



Breed Improvement Article

Sound Science and the Science of Sound

By Sean McGrath

Ultrasound is rapidly becoming a valuable tool in the genetic selection toolbox. If we believe that the genetics we produce will be multiplied through the commercial industry, and that the ultimate result of this is beef, then we must also acknowledge that the end consumer ultimately drives demand for our product. If this is the case, then hopefully end product enters our selection decisions and ultrasound therefore becomes a technology that many should consider in their program.

Ultrasound basically works by using a transducer on the outside of the animal between the 12th and 13th rib. Basically this machine sends high energy sound waves into the rib-eye, and as the waves encounter different types of tissue, such as fat or muscle, they bounce back with different speeds, where they are picked up by the transducer again, creating a picture. Using analysis software and a trained technician, the picture can be evaluated for back fat, rib-eye area and marbling. An ultrasound image is a snapshot in time of the dynamic rib-eye of a living animal.

It is important to note that an ultrasound record on an animal is not the same as a carcass record from progeny of an animal. It is also important to note that an ultrasound record on a young replacement bull or heifer is not the same as either an ultrasound or a carcass record on a finished steer or heifer. What is important is that ultrasound can determine differences between animals, and that these differences are reflected in their progeny. If for example, we are selecting for larger rib-eye areas, it does not matter that ultrasound records do not measure exactly the same thing as carcass records from progeny. What is important is that selection on either a carcass or ultrasound basis leads to the same end result, progeny with larger rib-eyes in this case.

It is also important to ensure that information you collect has the most value possible. Scans should be taken on cattle between 12 and 15 months of age, using a certified technician. As well, complete contemporary groups should be scanned. Scanning one prize winning yearling bull accomplishes nothing, as there is no basis for comparison. Scanning all of your yearling bulls and heifers will result in information that can be used to accurately determine differences and thus selection decisions.

Work is ongoing to incorporate ultrasound records into the genetic evaluation for carcass merit. As more ultrasound and progeny carcass information becomes available, they will also be incorporated into the evaluation. The end result is carcass EPDs like those presented in the Spring 2002 Canadian Limousin Sire Summary.

The advantages of ultrasound are many. Collection of ultrasound records is relatively low cost, when compared with operating an organised progeny testing program. As well there is the opportunity to scan animals at around a year of age and produce a genetic evaluation. In a carcass testing scenario, a bull will sire calves at one year of age, and the calves will not be ready for slaughter until the sire is 3 years old, at the earliest. Producers may have heard concerns that

ultrasound is not the same as a carcass record, but across a population or a herd, ultrasound can do a very good job of determining differences between bloodlines and individuals. Ultrasound is also highly repeatable (consistent) and highly correlated with carcass results.

Ultrasound technicians are generally very busy at this time of year, and co-ordination should be done as soon as possible for those interested. Travel costs and sometimes scan costs can often be reduced by scheduling a time when the technician is in your area, or working with neighbours to provide larger groups of cattle in the local area for scanning.

Contact information for an ultrasound technician in your area can be obtained by contacting the Canadian Limousin Association or visiting the limousine website at www.limousin.com.

URGENT: PRODUCERS WITH CARCASS OR ULTRASOUND INFORMATION ARE ENCOURAGED TO SEND IT TO THE CANADIAN LIMOUSIN ASSOCIATION FOR INCLUSION IN THE SUMMER EVALUATION.