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TECHNICAL BULLETIN No.8
BODY CONDITION SCORING OF SHEEP
AND GOATS



ESGPIP

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FOREWORD

This Technical Bulletin titled “*Body condition scoring of sheep and goats*” is the eighth in a series produced by the Ethiopia Sheep and Goat Productivity Improvement Program (ESGPIP). The ESGPIP is a USAID-funded Project with the objective of improving the productivity of Ethiopian sheep and goats.

Body condition scoring is a very useful tool that guides breeding, selection, management and marketing decisions. The use of this tool helps producers evaluate the feeding of their animals, make reproductive and culling decisions, and evaluate animals when selling and buying. This is important to improve the efficiency of sheep and goat production and benefits of the producer.

This Technical Bulletin is intended to serve as an extension aid for Kebele Development Agents (KDA’s) to help improve the productivity of sheep and goats through increasing producers’ knowledge regarding evaluation of body condition of sheep and goats. The information contained in this Technical Bulletin is also relevant to other users engaged in business ventures based on sheep and goat rearing and also production of other types of ruminants.

At this juncture, I would like to thank all those involved in the preparation and review of this Technical Bulletin.

Desta Hamito (Prof.)
Chief of Party
ESGPIP

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BODY CONDITION SCORING OF SHEEP AND GOATS

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1. Why Body Condition Score?

Body condition scoring (BCS) is a means of evaluating an animal based upon muscle and external fat cover. BCS is a simple, useful procedure that producers can use to make management decisions regarding the health of their animals and the quality and quantity of feed needed to optimize performance. If animals are in poor body condition, the animal may be underfed or have a disease problem. If animals are in too good of a body condition, the amount of feed can be decreased. Body condition will fluctuate during changes in feed supply. By evaluating animals, producers can prevent drastic losses in production.

There are circumstances where body weight *per se* does not reflect an animal's condition, i.e., an animal with a large frame may have a higher body weight when at a low level of body reserves than another animal with a small frame but abundant reserves. Large variation in gross live weight may also occur because of changes in gut fill, pregnancy and parturition. The nutritional plane to which an animal has been exposed over a reasonable length of time is reflected by the extent to which fat is stored or muscle mass has been diminished. This may be assessed visually and expressed as a condition score.

2. When to Body Condition Score

Important times to condition score animals include pre-breeding, mid-gestation, early lactation, weaning, and before sale. Body condition at mating is important as animals in poor condition may have difficulty conceiving and have fewer offspring. If females are too thin at the midpoint of gestation they are more likely to have small, weak offspring with low survivability and produce less milk. Management should be altered to try and address the problem. If animals are poorly conditioned during early lactation, they will have low milk production and wean smaller animals. These dams will draw upon body reserves losing further condition. Females with low BCS at weaning will take longer to breed and have lower conception rates. This lengthens kidding/lambing interval and represents loss of production and potential profit. Producers should condition score animals prior to sale to strengthen their bartering position.

3. How to assign Body Condition Score

Scoring sheep and goats is done using a BCS ranging from 1.0 to 5.0, with 0.5 increments. An animal of BCS 1.0 is extremely thin with no fat reserves and a BCS of 5.0 is a very over-conditioned (obese) animal. In most cases, healthy sheep and goats should have a BCS of 2.0 to 3.5. A BCS below 2.0 indicates a management or health problem. A BCS of 4.5 or 5 is almost never observed under normal management conditions.

To assign a BCS, one must touch and feel the animal. In sheep, the lumbar region is the principal site for BCS determination while in goats the rib cage and sternum also play a role.

3.1. Lumbar region

This area contains the loin muscle and is located immediately behind the last rib and before the hip bones. Scoring in this area is based on determining the amount of fat and muscle over and around the vertebrae. Lumbar vertebrae have two protrusions, the vertical protrusion

called the *spinous process* and the two horizontal protrusions called the *transverse process*. You should run your hand over this area and try to grasp these processes with your fingertips and hand as shown in Figures 1 to 3. The degree of sharpness or roundness of the lumbar vertebrae is assessed and used to assign BCS.

