

From Cotmore to DNA Technology



Cotmore was considered to be the greatest bull of his era and champion of the first Royal Show in Oxford, England, in 1839. He was a big beast, weighing in at 3,920 lb. as a 9-year-old herd bull. The Hereford cattle of England in the early 1800s were much larger than cattle are today.

From the early importation of Hereford cattle, American Hereford breeders have enjoyed the challenge of responding to market signals. From the “Cotmore” days, the genetic makeup of the Hereford breed affords breeders genetic diversity and the ability to create remarkable change in response to marketplace signals.

Traditional animal breeding methods have been extremely successful at creating changes. As the U.S. beef industry evolved in the early 1900s, the Hereford breed exploded onto the scene as the breed that could best survive the range conditions of the West. Inherent traits such as hardiness, fleshing ability, early maturity, fertility and good temperament proved to be very popular in the early days of industry expansion.

As the Western range was developed, market signals evolved to

promote a quicker maturing animal that would finish faster on grass. More moderate lines of Herefords were introduced and the entire industry focused efforts on the production of “baby beef” or compact cattle that were rewarded with a premium.

In the 1960s the pendulum swung hard the other way as the cattle feeding industry evolved and technological advancements created higher levels of efficiency. Packers moved processing facilities to the grain belt where the feedlots were, boxed beef was adapted and the industry turned to yields and per unit input. Bigger cattle made packers more money and so came the signal for more “Cotmore”-sized animals. This shift opened up the gate for the Continental European breeds to make their move into the industry.

At the 1969 International Livestock Show in Chicago, Don Good of Kansas State University was the first to select a crossbred steer as a national champion. His name was Conoco, a 1,200-lb. Charolais-Angus cross steer, and he represented a fundamental change in the market place. Growthy cattle with a heavier carcass weight were more economical to the industry.

This development ushered in the frame race, and over the next 20 years, the Hereford breed experienced one of the most remarkable type changes in modern animal breeding history. In two decades the population burst from an average frame score of three to seven or eight. Once again, the temptation for single-trait selection created economic problems for the industry and Hereford cattle.

For the last 20 years, the Hereford breed has worked hard to reduce birth weight and dystocia that came along with the cattle of the 1980s as functional traits were ignored in favor of frame size. The breed has focused selection on quality and function.

Udder quality has improved dramatically; eye problems have been addressed through selecting for pigmentation, eye set and employment of ruthless culling; and the skeletal structure of the breed has been reset to an athletic form. Furthermore, a remarkable change in carcass muscling has evolved, adding to the carcass weight of moderate-frame cattle.

Future genetic change will take much less time as modern advancements in genetic selection

technology now provide more accurate information for making decisions. In 2004 the first bovine genome DNA was sequenced at a cost of \$53 million. Since that time, the American Hereford Association has worked hard to develop and improve DNA panels in an effort to enhance expected progeny difference (EPD) accuracy at a cost of \$55 per single test. These early tests are adding accuracy of information to females that equate, for some traits, to a cow with four to six progeny.

As DNA technology improves and the economic needs of the beef industry become more precise, no longer will the industry have to rely on obvious phenotypic extremes to make genetic progress. A holistic, multi-trait approach that focuses on efficiency of production combined with enhanced consumer beef qualities will drive the marketplace. Some people outside our industry call that “sustainability.”

What the Hereford breed has learned provides us the wisdom to understand what signals are ahead. Technology will allow us to meet those demands with much more confidence. **HW**