth: By "eating lower on the food chain" (eating less meat), Americans would improve the environment, and they would free land and other resources for production of food crops rather than meat and other animal products.

Fact: The optimum use of natural resources in the U.S. as well as other parts of the world involves use of both animals and plants to produce the nutrients which humans require. For example, about half the land area of the U.S. is strictly grazing land-not suitable for crop production. That land would be of no use as a food resource if it were not for grazing livestock.

Background: Cattle are more "environmentally friendly" and more efficient in their use of land, grain, water and energy than sometimes is claimed. (Also see Myths and Facts on soil and land conditions, grain feeding, energy consumption, water use, and deforestation.) Only through ruminant (four-stomach), grazing animals can we harvest food from the more than 1 billion acres of range and pasture land in the U.S. At least 85% of the grazing land is too high, too rough, too dry or too wet to grow cultivated crops. The availability of grazing cattle most than doubles the U.S. land area and can be used to produce plants for food purposes.

Cattle production is not preventing production of plant-source foods for domestic and overseas use. The U.S. has more than enough cropland to grow both feed grains and food crops. In fact, because of grain surpluses, government crop programs involve removal of land from grain production.

Cattle are fed just enough grain, in feedlots, to make beef production highly efficient and to make beef more affordable. Grain feeding makes beef more palatable. Feedlot feeding helps even out the beef supply, avoiding the seasonal gluts and shortages to spend more times on grass, the size of the

cattle herd would have to be reduced, beef supplies would be smaller, and costs would be higher.

Actually, the nutrient values of plant and animal-source foods cannot be directly compared. Livestock serve as a means of gathering, concentrating and storing nutrients essential to human health. In the U.S., foods from animals supply 68% of the protein, 35% of the energy, 83% of the calcium, 60% of the phosphorus, 42% of the iron, 89% of the vitamin B-12 and large amounts of other essential nutrients.

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2. SOIL AND LAND CONDITIONS

Myth: Livestock raising in the U.S. is largely responsible for loss of topsoil. Overgrazing is causing deterioration of western rangeland.

Fact: Cattle production is not a major factor in U.S. soil erosion. In fact, production of forage (as opposed to cultivated crops) and use of grazing animals to produce food from the forage are one way to conserve soil. For more than 50 years, steps-including managed livestock grazing-have been taken to improve range conditions. Experts agree that the rangelands, including publicly owned rangelands in the West, are in better conditions than they have been since the turn of the century.

Background: Most of the nation's crop land is used to produce crops for human food use and for export. Only 19% of total crop land is used to produce feed grains. It is estimated that production of grains and harvested forages for all beef cattle accounts for only 5.8% of soil erosion

from non-federal rural land. However, soil erosion is a possible problem in producing of any crops. That is why cattle producers as well as other farmers and ranchers are now involved in soil conservation programs. Use of conservation tillage practices continues to grow. Grass is used as a protective cover for soil.

Western range conditions suffered in the early 1900's because of drought and over-grazing. Since then, livestock producers, range scientists and federal land managers have worked to improve conditions. In a recent report, the Bureau of Land Management pointed out that public rangelands were in better condition than at any time in this century.

The trend on more than 87% of BLM rangeland is stable to improving. Managed grazing results in better grass conditions than would exist if there were no grazing. The grazing improves vegetation health and diversity - it's similar to mowing a lawn.

In a recent survey of cattle producers, 52% of producers said that the condition of their pasture or range had improved since 1980 - because of various management practices. Only 13% said that conditions had declined, and that was because of drought.

Whether land is public or private, it is in a cattleman's own best interest to promote regeneration of forages and to take proper care of the resources for which he is responsible. Grazing management is the main job of a producer with pasture or range. A producer must be a good steward of the land if he is to be successful and if he is to pass his business on to the next generation.

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3. CATTLE FEEDING

Myth: Cattle consume excessive amounts of grain - grain that otherwise could help feed hungry people.

Fact: 1) An average of 4.5 lbs. of grain (compared to a claimed 16 lbs.) Is used in producing a pound of beef (retail weight).

2) The world hunger problem is a result of poverty, lack of buying power and food distributing problems - not meat eating in the U.S. The grain whose use is debated would not even be produced unless there was a market for it. To get more grain to the poor and hungry, taxpayers or other organizations must buy it and distribute it.

