

UPPER MIDWEST



THE ENVIRONMENT

The Upper Midwest can be characterized as a region that is abundant in feed resources. Annual precipitation across the region ranges from 24 to 40 inches and averages approximately 32 inches. Compared to some other U.S. regions, precipitation is evenly distributed throughout the year.

Over a typical 10-year period, there are seven years of relatively favorable climatic conditions during the growing season. Because weather patterns are showing a tendency to become more variable than in the previous 40 years, the relative certainty of climate in the region may not necessarily hold true for the future.

Pastures in the region consist of cool-season grasses interspersed with legumes. The predominant grasses are bluegrass, bromegrass, orchardgrass, timothy and reed canarygrass. Tall fescue is also used, but to a much lesser extent than in regions to the south. On well-drained soils having a pH above 6.5, alfalfa is the predominant legume used in pasture mixes. On poorly drained soils, white clover, red clover, alsike clover and birdsfoot trefoil are better adapted than alfalfa.

Compared to other regions, the winter feeding period is relatively long, ranging from 150 days in the south to as much as 210 days in the extreme north of the region. Consequently, winter feed requirements, on a hay equivalent basis, range

from 1.9 to 3.2 tons per cow depending upon location and cow-days dry versus cow-days lactating. An average for the region would be 180 days of winter feeding (135 days dry, 45 days lactating), which would require about 2.5 tons of hay per cow.

A typical situation would be to start winter feeding on November 1, calve on March 15, and go to pasture on May 1. In the southern part of the region, pasture season may start on April 15 and end on November 15 (210 days). In the northernmost part, pasture season may start on June 1 and end on October 31 (150 days). This accounts for the range in winter feeding period of 150 to 210 days.

During the summer, there are individual days of extreme heat, but for the most part, the summer season is favorable for rapid calf growth. Extremely cold winter days that have a wind chill factor below 18 degrees F can cause an increase in the cow's energy requirement for maintenance even if she has a heavy winter haircoat. For every degree of wind chill below 18 degrees F, maintenance energy requirement increases by 1 percent. Such days are not unusual during the months of January and February. For example, a wind chill of -20 degrees F would increase the cow's maintenance requirement by 38 percent.

The region is also characterized by a high level of humidity throughout the year, which adds to the stress created by extremes in cold and heat. On the other hand, humid conditions during the spring and summer growing season enhance the feed producing capabilities of the region— forages as well as grains.

In the southern three-fourths of the region, the growing season is long enough to allow production of corn silage. It's sometimes used as a winter feed for brood cows during late gestation and early lactation, and for developing heifers from weaning time in the fall to pasture season the following spring. In the region's southern one-

third feed costs can be reduced by grazing cornstalks for 30 to 60 days following grain harvest. Farther north, however, snow often covers stalk fields before they can be grazed for any appreciable amount of time.

In the northern one-third of the region, cow-calf producers depend primarily upon dry hay as a source of winter feed, although some producers harvest a portion of their hay crop as silage. Some farms also make silage out of small grains (barley, oats and wheat) when these crops are in the late milk to soft dough stage of maturity.

Because calving season in this region is concentrated during March and April, the wet, muddy environment that prevails during these months represents a challenge to the survival and health of newborn calves. Calves dropped in cold, muddy conditions can become rapidly hypothermic and die. Scours and pneumonia are also risks in such an environment. Therefore, some type of calving area that provides a dry bed and protection from the extremes in wind and precipitation is needed in most cow-calf herds.

In summary, the Upper Midwest region has the following environmental advantages: (1) adequate and uniform precipitation; (2) abundant feed resources; (3) temperatures that fall in the thermoneutral zone of European breeds (30 to 80 degrees F) for much of the year. Environmental disadvantages include: (1) a long winter feeding period which increases reliance on harvested feeds; (2) cold temperatures in mid-winter which increase maintenance requirements; (3) wet, muddy conditions during calving season.

