

- **Provisions for feed, water, and habitat**

- Cattle can graze or browse many different kinds of plants (herbaceous and woody) depending on plant preference, plant availability, and nutritional status of the animal. Cattle grazing in native plant communities, rangeland or forestland, is compatible with land stewardship provided that it is done in a proper manner. Proper grazing management means balancing the needs of the plant community with the needs of the grazing animal. The elements of proper grazing management include maintaining the herd at or below carrying capacity and using prescribed grazing. Some rangelands and forestlands are more suited to managing for wildlife or other grazing or browsing animals than cattle because of the economic and environmental costs of changing the habitat to make it suitable for cattle production.

- **Health care and expectation**

- The goal of health management programs is to ensure the optimal care and well-being of dairy cattle and to reduce losses in productivity caused by disease and management errors. The health management program is generally developed cooperatively by the herd veterinarian and the dairy producer based on comparisons of herd performance with predetermined performance goals. The structure of health management programs is unique to each farm but is typically keyed to the scheduled veterinary herd visits that combine routine reproductive examinations, review of selected herd performance records, and decisions and actions related to specific herd management issues.

- **Handling procedures or expectations**

- Fear conditioning takes place in a subcortical pathway. A single aversive event can produce a strong conditioned fear response, but extinguishing the fear response is much more difficult because it requires the animal to suppress the fear memory via an active learning process. Observations by the author on cattle ranches have shown that to prevent cattle and sheep from becoming fearful of a new squeeze chute or corral system, painful or highly aversive procedures should be avoided the first time the animals enter the facility. Experiments with rats clearly demonstrate this principle. Rats that receive a strong electrical shock the first time they enter a novel alley will refuse to enter it again. However, if the rat is subjected to a series of shocks of initially low and then gradually increasing intensity, it will continue to enter the alley to get a food reward. Likewise, stress in sheep during routine handling can be reduced if the animals are conditioned gradually to the handling procedures. Less severe procedures, such as sorting or weighing, should be done first. It is unfortunate that many animals learn to fear the veterinarian. This learned response is especially evident in zoos. One zoo veterinarian quit, because it upset him that most of the animals feared him. He was associated with dart guns and other aversive procedures. This association can be avoided if the animals first few experiences with the veterinarian are positive.

- **Transportation and harvesting practices**

- This survey consisted of data collected from 23 beef harvest plants to document transportation procedures, management practices, and health assessments of market beef and dairy cows and bulls. Gooseneck/bumper-pulled trailers were used more often to transport dairy cattle than beef cattle to market whereas tractor-trailers were used more often to transport beef cattle than dairy cattle. All loads (n = 103) met the American Meat Institute Foundation guidelines for spacing. Loads where more than 3% of the cattle slipped during unloading were observed in 27.3% of beef loads and 29.0% of the dairy loads. Beef loads

had numerically greater usage of electrical prods (32.4%) versus dairy loads (15.4%) during unloading and were more likely to have a variety of driving aids used more aggressively on them. Fewer cattle had horns, brands, and mud/manure contamination on hides than in the previous survey in 1999. The predominant hide color for beef cows was black (44.2%) whereas the predominant color for dairy cows was the Holstein pattern (92.9%). Fewer cattle displayed evidence of bovine ocular neoplasia (2.9%) than in previous surveys in 1994 (8.5%) and 1999 (4.3%). Knots on live cattle were found less in the round (0.5%) and more in the shoulder region (4.6%) than in 1999 (1.4% and 0.4%, respectively). Dairy cows were more frequently lame in 2007 (48.7%) than 1999 (39.2%) whereas beef cows had numerically less lameness (16.3% vs. 26.6%, respectively). Most beef cows (62.3%) and dairy cows (68.9%) received midpoint body condition scores (3, 4, and 5 for beef; 2 and 3 for dairy). Beef cows had higher numerical percentages of no defects present (72.0%) versus dairy cows (63.0%) when evaluated for a variety of reproductive, health, or management conditions. Continued improvements in several key factors related to transportation, management, and health were observed in this survey, which could result in increased value in market beef and dairy cows and bulls.

- **Use in education and research**

- Kentucky has the largest beef cow herd east of the Mississippi and the eighth largest nationally, with approximately 1 million beef cows. Beef cattle provide our primary means of converting Kentucky's 7 million acres of pasture and forage into useful products. Tremendous potential exists to expand income opportunities from beef cattle to help replace lost tobacco income and sustain Kentucky's agricultural base. The state-of-the-art facilities at the Animal Science Research Center Beef Unit will allow us to move into this new century with renewed emphasis on development (Research) and transfer (Extension) of knowledge and technologies to ensure that Kentucky's beef industry is competitive in a changing and demanding marketplace.

- **Demonstrating and promoting a positive perception of animal agriculture**

- Demonstrating the economic importance of animal agriculture, particularly in developed regions, is not difficult. Livestock products, such as meat, milk, eggs and hides, account for more than one-half of the value of total agricultural production, including tobacco and other non-food crops. In most developing regions, the proportional value of livestock products is lower but still appreciable. As a proportion of total agricultural production, livestock products amount to about 22 percent for Southeast Asia, 25 percent for sub-Saharan Africa (not including the Republic of South Africa), 26 percent for China, 31 percent for West Asia and North Africa and 38 percent for South America. These values do not include animal traction and manure for fertilizer and fuel, which partially substitute for the fossil fuel-powered tractors and chemical fertilizers used in developed regions. For sub-Saharan Africa, the value of animal traction and manure as fertilizer was estimated to be about one-half of the combined value of meat, milk and eggs. Using this proportional value for traction and manure, the combined contributions from animal agriculture are approximately 35 percent of total agriculture production in sub-Saharan Africa (compared with 25 percent for meat, milk, eggs and hides alone). For other developing regions - especially Asia - the values of traction and manure are likely to be equally important.