Background: Beef cattle spend all or most of their lives on pasture and range. At least 80-85% of the nutrients consumed by cattle come from non-grain sources-feedstuffs not edible by humans. These feedstuffs include grass, roughage, food processing by-products and crop aftermath.

Less than half the dry matter produced by crops is edible by humans. Millions of tons of nutrients would be wasted - to say nothing of waste disposal problems - if it weren't for the fact that livestock can make use of food processing by-products and crop residues like corn stalks.

Grain feeding has made possible a larger, more economical supply of livestock and poultry products in the U.S. The amount of grain consumed by beef cattle is about the same as that consumed by hogs and somewhat less than consumed by poultry. Most of the grain fed to cattle is feed grain, not food grain like wheat and rice.

The U.S. continues to process more grain than can readily be sold. For most

of the last three decades, U.S. grain surpluses have increased, even with an expanding animal agriculture. That is why acreage reduction has been part of government grain programs. The increase in grain supplies has not helped alleviate world hunger. If grain were not fed to livestock, more grain would not necessarily be available to feed the hungry. Relief programs and/or economic development in poor countries, providing the ability to produce or purchase and distribute more food, are needed to help solve hunger problems.

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4. ENERGY USE

Myth: Livestock and meat production accounts for an excessive amount of fossil fuel use, which will lead to depletion of our petroleum reserves much more rapidly than would be the case if we ate only plant-source foods.

Facts: U.S. agricultural production accounts for only 2.5% of total fossil fuel energy used in the U.S. Beef production accounts for less than 0.5% of energy use. More than 80% of the total energy involved in food production, processing and preparation is used after food leaves the farm. Because many plant-source foods require large amounts of energy in the processing phase, the over-all energy efficiency of beef often is comparable, or even superior, to the energy efficiency of plant-source foods.

Background: Most of the energy used to produce cattle is solar energy -

the solar energy used in growing grasses and forage as well as feed crops. Grazing alone supplies 57% of feed energy used in producing beef cattle. The fossil fuel energy used to produce 70 lbs. Of beef (retail weight), the average annual per capita consumption, is equivalent to 12-25 gallons of gasoline per year, or only about 1/15 of a gallon for 4 oz. of beef-one serving.

Mechanization of agriculture, through use of fossil fuels, is a major reason for the higher standard of living in the U.S. Millions of people have been freed from having to live on farms and grow food for themselves and possibly a few others. Those people now produce other goods and services, thus raising the overall standard of living. Also, substitution of energy for land (through mechanization and more intensive farming of productive land) has released much of the poorer, more erodible land for grazing and forage production for cattle.

Foods must be compared in the forms consumed and not as raw products. People eat virtually no unprocessed grain, for example. On the basis of foods as eaten, beef compares favorably with many other foods in terms of energy use. Also, many people now select foods on the basis of fewer calories, not just calories or energy. Beef supplies large amounts of essential nutrients-including vitamins, minerals and protein-in relation to the calories or energy per serving.

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Ruminants as Producers of Human Food, J.R. Carlson, Washington State University, 1989.

5. WATER USE

Myth: It takes 2,500 gallons of water to produce a pound of meat.

Fact: The total amount of water used in on-farm production of grain-fed beef average is lower. That is because more than 30% of all beef is from cattle consuming little or no grain (some of which may be irrigated). Water for cattle production is not "used up". It is quickly recycled as part of nature's hydrological cycle.

Background: The claim that 2,500 gallons of water are used to produce a pound of beef has to be based on incorrect feeding and crop irrigation assumptions. Data on livestock drinking water use and on hay and grain crop irrigation indicate that water use for beef production is significantly less than claimed. That is true even if one assumes that most of the grain fed to cattle is from irrigated crop land (because of more feeding and more grain crop irrigation in the arid West).

Mature cattle consume 8 to 15 gallons of water per day, depending on temperature, humidity and type of feed consumed. Most of this water returns to the soil. Most water used in beef production is for irrigation of hay, silage and grain in arid regions. Total use of water to produce an 1100-lb. Grain-fed slaughter animal, with 682 lbs. of carcass beef, is estimated at 200 gallons per pound of carcass beef. The average for all beef is significantly less because more than a third of U.S. beef is from cattle getting little or no grain.