Although the principle of body condition scoring is similar for sheep and goats, it is important to note differences that exist between sheep and goats.

- Compared to sheep, goats have much less subcutaneous fat cover over the loin region (most of the fat deposition in goats is internal around the intestines and kidneys). However, goats will deposit some subcutaneous fat behind the shoulders over the rib cage.
- In fat-tailed or fat-rumped sheep breeds, the tail could serve as additional measure of body condition. In goats these do not exist
- The sternum could be used as an additional area to assess condition in goats. This would be difficult in sheep that have a mane.

The following process may be followed during scoring:

- **Feeling the spinous process:**
 - Feel the spinous process in the center of the sheep/goat back behind the last rib and in front of the hip bone and try to rank the animal based on the answers you give to the following question. Are the tips sharp or rounded?
- **Assessing the loin muscle**
 - Feel the fullness of muscle and fat cover on either side of the spinous process (either side of the backbone) and determine if the ridge of the spine is above the level of the muscle. Is the loin muscle shallow, moderate or full?
- **Feeling the transverse process**
 - Feel for the tips of the transverse process. Is it sharp or smoothly rounded?
 - How far will the tips of your finger go under the transverse process?

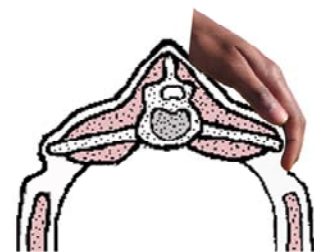
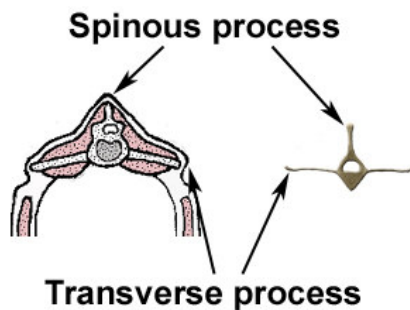


Figure 1. Spinous and transverse process.

Figure 2. Spinous process.

Figure 3. Transverse process.

Illustrations used with permission from Body Condition Scores in Goats taken from the Meat Goat Production Handbook, Langston University, 2007.

3.2. *Rib cage*

The second area to assess, particularly in goats, is the rib cage and fat cover on the ribs and intercostal (between ribs) spaces. Touch this area and determine if you can feel each of the ribs.



Figure 4. The rib area

Illustrations used with permission from Body Condition Scores in Goats taken from the Meat Goat Production Handbook, Langston University, 2007.

3.3. *Sternum*

The sternum is the third part to assess. In goats it is an important area to assess. The fat cover over the sternum (breast bone) is based upon the amount of fat that can be pinched.

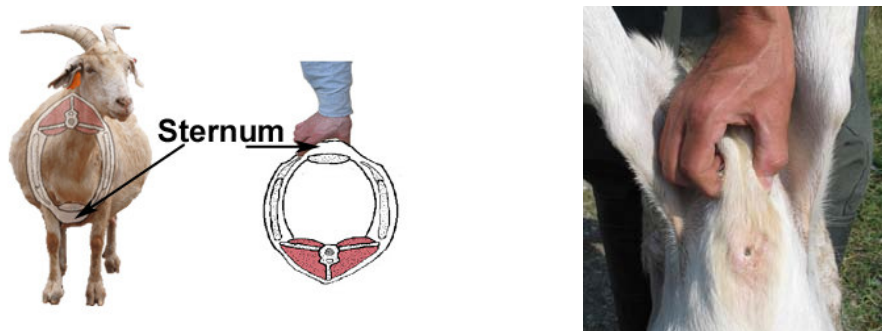


Figure 5. The sternum area

Illustrations and photos used with permission from Body Condition Scores in Goats taken from the Meat Goat Production Handbook, Langston University, 2007.

With practice, evaluating the BCS of an animal will only take about 10-15 seconds. By adding BCS as a regular part of your management program, you can more effectively monitor your feeding and herd health program for a healthy and productive herd.

