Body Condition Scoring

Perhaps one of the most important management skills of livestock producers is the ability to body condition score their animals and track progress toward meeting a desired degree of fatness to meet a given reproductive goal in a herd. Body condition scoring is an index to the degree of fatness expressed in the anatomy of the animal that can be viewed by the human eye. Essentially, body condition scoring is a systematic process of attempting to visualize the degree of underlying skeletal features that can be detected by the observing the animal.

Body condition scoring has to be approached in a systematic manner. A 1-9 system is used to describe animals that are extremely emaciated to animals that are so fat they have difficulty walking. The threshold body condition score is considered a 5. The key anatomical feature that distinguishes an animal below average fatness (<5) is the visible expression of the 12th and 13th ribs (last two ribs in the rib cage). (Figure 1). In standard European beef breeds *(Bos taurus),* if you can observe the 12th and 13th rib they are classified as a 4 or less. Zebu or *Bos indicus* breeds store more internal fat and are scored below a 5 if more than the upper crest of the 12th and 13th rib are showing (about 0.5 score higher than *B. taurus*). If the short ribs or transverse processes are not showing, the animal is classified as a 4. If the short ribs are showing and a moderate "V" has formed between the hooks and pins down to the trochanter major, the animal is a solid 3. However, if the foreribs are distinct, the transverse processes showing, the vertebrae in the tail head are showing and a strong "V" is evident between the hook and pins, the animal is classified as a 2. An animal in score 1, has a distinct hipbone showing with an strong "V" effect between the hooks and pins, ribs are distinct, no tissue can support the tailhead and the animal appears near death.

Animals in body condition score 5 have no 12th and 13th rib showing and exhibit a slight inverted V across the back when viewed from the rear. There is a slight "U" effect between the hooks and pins. If the back appears smooth to near level without any indention along the spine and there is a very shallow "U" effect between the hooks and pins, the animal is classified as a 6. If a the "U" effect is not evident between the hooks and pin and the no anatomical features express themselves with a slight indention along the spine, the animal is considered a 7. If the indention along the spine is deep and there is evidence of pockets of excess fat expressed across the body, the animal is scored as an 8. An animal appearing excessively fat and walking in an awkward manner is scored as a 9.

All producers are urged to develop the skill to body condition their animals and conduct periodic sampling of their herds using a simple whole number scoring system. Individuals who improved their scoring skills can assign partial scores such as 5+, 5- or just a 5 (middle value). The most critical element to successful body condition scoring is approaching the animal in a systematic manner. Identifying the 12th and 13th rib, locating the short ribs (transverse processes), recognizing the "U"/"V" effect, observing the degree of fat deposition at the tailhead and distinctness of the ribs in the ribcage are major points of interest that affect the scoring process.

To attain high pregnancy rates, one must manage for a 5+ to 6 score to insure sufficient fatness for reproductive fitness. Scores higher than 7 do not provide any meaningful levels of improvement in pregnancy rates, as fertility rates begin to limit pregnancy rates more than nutrition at this degree of fatness. As condition falls below a 5 so will pregnancy rates and calving intervals. However, the timing can result in different assessments of potential pregnancy rates.

Generally, scoring of cows is most convenient at weaning since the cows are being gathered and calves separated from the cows. However, this production phase is the least sensitive to predicting the likely pregnancy rate of a cow, eg cows that are in body condition score 5 (average fatness at weaning have time to recover, posing a problem for predicting likely reproductive success. The most sensitive time to condition score animals is at calving followed by scoring at breeding. However, both stages give similar assessments of potential pregnancy rates.

Once an animal falls to a score of 3, nutritional management to attain good levels of pregnancy in a herd becomes difficult and probably uneconomical to recover. Scores below a 3 at breeding can lead to uneconomical levels of herd performance.

Animals who slip from a 5 to a 4 at the start of breeding season will result in delayed cycling of the animals, resulting in fewer percentage of the animals born in the first estrus cycle. However, if they decline in condition below a 4 at breeding, birthing times can be delay 50-65 days in those reduced number of animals that do become pregnant.

How can an animal in lower body condition become pregnant? The current plane of nutrition and the 3-5 weeks level of nutrition of the animal prior to breeding, can overcome some of the suppressing effects of low fatness if the animal is on an elevated plane of nutrition, eg. Energy and protein intake exceed maintenance requirements, particularly if they are in the upper part of a given score. Feeding high levels of fats 3-4 weeks prior to breeding can also change the reproductive success. However, one must be careful to provide fats high in linolenic acid and be prepared to continue to "push" the animal's condition upward to prevent having to deal with an animal that is lactating in poor condition. Allowing the animals access to a good phosphorus mineral source during breeding and during the first third of lactation also is critical to maintaining the reproductive health of the animal.

Effective nutritional management of cows on rangelands requires that the livestock producer establish a reasonable, attainable goal for the level of pregnancy rates that they desire and then establish a nutritional management system that meets those goals. Recent experience in monitoring nutritional status of the animal has shown greater management flexibility in use of supplements when the animal is maintained at a 5 to 6 score year round. As they slip from a 5 to 4 and down to a 3, management options diminish and the rancher is forced to make hard decisions concerning costly feed inputs, accepting low reproductive performance or eliminating animals that cannot be brought back into sync with the herd due to excessively low condition. Use of a monitoring system such as the NIRS/NUTBAL nutritional management system coupled with an active body condition scoring system can help alleviate the unexpected changes in body condition throughout the year.

Figure 1. *Distinctive anatomical parts of importance in condition scoring.*

Transverse processes of the lumbar vertebrae

Tuber coxae (hooks)

Dorsal spines of the thoracic vertebrae

Sublumbar fossa

Fat covering on coccygeal vertebrae

Tuber ischii (pins)

Trochanter major

ribs