The average citizen in Fort Collins, Colorado, uses 81,450 gallons of water for drinking, waste disposal, bathing, laundry, lawn watering, etc. in a year's time.

Water used in cattle production is not "consumed" or "used up". For example, water put on cropland mostly evaporates or runs off and appears as rain or in stream water in another location in the hydrological cycle. Water taken up by plants leaves the plants through transpiration and evaporation and returns to the earth as rain, recycling many times during a growing season. Most of the water "used" in cattle production is quickly recycled. Most of the water used by humans goes into sewage systems and into streams and oceans before being recycled.

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A Perspective on Beef as a Component in Diets for Americans, Texas A&M University, 1990.

6. DEFORESTATION

Myth: U.S. beef consumption is causing deforestation of land in the U.S. and destruction of tropical rainforests in Latin America.

Fact: There is no evidence that livestock grazing has been a significant factor in deforestation of U.S. land. And there is little or no relationship between U.S. beef (for hamburger or any other use) from Brazil or other South American countries. Imports of beef from Central America amount to only 0.4% of beef used in the U.S.

Background: An examination of available information shows that conversion of forest to other uses in the U.S. is much less than claimed and that livestock production is not a significant factor. Scientific literature indicates that livestock grazing is responsible for less than 6% of the conversion of forest to other uses in the U.S.

There is no shortage of land in the U.S. for production of crops of various types. In fact, because of grain surpluses, the government has encouraged removal of land from crop production. There is no pressure to convert woodlands to agricultural use.

Grazing is practiced on some deforested land in Latin America, but the primary causes of excessive rainforest destruction are not related to beef production. Most of the forest land conversion has been for crop and timber production. The U.S. imports no fresh beef from South America. Because of animal health regulations, the U.S. permits importation of only cooked and canned beef (and the amount is limited) from South America. Recently, because of meat inspection problems in Brazil, USDA banned imports of even canned beef from Brazil. Imports represent only a small

part of U.S. beef consumption. Only 0.4% of beef used in the U.S. comes from Central America. Avoiding U.S. fast food hamburgers or other beef will do nothing to halt rainforest destruction.

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- Deforestation and Meat Production, K.E. Belk, H.R. Cross and N.O. Huerta-Leidenz, Texas A&M University, April, 1990.

7. METHANE PRODUCTION

Myth: U.S. cattle produce large amounts of methane, a "greenhouse" gas, thereby contributing significantly to possible global warming problems.

Fact: Methane represents only 18% of the world's greenhouse gases, and only 7% of world methane production is attributable to cattle. Beef cattle in the U.S. account for only 0.5% of world methane production and only 0.1% of total greenhouse gases. Because of highly efficient production methods, U.S. beef cattle emit much less methane per animal unit than do cattle in other countries.

Background: It has been said that the world's 1.3 billion cattle produce almost 100 million tons of methane a year. However, cattle's contribution to the possible methane and greenhouse gas problem is less than sometimes stated. An analysis shows that, because of the carbon dioxide produced, driving six miles each way to buy a hamburger would result in 100 times as much greenhouse gas as the methane generated in producing a hamburger in the U.S. Controlling methane emissions from cattle, even if it could be done, would provide little or no benefit from the point of view of global atmospheric biomass burning, fossil fuel exploration, landfills and coal mines.

If efforts were made to reduce cattle's methane production throughout the

world, the best approach would be to follow production systems in the U.S. Modern technology, including products and programs to improve feed conversion, reduces methane production and improves animals' use of feed energy. U.S. cattle go to market at younger ages. All of this means that U.S. cattle contribute relatively much less to any possible global warming effect than do cattle in other countries.

Concern about methane emissions from cattle often is based on projected increases in world cattle numbers. These assumptions overlook the fact that the U.S. cattle herd has decreased in size and is expected to remain stable. Because of the efficiency of U.S. production methods, the industry is producing more beef per animal unit than in past years.

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8. WASTE MANAGEMENT

Myth: Cattle produce large amounts of manure, and much of the animal waste winds up in the U.S. water supply.

Fact: Manure production by all livestock and poultry is only a fraction of that claimed by critics. Essentially all livestock and poultry manure winds up as a natural fertilizer on the land-on range and pasture land or on crop land - and it is recycled without polluting water supplies.

