

# Beef Logic

by Bob Long



## Genetic Association — a Useful Tool

Animal scientists and serious seedstock producers are continually seeking more effective measures of performance to assist in selection and culling. The measurement of some traits, which are important contributors to efficient beef production, is expensive and time consuming. Fortunately, genetic correlations which help solve this problem do exist.

Such an association is found between rate of gain and feed efficiency. The higher the rate of gain the less feed required per pound of gain. Rate of gain is measured by weighing cattle individually on a regular basis. However, the determination of feed efficiency requires individual feeding which is both capital and labor intensive. Because of the high correlation between gain and efficiency breeders can select for rate of gain secure with the knowledge that feed efficiency will not suffer and without the expense of individual feeding.

Remember, in measuring any performance trait, the cattle must be compared at the same age and treated alike. Further, since almost all commercial cattle go through a feedyard on high concentrate diets the breeding stock should be tested on similar diets. This requirement is a must to determine the cattle's ability to handle high concentrate feed without digestive disturbances, bloat or founder.

A similar situation exists among some of the factors which contribute to reproductive efficiency. Reproductive performance is widely considered the most important economic item affecting beef production. Measuring total reproductive capacity is quite expensive, particularly in time.

For example, a breeder must wait until after breeding season in order to determine pregnancy rate in a herd. Low conception percentage could well be the fault of the bull or bulls as a result of low semen volume, low sperm count, abnormal sperm, low serving capacity or lack of libido. Further, a bull might do an excellent job of settling cows but daughters may fail to reach puberty in time to calve as two year olds.

Fortunately, researchers have found that scrotal circumference in 12- to 14-month-old bulls is a valuable measure of the bulls' potential ability as a sire both phenotypically and genetically. Scrotal circumference is highly correlated with semen producing capacity from the standpoint of both volume and quality. This simple measure at about a year of age is a better measure of the time a bull is ready to breed than either age or weight.

Testicle size (scrotal circumference) is highly heritable and so those bulls with larger testicles can be expected to produce sons which likewise excel in testicle development and semen producing ability. Most important is the fact that daughters of bulls which excel in scrotal circumference reach puberty at younger ages than do daughters of later developing bulls and therefore are ready to breed and calve on their second birthday.

Breeders should keep in mind that the goal is not a bull with the largest testicles but rather adequate development to function effectively as a sire. Table 1 shows a classification system recommended by the Society for Theriogenology which indicates adequate development.

Note that a circumference of less than 30 cm in a 12-month-old bull is unacceptable. A further caution is to make certain that firm, well-defined testicles make up the circumference measurement, no scrotum filled with fat deposits.

Remember, that as in any performance measure the cattle must be compared at the same age and have been treated alike. This is particularly important in measuring sexual development since a difference in plane of nutrition can greatly affect age at puberty.

■ Table 1 Scrotal Circumference Classification

Criteria	Very Good	Good	Fair	Poor
Circumference (cm)				
12 to 14 months	>34	30-34	<30	<30
15 to 20 months	>36	31-36	<31	<31
21 to 30 months	>38	32-38	<32	<32
30+ months	>39	34-39	<34	<34

### FERNANDINA BEACH RESIDENTS RETURN FROM CHILE

Robert A. Long and his wife, Elizabeth, participated in a three-month long volunteer mission in Temuco, Chile last spring, where Long drew on his many years of experience to assist people in the developing nation by fostering economic self-sufficiency.

Long served as a volunteer executive with the International Executive Service Corps (IESC), a private, non-profit, volunteer organization that sends retired Americans to assist businesses and private enterprises in the developing world and new emerging democracies of Central and Eastern Europe and the former Soviet Union. IESC's mission is to end the cycle of dependency by helping countries reach a point where they no longer need foreign assistance.

Long's assignment came in response to a request from a slaughterhouse to the IESC's field office in Santiago, Chile for an American expert to advise the slaughterhouse on the improvement of operations. He was selected because his qualifications closely matched what IESC's client was seeking.

Long recently retired from Texas Tech University as professor emeritus. Previously, he worked for the University of Georgia as a professor.

IESC was founded in 1964 by David Rockefeller with the guidance of Sol Linowitz, then chairman of Xerox, later U.S. ambassador. Since then, volunteers have served on more than 16,500 projects in 122 countries. In addition to providing technical and managerial assistance, volunteers in the former Soviet Union work on defense conversion, IESC also sends former U.S. government officials to the New Independent States of the former Soviet Union to bring democratic methods to local, regional and national governments an to help them understand and adapt to the role of the government in free market economy.

For information on volunteering with IESC write: James Leet, president-recruiting, IESC, P.O. Box 10005, Stamford, CT 06904 2005.