

Cattle Industry

BREEDS OF CATTLE

Modern-day cattle have been bred for two primary purposes: milk and meat production. Some breeds are considered *dual-purpose*, having desirable traits of both dairy and beef cattle. Dairy cattle have been selected and bred so that the dietary foodstuffs they consume are converted into milk. Beef cattle have been selected and bred so that the dietary foodstuffs they consume are converted into flesh.

If we examine the body type of a typical dairy cow (Fig. 19-1), we note that she has a very angular (almost triangular) body, with many of her skeletal structures exposed through her hide. This anatomic feature indicates that she is converting her feed into milk and not into flesh. Her legs are long, lacking excessive flesh, making it easier to place a milking machine under her. Her neck is long and slender, thus indicating a greater ability to produce milk. Her *body capacity* is characterized by the circumference of her *heart girth* and *barrel*. A large heart girth indicates great heart and lung capacity or the ability to pump more blood and oxygen through her udder to manufacture milk. A large barrel indicates a large abdominal region, which is indicative of large feed capacity or the ability to consume

more feed. The consumption of increased amounts of feed will result in more nutrients being pumped through the udder and thus more milk being produced. The *udder* of the dairy cow is large, attached high and wide, with four teats equally placed and of uniform length and diameter, which makes milking easy.

If we examine the typical body style and type of beef animals (Fig. 19-2), we note that they are extremely rectangular in stature and appear fleshy, with very few skeletal anatomic structures revealed. Beef animals have shorter legs because they are not milked, and the flesh from these areas is of lower quality. Their necks are shorter and fleshy, with an udder conducive in size to just suckling a calf. They should also have a large heart girth for the purpose of pumping more nutrient-containing blood through the body to produce a better quality carcass. The barrel should be large and well sprung, indicative of great feed capacity. Dual-purpose breeds of cattle (for example, Brown Swiss) have qualities conducive to both dairy and beef production.

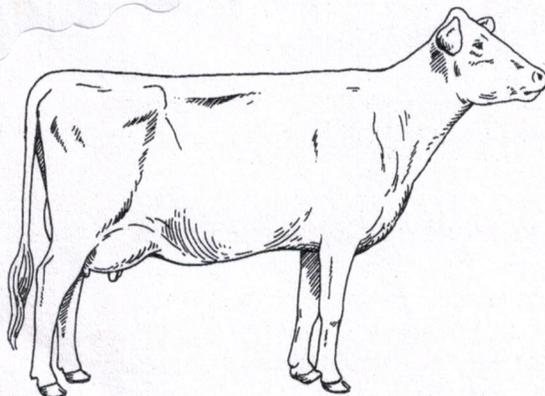


FIG. 19-1 Typical body type of a dairy cow.

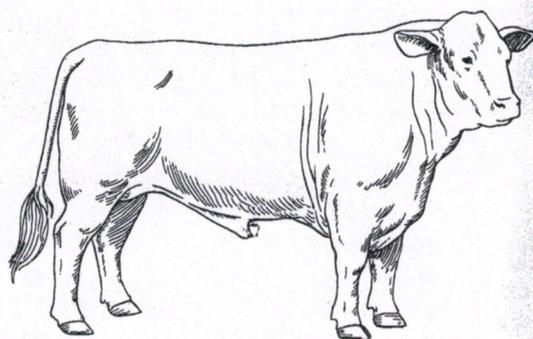


FIG. 19-2 Typical body type of a beef animal.

FEEDING CATTLE

Cattle are *ruminant* herbivores possessing a stomach that has four functional compartments. The compartments of the ruminant stomach are the rumen, reticulum, omasum, and abomasum, or "true stomach" ~~See Fig. 10-24~~. A calf is born as a monogastric and gradually with age develops into a true ruminant.

Cattle do not have upper incisors; instead, they have a dental pad. It appears that they do not need upper incisors because they are able to graze efficiently without them. Cattleprehend food with their tongues. When cattle graze, they form a *bolus* of food and swallow it almost immediately, with little chewing. They consume all the food they desire, lie down in the pasture, and ruminate, or "chew their cud." This process of *rumination* includes regurgitating the previously swallowed food back into the mouth for reinsalivation, remastication, and redelutition. After this bolus of food is swallowed, another bolus is regurgitated. This process of rumination continues until all fibrous roughage is broken down.

The first and largest compartment of the ruminant stomach is called the *rumen* or fermentation vat. Here saliva, bacteria, and protozoans soften and break down carbohydrates and proteins of coarse forage. Fermentation also takes place in the *reticulum*, whose surface looks like a honeycomb. The *reticulum* also traps foreign objects such as screws, wire, nails, and stones and is sometimes called the "hardware compartment." Many cattle are fed rumen magnets to prevent a disease condition called *traumatic gastritis* or *hardware disease*. Smaller food particles move on to the *omasum* or "manyplies," which has the appearance of large leaves. Movement through this organ mixes

the food and grinds it. It is in the omasum that large quantities of water are absorbed. Ingesta then moves on to the *abomasum*, or true stomach. Here the ingesta is mixed with gastric juices, and digestion takes place. Digestion in the abomasum is the same as in monogastric animals.

Both beef and dairy cattle consume large quantities of *roughage*, which they obtain by grazing on pasture or being fed hay or *silage*. Most beef cattle eat only what they graze, with an occasional protein supplement during the winter. A beef calf runs with its dam until it is *weaned* at about 6 months of age. From 6 months to approximately 12 to 15 months, beef animals graze on pasture or open range with no additional supplements. At about 15 months of age, the animals are removed from pasture, placed in a feedlot, and put on a high-protein complete ration, which increases both the yield and quality of the carcass at slaughter. This is the most economic way of rearing beef cattle. A constant supply of water must be available to help soften and digest the coarse forage consumed.

Dairy animals normally are fed according to the amount of milk they produce. Some dairy farmers do *challenge feeding*. They keep increasing the amount of feed the cow receives just as long as she keeps increasing the amount of milk produced. Most dairy cattle graze on roughage about 6 to 9 months per year. They are then given a protein, mineral, and vitamin supplement and hay to complete their ration. Free access to fresh water must be available. An average dairy cow in production consumes about 30 to 50 gallons of water per day. In confinement rearing, dairy cattle are fed a complete pelleted ration. Both dairy and beef cattle should be given mineral blocks *ad libitum*.