Table 1. Scales for Body Condition Scoring

Condition	Score	Lumbar region	Rib cage	Sternum
Starving	0	Extremely emaciated and on the point of death. It is not possible to detect any muscle or fatty tissue between the skin and the bone.	Skin is sunken between visible ribs.	There is no sternal fat.
Very thin	1	The spinous processes are prominent and sharp. The transverse process are also sharp, the fingers pass easily under the ends, and it is possible to feel between each process. The eye muscle areas are shallow with no fat cover.	Ribs are clearly visible.	Sternal fat is easily grasped and moved from side to side.
Thin	2	The spinous processes feel prominent but smooth, and individual processes can be felt only as fine corrugations. The transverse processes are smooth and rounded, and it is possible to pass the fingers under the ends with a little pressure. The eye muscle areas are of moderate depth, but have little fat cover.	Some ribs can be seen. There is a small amount of fat cover. Ribs are still felt.	Sternal fat is wider and thicker but can still be grasped and moved slightly from side to side.
Moderate	3	The spinous processes are detected only as small elevations; they are smooth and rounded and individual bones can be felt only with pressure. The transverse processes are smooth and well covered, and firm pressure is required to feel over the ends. The eye muscle areas are full, and have a moderate degree of fat cover.	Ribs are barely seen; an even layer of fat covers them. Spaces between ribs are felt using pressure.	Sternal fat is wide and thick. It can still be grasped but has very little movement.
Fat	4	The spinous processes can just be detected with pressure as a hard line between the fat covered eye muscle areas. The ends of the transverse processes cannot be felt. The eye muscle areas are full, and have a thick covering of fat.	Ribs are not seen.	Sternal fat is difficult to grasp and cannot be moved from side to side.
Very fat	5	The spinous processes can't be detected even with firm pressure, and there is a depression between the layers of fat in the position where the spinous processes would normally be felt. The transverse processes cannot be detected. The eye muscle areas are very full with thick fat cover. There may be large deposits of fat over the rump and tail.	Ribs are not visible and are covered with excessive fat.	Sternal fat extends and covers the sternum. It cannot be grasped

4. Changes in Body Condition Score

It is also important to note that BCS could vary according to the physiological status of the animal. An example which shows such a change is depicted below for ewes (Fig.6). At the time of mating does/ewes should have a score of 3 for optimum result with a range of 2 to 3 being acceptable. Pregnant females need to be watched closely to make sure they are close to a score of 3 throughout this period.

After the lambs/ kids are born and during lactation, it is normal for condition scores in ewes/does to reduce. However, make sure they do not drop from a score of 3 to a 2 or 1 too quickly. Lactation is demanding in terms of nutrient requirements. If lactating animals are not fed properly during this period, body reserves could be mobilized resulting in poor body condition. Lack of attention during this period will impact the growth of the nursing lamb/kid and milk yield.

