

Oklahoma Beef

Background

Oklahoma is Cattle Country. Everywhere you go in our state, you will see cattle grazing in fields at the side of the road. Cattle graze on Oklahoma grasslands in almost every one of our 77 counties.

Beef animals were first domesticated about 5,000 years ago. Modern domestic cattle evolved from a single ancestor, the aurochs (pronounced or-oks), an extinct wild ox species that ranged across the grasslands of Eurasia and North Africa 11,000 years ago. Cattle are herd animals. In ancient times, herd animals were the easiest animals to domesticate. Herd animals follow the lead of a dominant member. These natural leaders are the first to cross streams, gullies and other obstacles, showing the others the way. Herd animals stay close together and move together. Domestication of aurochs gave rise to two major groups of cattle; *Bos taurus* and *Bos indicus*. Prehistoric paintings on cave walls help us see what the aurochs looked like.

The beef industry generates more income than any other agricultural enterprise in our state. In 2014, Oklahoma's beef cattle inventory was 1.9 million. That same year, Oklahoma ranked number two in the nation in the production of beef cattle, number five in the production of cattle and calves, number 9 for cattle on feed and number three for our calf crop.

A cattle and calf operation is involved mostly in producing calves to sell. Cattle may be sold at auction as stockers or feeders. Feeders are sold to feed lots where they are fed until they reach a desired weight to be sold for beef production. Stockers are sold to ranchers to be placed on pasture until they reach a desirable weight to be sold as feeders. Cattle may also be sold as cows, cow/calf pairs and bulls to restock herds.

Grass is one of our most plentiful resources in Oklahoma, and most beef producers take advantage of this by grazing their cattle on pasture when it is available. Beef cattle graze many areas in Oklahoma that are unsuitable for growing crops. They transform grass, which people cannot digest, into protein (meat) that people can eat. In wheat-growing areas, cattle often graze on winter wheat in the fall and early spring. The cattle are removed from the wheat before it reaches its jointing stage to allow it to mature and ripen for harvest in late spring/early summer. When the wheat is dormant or covered with snow, supplementary feed is provided.

Just as humans need variety and balance in their diets, animals need more than just grass to stay healthy. Food eaten by animals is called "feed." Animal feed provides energy, fat, and fiber; protein for the development and maintenance of muscles and the synthesis of hormones and enzymes; and vitamins and minerals, important for the growth and maintenance of bones and other body systems.

Beef is an important part of a healthy diet for humans. About 50 separate nutrients are essential to our good health. No single food contains all of these nutrients. For this reason, dietitians and health providers recommend consuming a variety of foods daily from several different food categories. One of the nutrients you need, Vitamin B12, can be found only in animal foods, such as beef. Beef also provides significant amounts of other important nutrients—protein, riboflavin, niacin, iron and zinc.

Proteins are made up of amino acids. We need 22 amino acids, but only eight must come from food. The body can produce the others. The amino acids the body cannot make are called "essential amino acids." Proteins which contain all of the eight essential amino acids in proportions most useful to the body are called "complete" or "high quality" proteins.

Plant proteins, when eaten alone, do not contain all of the essential amino acids in sufficient quantity and therefore are incomplete. To make them complete, they must be combined with other foods containing the amino acids that are missing. For instance, beans and rice, eaten separately, do not contain all the essential amino acids, but eaten in combination, they do.

Complete proteins, such as those in beef, help to build, maintain and repair body tissues, form body

hormones and enzymes and increase resistance to infection and disease.

One 3-ounce cooked serving of 80 percent lean ground beef will supply 21 grams of protein, about 45 percent of the daily amount recommended for children ages 9-13. Beef also contains significant amounts of several B-vitamins. Riboflavin (vitamin B2) helps the body use energy and promotes healthy skin and good vision in bright light. Niacin (another B-vitamin) promotes healthy skin and nerves, aids digestion and fosters normal appetite.

Vocabulary

amino acid—any of numerous acids that include some which are the building blocks of proteins and are made by living cells from simpler compounds or are obtained in the diet

dietitian—a person who studies nutrition as it relates to health.

enzyme—any of various complex proteins produced by living cells that bring about or speed up reactions (as in the digestion of food) without being permanently altered

grazing

hormone—any of various similar substances found in plants and insects that regulate development

iron— a metallic element essential to healthy blood and available to humans through consumption of such foods as red meat, spinach, beets, whole wheat and raisins

niacin—a vitamin B complex occurring in living cells as an essential substance for growth

nutrients—substances necessary for life and growth

protein—any of a group of complex organic macromolecules that contain carbon, hydrogen, oxygen, nitrogen, and usually sulfur and are composed of one or more chains of amino acids. Proteins are fundamental components of all living cells and include many substances, such as enzymes, hormones, and antibodies, that are necessary for the proper functioning of an organism. They are essential in the diet of animals for the growth and repair of tissue and can be obtained from foods such as meat, fish, eggs, milk, and legumes.

riboflavin—a crystalline orange-yellow pigment, the principal growth-promoting factor in the vitamin B complex, found in milk, leafy vegetables, fresh meat and egg yolks

tissue—an aggregation of morphologically similar cells and associated intercellular matter acting together to perform one or more specific functions in the body

US DRI (Dietary Reference Intake)—the daily amount of each nutrient recommended for most people

Vitamin B6—a vitamin essential to the utilization of protein, the formation of red blood cells and proper nerve function. It is found in meat, poultry, fish, whole-grain cereals, sweet and white potatoes, green vegetables, bananas and prunes.

Vitamin B12—a vitamin necessary for the normal development of red blood cells and the functioning of all cells, particularly in the bone marrow, nervous system and intestines. Sources include organ meats, lean meats, fish, milk, eggs and shellfish.

zinc—a mineral found in beef, liver, eggs, poultry and whole wheat bread, which maintains taste and smell acuity, normal growth and sexual development and is important for fetal growth and wound healing.