

Ultrasound Guidelines Council
Field Technician Study Guide
2012 Edition

Chapter V - Ultrasound Scanning Technique
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Preparing the Animal

Properly prepping the animal maybe the most critical and important step in collecting high quality ultrasound images. The highest quality images will be from animals that are free from external debris that might interfere with the ultrasound waves penetrating the animal. In order to achieve the best results the following guidelines are suggested:

- Clipping the animal within ½” of hair at the location of scanning. This aids in removal of external debris from the animal.
- An animal blower and/or curry comb are an essential step in cleaning the area. The blower, if used before clipping, can also aid in cleaning and extending the life of the clipper blades. The curry comb can aid in cleaning and also in working the oil down to the animal’s skin.
- Oil is an absolute must, but is listed as the third step in the animal. There are many types of oil that can be used, but vegetable oil is the most widely used. The best oil is one that is *not* petroleum based, as petroleum will deteriorate the ultrasound equipment.
- Cattle must be dry in the area of scanning, as oil and water do not mix. A dry hide allows for good penetration of the ultrasound waves.
- The standoff pad should also be in good shape, soft and pliable.
- If the outside temperature is below 45 degrees Fahrenheit it is important to provide supplemental heat to your equipment, the oil and the standoff pad.

Ultrasound machine settings

- Old Aloka
 - Overall Gain – 90
 - Near Gain – (-25)
 - Far Gain – 2.1

- New Aloka
 - Mag1.5
 - Overall Gain – 90
 - Near Gain – (-25)
 - Far Gain – 2.1

- Aloka Internal settings are:
 - Frame Corr – Auto
 - AGC – 1
 - Contrast – 4
 - Focal Zones 1 and 2
- Classic Scanner 200
 - Check gain settings with the lab you use or the UGC website.
- Aquilla
 - Total gain=225
 - Near Gain=100
 - Far Gain=100
 - Frame Rate=17cm
- Note: refer to UGC website for a complete list of software combinations.

Placement of the transducer

REA Image

The transducer should be placed between the 12th and 13th ribs in a cross-sectional manner. First palpate for the 13th rib (last rib) and then determine the angle at which the ribs run. Once this has been done the transducer and standoff pad should be placed on the animal between the ribs while maintaining the correct angle (i.e., the transducer should be parallel to the ribs). To obtain the most crisp and well defined image the top of the transducer should be tipped slightly toward the head of the animal.

Rump Image

The image should be collected between the hook and pin bones over the rump area of the animal. Palpate for the hook bone and place the transducer on the upper half of the bone. To obtain the most well-defined image the transducer should be perpendicular to the hide. The reference point (between the gluteus medius and the biceps femoris) is the most critical landmark for this image.

IMF Images

This is the only image type that requires multiple images to be collected. Palpate for the 13th rib. The transducer will be need to be placed on the animal in a longitudinal manner. The image it should contain the 13th, 12th and 11th ribs. First, place the transducer about ½ way across the image (medial to lateral) to start, then slide the transducer laterally until the spinalis dorsi is no more than 1/3 of the image on the 11th rib side. Care should be taken to maintain adequate depth of the longissimus dorsi. Finally, rock the transducer to ensure good contact across the image and that the rib tops are rounded and well defined.

Number of images for each trait

The required number of images to be collected is:

- 1 REA
- 1 Rump
 - Some breed associations do not require rump images. See table in chapter VIII.
- 4 IMF (i.e., Pfat) images.

Independent images

Independent images refer to IMF (i.e., Pfat) images. When collecting multiple images accuracy is improved by collecting each image independently. The best way to ensure that images are independent is to remove the transducer from the animal after each image, then re-oil the animal and relocate the transducer.

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