MATURE SIZE

The environment of the Upper Midwest will accommodate more cow size than is the case in some other regions. Based upon recent surveys, the average commercial cow in the region weighs approximately 1,200 pounds in the fall at weaning time and has a frame score of 5+. The larger end of the commercial cows in the Upper Midwest weigh from 1,200 to 1,400 pounds and have frame scores of 5+ to 7+.

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Due to the generally favorable environment for European breed-types and their crosses, these larger cows can still be relatively efficient from a biological standpoint (lb. calf weaned/lb. TDN consumed). In the future, however, it is doubtful whether they can remain economically efficient because the beef industry will be gradually narrowing its carcass specifications. Currently, the industry accepts carcasses that range in weight from 550 to 900 pounds. Eventually, the acceptable range will narrow to 600-850 pounds and perhaps to 625-825 pounds.

Assuming the weight of a finished Choice steer is approximately the same as the mature cow of the same genotype, the maximum acceptable size of a mature commercial cow in the future is likely to be somewhere around 1,300 to 1,350 pounds. Cows larger than this are apt to produce over-sized steer progeny that will be severely discounted in the marketplace.

MILK PRODUCTION

The Upper Midwest's environment will accommodate a relatively heavy-milking cow. Because the region is a major dairy production area, it is not uncommon to find commercial beef herds that have a percentage of Holstein blood in their genetic make-up. The cows in such herds are capable of producing an average of 22 pounds of milk per day over a 205-day lactation period and still rebreed on schedule. This level of production obviously calls for abundant feed resources, which the region can provide.

Recent research, however, has shown that heavy-milking cows are less efficient than moderate-milking cows when both biological types are fed to meet their production potential. It would appear maximum efficiency can be achieved by cows that produce an average of 12 to 17 pounds of milk per day. Breed-types that fit this production window include Angus, British crosses and British x Continental dual-purpose crosses.

GRAZING MANAGEMENT

In recent years, research has demonstrated that intensive rotational grazing can result in an increase of 20 percent in animal gain per acre over that observed in continuous and/or low intensity grazing systems. Consequently, more and more producers in the Upper Midwest are adopting intensive rotational grazing as a means of improving production efficiency.

GROWTH TRAITS

Breeders and cow-calf producers in the region continue to place strong emphasis on early growth, especially weaning weight. In doing so, however, they are attempting to minimize birth weight and moderate frame size.

CARCASS TRAITS

Beef producers in the region are becoming more aware of consumer needs and are interested in producing a product more consistent in carcass size, lean-to-fat ratio and palatability. However, until true value-based marketing is implemented throughout the industry, they are not likely to be willing to sacrifice reproduction and growth traits in order to attain optimal carcass traits.

SUMMARY

Because of relatively abundant feed resources, cow-calf producers in the Upper Midwest are willing and able to maintain slightly more cow size and milking ability than is true of some other regions. In doing so, however, they are attempting to control birth weight and frame size so as to maximize efficiency and profitability.

Some attempt is being made to improve carcass traits, but rapid improvement in these traits is not likely to occur until the concept of value-based marketing is adopted by the beef industry.

ABOUT THE AUTHOR

Harlan Ritchie, a Michigan State University professor of animal science, will soon be among an elite 300 people honored by the U.S. beef industry since the mid-1700s.

Ritchie, an MSU Extension beef specialist, will be inducted into the Saddle and Sirloin Club Nov. 13 during the North American International Livestock Exposition in Louisville, Ky. He will be cited for visionary leadership in developing educational programs that helped U.S. beef and swine producers develop more efficient growing and leaner animal products.

During the 1980s, he helped organize the National Beef Cow Efficiency Forum, which ultimately redirected the beef industry's breeding program toward a more wholesome retail product for the consumer.

Today, Ritchie is considered one of the

industry's leading authorities on the health and safety of animal products. He collaborates with food safety groups throughout the United States.

Ritchie was raised on a grain and livestock farm near Albert City, Iowa, was graduated from Iowa State University in 1957 and completed his doctorate at MSU in 1964.

He is the department of animal science Extension project leader and is responsible for the research and Extension education programs at MSU's Lake City Experiment Station.

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