

Ultrasound and Its Uses in the Beef Industry

- I. History of ultrasound
 - A) SONAR (SOund Navigation and Ranging) in 1940's
 - B) A-mode in 1950's (one-dimensional that only measures depth of tissue)
 - C) B-mode (Real-Time Ultrasound introduced in 1984 which has characterization of tissues of different densities)
 - used extensively in the swine industry
 - late 1990's beef industry started to use it
- II. What is ultrasound and how does it work?
 - A) High frequency sound waves (16 KHz and above; for live animal evaluation 1-5 Mhz)
 - B) Electrical current applied to crystals in the probe which make sound waves that are directed into tissue
 - C) Sound waves travel through tissues of different densities at different speeds
 - D) When change in density of tissue get reflection/scattering
 - E) Echo is converted back to an electrical signal and interpreted as differences in brightness
- III. What is it used for?
 - A) Diagnosis of injuries
 - B) Pregnancy determination
 - C) Genetic selection
 - D) Predict carcass merit
- IV. What are the pros?
 - A) Carcass information available on live animals
 - B) Quick and easy
 - C) Can be used when cannot get carcass data from packing plants
 - D) Can gather information from offspring quicker and with less costs
- V. What are the cons?
 - A) Requires a trained technician
 - B) Equipment and software is very expensive
 - C) Factors that can make capturing images difficult
 - D) Some people question the accuracy
- VI. What does it tell us?
 - A) 12-13th rib fat thickness
 - B) Ribeye area (collected between 12th and 13th ribs)
 - C) Percent intramuscular fat (collected across 11th, 12th, and 13th ribs)