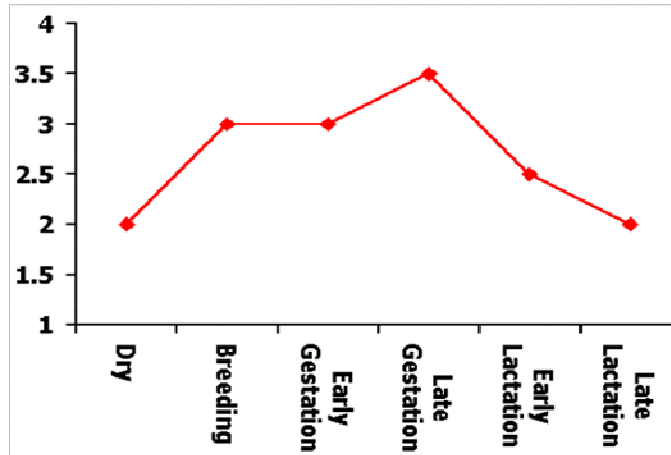
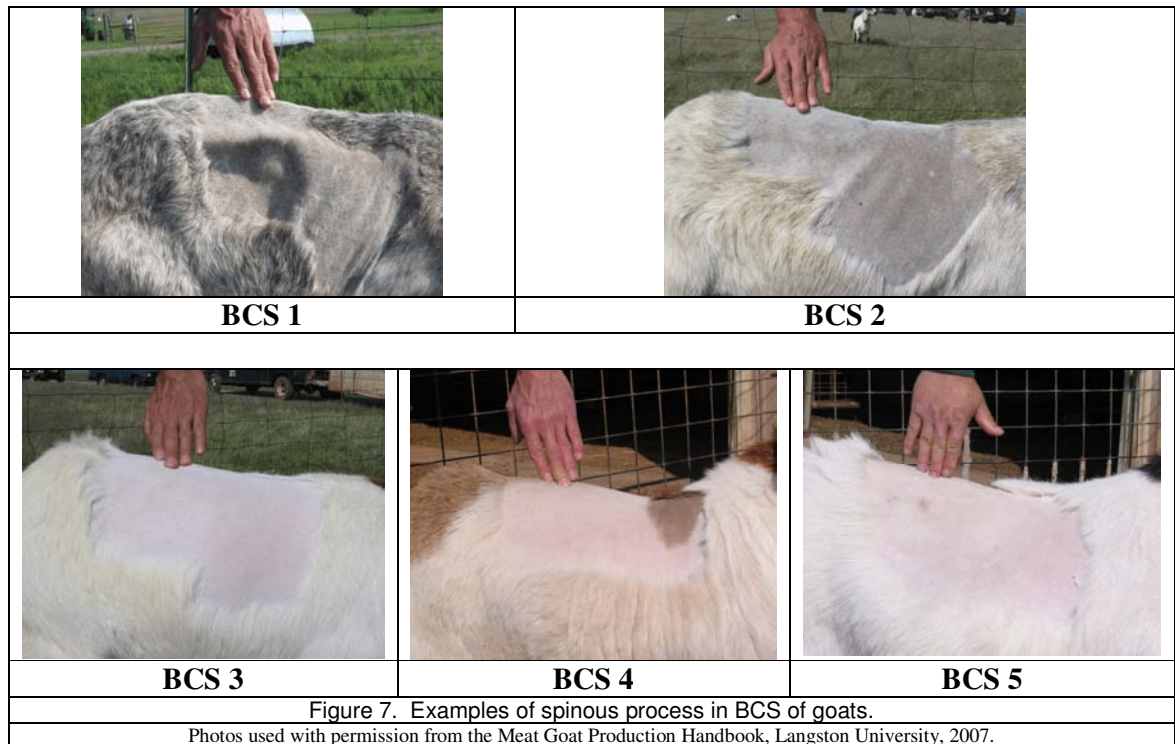


