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## **Carcass Ultrasound 101**

*By Patrick Wall, Director of Communications, The CUP Lab®  
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### **Becoming A Carcass Ultrasound Technician**

The telephone at The CUP Lab rings often in the spring of each year, but as the bull & female sale season winds down, the clients' questions begin to change from barnsheets, images, and data processing to "How do I become a field technician?" Despite the rapid growth of available scanning technicians in the last five years, there are still parts of the country that thirst for someone to scan their cattle. Seeing an opportunity, a number of creative cattlemen have filled the void in their area by becoming a certified technician. On the surface, getting into the ultrasound scanning business seems quite simple: learn the science, buy equipment, find cattle, and scan 'em. However, there is a lot more involved in building a successful business in the carcass ultrasound industry. Passing the initial certification exam is just one step; mastering the craft of carcass ultrasound takes diligence and literally thousands of head of practice.

There are a number of hurdles one must jump in order to ultrasound purebred beef cattle for inclusion in a genetic evaluation. All major breed associations require that images be collected only by technicians certified by the Ultrasound Guidelines Council (UGC), the governing body of carcass ultrasound. Over the last decade, UGC developed a set of guidelines that ensures technicians take images in a consistent manner. Standards must be followed in order to fairly evaluate technicians in determining pass/fail status. Technicians who successfully certify then collect images in the same manner when submitting to a centralized processing lab for evaluation.

To achieve certification, a technician has to simply pass an extensive test of their ability to properly and accurately collect ultrasound images. This exam consists of scanning 20 head of cattle, followed by the same 20 head in re-randomized order. Cattle are scanned twice to test a technician's ability to consistently scan the same animal. All 40 sets of images are then evaluated for quality by experienced lab personnel. This process involves looking at every single image to assess if the correct landmarks are clearly visible. For example, if the bottom of the ribeye muscle is not well defined, the interpreter will make a decision to reject the image or venture a guess. If a technician's images involve too much guesswork, he/she will ultimately fail the test. Image quality standards are quite stringent, ensuring only those who are truly prepared to scan your cattle are allowed to pass the test.

Each exam participant is compared against carcass data and a reference scanning technician. Since some animals are more difficult to scan than others, participants are tested against an experienced technician for accuracy. Complete carcass data is collected on half of the animals used for the test, including a meat sample of the ribeye to achieve Percent Intramuscular Fat (%IMF) readings. Breeding heifers, bulls, and feedlot steers of varying weights and ages are utilized to test the ability of each technician to scan different biological types of cattle. Younger, leaner animals are easier to scan than older, fatter cattle. As well, bulls are easier to ultrasound than heifers or steers. All said, UGC wants to ensure that *certified* technicians are ready to scan all shapes and sizes the beef industry has to offer.



Historically, 50-80% of those who attempt UGC Field Certification receive satisfactory results. As one can imagine, receiving extensive training prior to the exam dramatically increases the chances of passing the test. In the early years of carcass ultrasound, those wishing to take the certification exam were required to own their equipment prior to the test; a risky investment in excess of \$20,000. Since 2005, The CUP Lab has offered six consecutive days of training just prior to certification to help technicians offset some travel expense. As well, ultrasound equipment is rented for the day to eliminate the risk of purchasing equipment, but then failing the test. Over that time period, the number of UGC certified technicians available to cattle producers across North America has nearly doubled.

After a technician has completed the exam, animals used in the test are harvested within 7 days. Each participant is assigned a random alias number through the entire process. Images are then randomly split between experienced lab technicians for analysis. A vast spreadsheet of statistics including image quality scores, carcass data results, and ultrasound results from both reference technicians and exam takers are analyzed by the UGC Board. Members of the Board then vote to pass or fail each alias number based on the statistics in front of them. The entire process usually takes 60-90 days to complete. Successful technicians must then pass the test again two years later to maintain UGC Certified status.

Technicians have two opportunities to take the UGC Field Certification exam every calendar year. The CUP Lab and Iowa State University are co-hosting UGC Field Certification in Ames, IA from June 10-13, 2008. The University of Georgia will also host the exam in Athens, GA in the fall. As a result, anyone who receives unsatisfactory results from the June certification may attempt a second time at the exam in Georgia.

Becoming a certified ultrasound technician requires a large time commitment to the purebred cattle industry, not to mention a substantial financial risk. Ultrasound equipment is expensive and highly specialized; the probe used to capture carcass images has only one commercial use. Technicians spend countless hours on the road and endure adverse weather conditions. The UGC Certification exam is difficult, but demand for ultrasound information from bull buyers and seedstock producers has driven the expansion of the science. The dedication by field technicians and the Ultrasound Guidelines Council to ensuring accurate results should not go unnoticed. The system allows producers of all breeds to make genetic progress, and buyers of their product can bid with confidence for the carcass bull or female that fits their program.