Beef Cattle Breeding Project Progress Report: Growth Trait EPDs for 1998-, 1999-, and 2000-born Calves

Abebe Hassen, associate scientist
Doyle E. Wilson, professor emeritus
Gene Rouse, professor
JR Tait, graduate student

Introduction

The Iowa State University beef cattle breeding project was designed to develop two selection lines of beef cattle for use as a research base to answer questions that influence genetic improvement. The project was started in 1996 and is being conducted at Rhodes (central Iowa) and McNay (southern Iowa) research and demonstration farms.

The specific objectives of the project are:

1) To estimate genetic and environmental parameters for economic characteristics from the analyses of the American Angus Association (AAA) data coupled with analyses of the Angus sample, the two-line selection experiment for high quality and increased retail product, and the search for quantitative trait loci (QTL).
2) To validate the use of ultrasound on live cattle to make genetic change in the body composition traits of external fat cover, ribeye area, percentage intramuscular fat (marbling), percent retail product, and total retail product.
3) To develop and evaluate new ultrasound methods to measure other quality and retail product traits on live cattle and carcasses.

The two selection lines include: Quality line (Q-line)—designed to study the genetics of beef quality traits. Next generation parents are being selected based on ultrasound-predicted percentage of intramuscular fat measures. Retail line (R-line)—designed to study the genetics of retail product. Next generation parents are being selected based on ultrasound ribeye measures. The objective of the present report is to summarize growth trait EPDs of bulls and heifers born during 1998, 1999, and 2000.

Materials and Methods

Data for this report came from bulls and heifers born during the spring of 1998, 1999, and 2000 at Rhodes and McNay research and demonstration farms. Progeny belong to two selection lines: Q- and R-line.

After weaning, progeny were fed a medium-energy ration to allow a mean weight gain of 3–3.5 lbs/day in bulls and 1.5–2.5 lbs/day for heifers. Starting at an age of 180–269 days, bulls and heifers were serially scanned 4–7 times for fat cover, ribeye area, percentage of intramuscular fat, and rump fat thickness. In addition, body weight and hip height were measured at each scan session. In each of these years, birth weight, weaning weight, yearling weight, and yearling hip height data were submitted to the AAA for genetic evaluation.

Results

Mean EPD of bulls and heifers for growth traits are shown in tables 1 and 2, respectively. Means were calculated based on results from the spring 2002 National Cattle Evaluation Program of the AAA. Progeny in Q- and R-lines averaged close to breed mean EPDs for the respective birth years. Mean line differences in growth traits due to correlated responses may not be expected at this early stage of selection.

Acknowledgments

We would like to thank Ron Sealock, Dennis Maxwell, and other farm staff members at the Rhodes and McNay farms for their management and production support of the beef cattle breeding project.