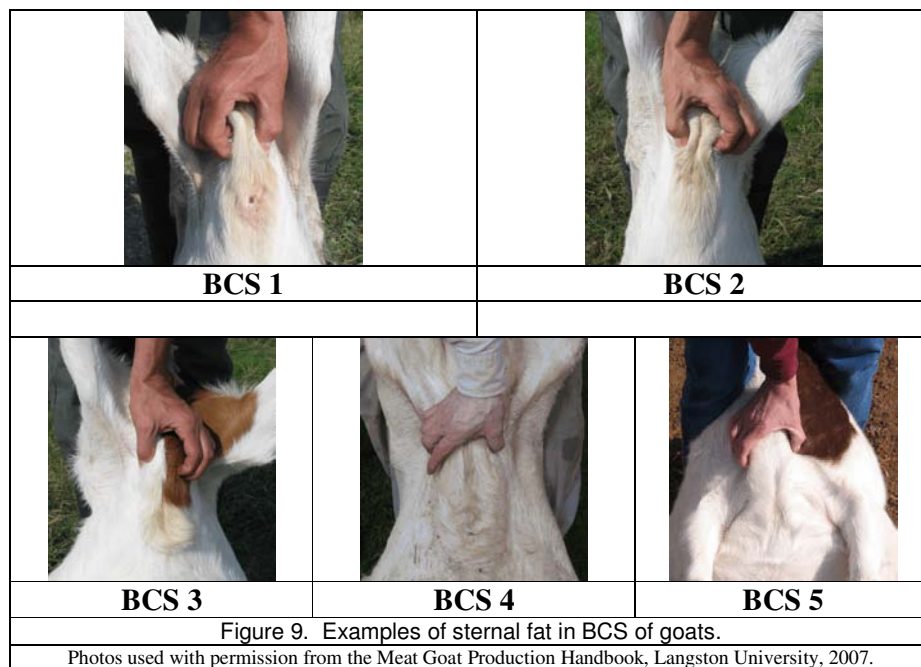
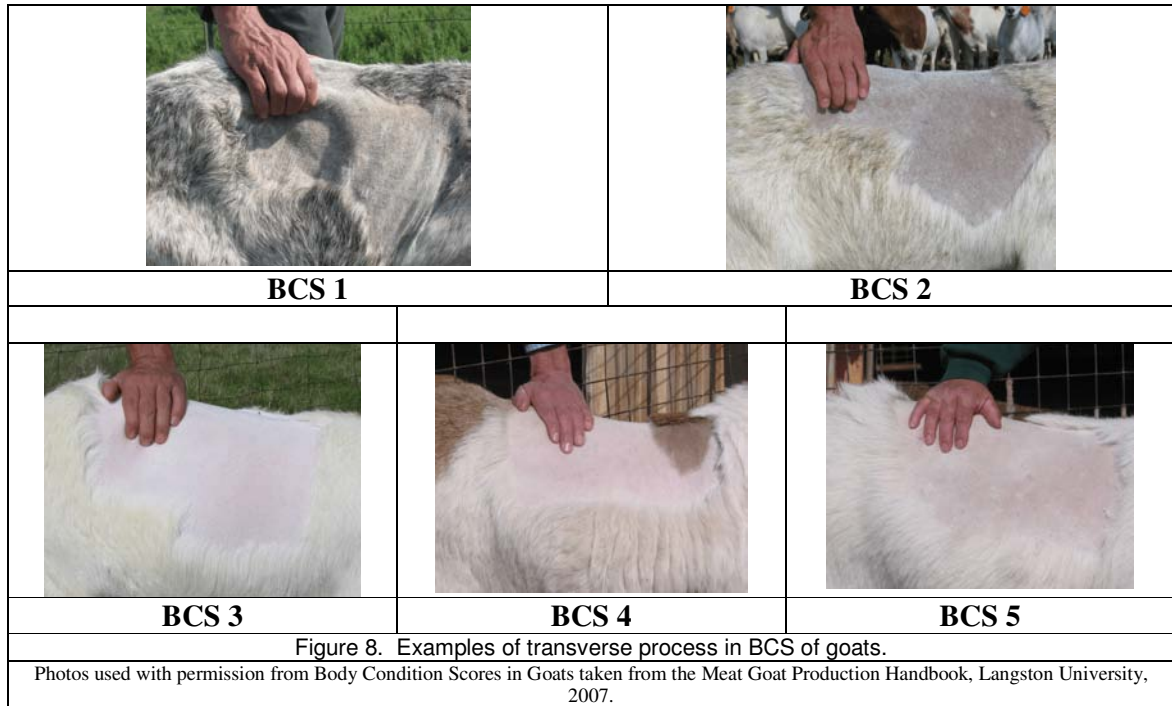
Figure 6. Expected BCS changes throughout a ewe's production cycle.

Under ideal conditions, ewes/does should never be allowed to go below a BCS of 2. The same is true of the higher end of the scale. Ewes/does should not reach the BCS of 4 and should never reach a BCS of 5. Ewes/does with the high scores often do not breed, and if they do they may have difficulties.

Ewes/does can increase in body mass, even in early lactation with adequate, good quality feed. However, in most cases, there is a decrease in body mass in early lactation when milk production is high and an increase in body mass in later lactation with declining milk production.

One practical use of body condition score is in adjusting supplementary feeding up or down.





5. Summary

Body condition scoring is a useful procedure for routine decision making on the management of sheep and goats. Producers can use the technique to improve the profitability of their sheep and goat farms. Body condition scoring is a simple procedure of evaluating different parts of the animal and giving scores. Perfection in body condition scoring comes with experience and practice.