Background: At least 60% of cattle manure, like that from wildlife, is deposited on the hundreds of millions of acres of pasture and open range and forest land, and it presents no pollution problem. In fact, animal

droppings are important in maintaining water and mineral cycles in native range land. Essentially all beef cattle manure in feedlots is collected, loaded, hauled and applied as a natural fertilizer to soil directly or via storage/treatment systems. Tests show that groundwater quality in leading cattle feeding regions remains good. Environmental Protection Agency data show that any water quality impairment of streams and rivers from all types of agricultural operations, including sediment from cropland, is less than 10% of the U.S. total of almost 1 million miles of streams.

Management of feedlot surfaces, use of storage lagoons and holding ponds, and other management practices have helped prevent run off and groundwater contamination problems. There also are recommended practices for spreading manure and waste water on agricultural land. Since 1974, EPA has had regulations prohibiting discharges of waste from feedlot "point" sources.

It is fallacious to compare amounts of human and animal excrement. In the U.S. by far most human waste is immediately placed in water-borne sewage systems. Cattle feedlot waste is deposited on soil or concrete surfaces where it undergoes a high degree of biodegradation before applied to land for fertilizer purposes.

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Pollution Control and Waste Management Practices for Cattle Feedlots, John M. Sweeten, Texas A&M University, 1989.

9. ANIMAL CARE

Myth: Livestock producers subject their animals to unnecessary hardship and inhumane practices.

Fact: Inhumane practices are not only morally wrong; they are not

economic. It is in producers' own best interest to take proper care of their animals. Most producers are sensitive to the welfare of their livestock.

Background: Cattlemen take good care of their animals for two reasons: First, they are in the cattle business because they like animals. Second, keeping animals healthy, strong and free of stress and injury is in their own economic interest. Any type of abuse or neglect or harmful practice is counter-productive. If cattlemen are to remain in business and remain on their farms and ranches, they must be efficient producers. That requires proper feeding, health maintenance, care, and handling. Management of cattle involves hands-on-care. Cattlemen and cattle women, not machines, monitor, feed and care for their livestock.

The management practices and feeding and handling programs followed by cattle producers are no accident. They are a result of years of research and experience. Research indicates that producers are doing an excellent job of managing their animals.

Animals that receive the best care are the most productive. Health and reproductive and productive traits continue to be the most readily measurable and most practically useful indicators of compatibility between farm animals and the environments in which they reside. Feeds, management systems and disease control are now better than at any time in the past.

A statement of principles adopted by members of the National Cattlemen's Association includes these points: "I believe in the humane treatment of farm animals and in continued stewardship of all natural resources...I believe my cattle will be healthier and more productive when good husbandly practices are used...It is the responsibility of all human beings to care for animals in their charge".

Wildlife: It also may be noted that livestock production on both private and public lands is in many ways responsible for improved habitats and increases in wildlife populations. Private lands in agricultural production provide rangeland, crops, water, wetlands and other food sources and habitat for big game and non-game species. In western regions, management of forage and development of water supplies have benefited wildlife as well as livestock. Data show that wildlife numbers have increased in the last 50

years because of resource management by livestock operators and others. A survey of cattle producers showed that 79% have areas that support wildlife.

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Wildlife on the Range, Bureau of Land Management, 1990.

10. DIET AND HEALTH

Myth: The risk of death from heart disease and other diseases can be greatly reduced if a person avoids eating a meat-centered diet.

Fact: Lean beef is regarded by leading health organizations and agencies and a valuable and appropriate part of American diets. The American Dietetic Assn., The American Heart Assn., the National Heart, Lung and Blood Institute and other organizations generally recommend 5-7 oz. Of lean trimmed meat daily. Nutrition authorities point out that trimmed beef provides large amounts of essential nutrients-such as iron, zinc, vitamin-12 and balances protein.

Background: Excess fat, from any source, can contribute to the development of illness in some people. But beef and fat are not necessarily

synonymous. Trimmed beef has been part of diets which have contributed to improved health and to continuing increases in the longevity of Americans. Government statistics show that red meat alone provides 28% of the protein, 23% of the iron, 36% of the zinc, 52% of the vitamin B-12 which Americans consume. It is a nutrient-dense food, supplying large shares of essential nutrients in relation to the calories it supplies.

