

# PERFORMANCE REPORT

## Introducing Our New Columnist

Robert Long was born and reared on a general livestock farm in Ohio. He received a bachelor of science degree from Ohio State University as well as master of science and doctor of



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philosophy degrees from Oklahoma State University. He held teaching and research appointments at Oklahoma State and the University of Kentucky before becoming chairman of the animal science division at the University of Georgia, a post he held for 11 years.

In 1967 he joined Ankony Angus Corporation as vice president for research and development and became executive vice president and chief operating officer.

1992, but remains active as a writer, lecturer and consultant to the beef cattle industry.

Long has lectured on the breeding, feeding, management and marketing of beef cattle in beef producing countries throughout the world. He has assisted major meat packers in the United States, Argentina and Brazil by training cattle buyers.

The animal scientist has also served as a consultant for various purebred and commercial breeders as well as feedyard operators, and has judged beef cattle at all major national shows in the United States and Canada and at most state fairs. Most recently, Long was the keynote speaker for the Australian Beef Improvement Association's national convention in September 1993.

Long's research projects have been concerned with skeletal size and muscularity of feeder cattle as they affect feedlot performance and carcass characteristics, and the use of identical twins resulting from embryo splitting to study the effects of caloric density of diet upon efficiency of production.

He is a member of the American Society of Animal Science, Phi Kappa Phi, Alpha Zeta, Gamma Sigma Delta and Sigma Xi. Among other honors, Long was the 1991 recipient of the Beef Improvement Federation's Pioneer Award.

## BEEF LOGIC

by Bob Long

### Understanding How Cattle Grow

Beef production is the result of growth. However, growth is not a term that is easily defined. Most performance programs emphasize increase in weight as the measure of growth rate. Yet every cattle buyer or seller is aware of the tremendous effect that weighing conditions such as time off feed and water, hauling distance, weather and handling can have on weight.

Assuming uniform weighing conditions, we must still be concerned with conversion, or the amount of feed required per unit of gain. Some cattle make more efficient gains than others, and every feedyard manager or cattle feeder is conscious of the effect of feed conversion upon their closeout statements.

Finally, we must be aware of the composition of gain or growth as it affects the value per pound of the carcass. The carcass must have a desirable yield grade which is determined by its proportions of lean, fat and bone since these factors determine the percent yield of edible or saleable portion. Also, the lean from the carcass must have a quality grade of USDA Choice or better to assure a tender, juicy, flavorful product for the table.

In spite of these factors many cattle producers are still heard to say, "I sell cattle by the pound, so all I am interested in is what they weigh. When they start paying for superior

carcasses I will produce them."

The truth is that "they" are already paying for marbling and cutability. The success of the rapidly expanding Certified Angus Beef program is an example.

Producers with cattle that are genetically superior for growth rate and carcass desirability can receive a Premium through intelligent marketing of young cattle or by retaining ownership all the way to the packing house rail. Also, packers know the value of superior carcasses and will pay more for them if they must. Unfortunately this premium is less than it is actually worth, and so the producer of superior cattle is still subsidizing the lower end.

Fortunately the trend is toward value-based marketing and although change is slow, as has been the history of the beef industry, we are making progress.

Regardless of how you define growth or what method you use to measure it, an understanding of how cattle grow is a major factor in successful beef production. A knowledge and recognition of those production characteristics controlled by genetics and those largely influenced by environment are invaluable in making the right business decisions. And so a knowledge of how and why cattle grow as they do can make you a better cattle producer and your ranch a more profitable operation.

Growth begins shortly after the egg is fertilized and individual cells divide and multiply. At first these cells appear to be identical, but at about 10 days they begin to grow differently and cell differentiation has begun. The embryo or fetus as it is now called forms three major types of tissue:

1. The ectoderm forms the nervous system (brain, spinal cord and nerves) and finally skin, hair and hooves;
2. The endoderm forms the lining of the digestive tract, lungs, liver, pancreas and bladder;
3. The mesoderm forms what we call the body or carcass of the animal. Part of the mesoderm forms the skeleton, part the muscles and part the fat cells.

Cell growth and differentiation from conception to birth is a very complex program of development that is not completely understood. We do know a great deal about the growth and development of a calf on its way to becoming a beef carcass composed of bone, muscle and fat.

In future columns, I will talk about the development of the skeleton, the muscles and the fat deposition and how we can use this knowledge in making decisions in seedstock selection, management and marketing.