There has been a substantial improvement in the ratio of lean to fat in beef carcasses and in retail cuts of beef. The National Beef Market Basket Survey of retail cuts showed that, on average, the thickness of separable fat on steaks and roast had been reduced through closer trimming, to less than 1/8-inch. Comparing survey data to data on the nutrient content of retail cuts in 1986, USDA showed that retail cuts had 27% less separable fat than previously reported.

Research on fatty acids has shown that, on average, only 27% of the total fat in a serving of beef has the potential to elevate blood cholesterol levels. Also, beef has no more cholesterol than chicken. The amounts of fat, saturated fat and cholesterol in lean, trimmed beef are low enough that beef is included in low-fat diets recommended by scientific organizations.

Properly balanced vegetarian diets can meet nutrient needs, scientists note, but such diets are not easy to formulate. For most persons, animal as well as plant products have been important parts of diets for thousands of years.

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11. HORMONES AND ANTIBIOTICS

Myth: The use of antibiotics and hormone growth implants in livestock production is causing hazardous residues in beef and is contributing to the development of health problems in humans.

Fact: No residues from feeding antibiotics are found in beef, and there is no valid scientific evidence that antibiotic use in cattle causes illnesses resulting from the development of antibiotic-resistant bacteria. Scientific authorities agree that use of hormone implants results in the efficient production of lean beef that is safe.

Background: Some persons say that low-level, continuous feeding of penicillin and tetracycline to livestock and poultry for growth promotion may result in development of antibiotic-resistant bacteria and thus contribute to human illness. The National Academy of Sciences say it has never found data directly implicating subtherapeutic use of feed microbial as a risk factor in human illness.

Penicillin is not fed to cattle. For several years, there has been little subtherapeutic feeding of tetracycline to cattle, even though such use continues to be approved as safe. There is no valid scientific evidence that feeding antibiotics to beef cattle causes human health problems. A recent report by USDA's Food Safety & Inspection Service showed no antibiotic residue problems with beef cattle.

Whether or not antibiotics are used in animals, resistant organisms will

exist. But all are sensitive to heat, and proper cooking will kill all disease-causing bacteria that may be found in meat products.

Use of hormone growth implants improves efficiency and results in production of more lean meat and less fat in cattle. Hormones are naturally present in infinitesimal amounts in all meat, whether from implanted animals or not. The amounts of estrogen and other hormones in plant-source foods are larger than in meat. The human body produces hormones in quantities much greater than ever would be consumed by eating beef or other foods. Hormones in beef from implanted steers have no physiological significance for humans whatsoever. The estrogen level in a 3-oz. Serving of beef from an implanted steer is 1.85 nanograms (a nanogram is a billionth of a gram); the level in the same size portion of beef from a non-implanted steer is 1.01 nanograms. By comparison, a non-pregnant woman produces 445,000 nanograms of estrogen daily.

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Report on Use of Hormonal Substances in Animals, Inter-American Institute for Cooperation on Agriculture, 1986.
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12. PESTICIDES IN FOOD PRODUCTION

Myth: Use of pesticides is causing environmental and human illness problems. Meat contains more pesticides than do plant-source foods.

Fact: Government data indicate that, for both plant and animal foods, there is no evidence of chemicals at anything more than a fraction of tolerance levels proven to be safe. USDA's official report for 1989 on residue monitoring of meat showed no violative pesticide residues in beef.

Background: Monitoring agencies indicate that any residues of crop chemicals are undetectable or are present at only a fraction of tolerance levels in foods.

Residues do not accumulate "up the food chain," in meat as opposed to plant foods. That is because living organisms do not just take up chemicals. They also detoxify, metabolize, biodegrade and excrete any chemicals. As a consequence, only a small fraction of any chemical absorbed is even temporarily deposited in tissues. Actually, animals provide a useful function by biodegrading chemicals, whether natural or man-made. The Food and Drug Administration's total diet studies show that foods supply less than 1% of allowable dietary intakes of crop chemicals. FDA samplings in 1988, together with total diet studies, continued to demonstrate that dietary intakes of pesticide residues are well below standards set by the Food and Agriculture Organization/World Health Organization.

"Natural" production systems do not result in crops without potentially toxic chemicals. Plants naturally produce "pesticides" to help fight off parasites, insects, birds and animals. In addition, organisms living on plants, such as fungi, may produce toxins.

Use of modern technology makes possible the production for Americans of a more bountiful, more healthful, safer, less costly supply of food.

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