DAIRY GOAT BODY CONDITION SCORING

American Dairy Goat Association AND

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Body condition is a term used to indicate the body reserves present in an individual animal. An animal's body condition indicates the amount of lipid (fat) and protein (muscle) reserves that are available for maintenance, gestation and production. Body Condition Scoring is an important tool for livestock managers to optimize the production, feeding program and welfare of the animals they manage. To date, Body Condition Scoring systems exist for most species, including meat goats. This system is offered specifically for dairy goats. It is meant to address factors unique to dairy goats, specifically, stage of lactation and extended lactations, level of production, stage of lactation relative to breeding, age at first freshening, body structure, behavior, and management systems of dairy goats.

A Body Condition Score (BCS) is of limited value without taking into consideration the many factors that can affect the score. A relatively low score may be acceptable in a doe or group of does in peak lactation, but should be of concern in an individual or group of animals in mid to late lactation or late gestation. Scoring dairy goats on a regular basis can help a manager evaluate the results of the feeding/management programs and allows him or her to make necessary adjustments in a timely manner before performance and health are affected.

Factors Affecting Body Condition:

<u>Nutrition:</u> The average Saanen dairy goat in the U.S. produces over 5% of her body weight in milk per day, over a 305-day (10-month) lactation (ADGA Saanen Breed Average for 2016 DHIR Lactations). In addition, she can produce 1-5 kids per year. This level of productivity requires an optimal level of nutrition. High-performing dairy goats do not typically reduce their productivity if the feeding program is inadequate. Rather, they will often maintain a relatively high level of production and their body condition (fat and muscle reserves) will reflect the lack of nutrient intake. Goats are generally classified as intermediate feeders, with the tendency to move toward concentrate selectors and selective grazing but less able to perform in the temperate grazing category where sheep and cattle are classified [Van Soest, 1996]. "The goat, a well-described species, is a comparatively selective feeder and is inferior to cattle and sheep as a digester of fiber [Huston et al., 1986], despite the claims in the literature that the goat can digest almost anything [Devendra, 1978]". It is for these reasons that dairy goats cannot maintain body condition on unimproved pasture alone. They require energy and protein supplementation, preferably with concentrates and/or legume hays.

<u>Level of Production:</u> The average milk production of dairy goats in the US is referenced above. The highest producing animals on DHIR test each year can produce over 5,000 lb during a 305day lactation. It is obvious that these higher producing animals are of higher value to the dairy, but also require greater feed inputs to allow for increased production while maintaining a healthy body condition. We should not assume that just because a doe is a high producer, she will always have a low body condition score. High-producing does may be maintained at healthy BCS levels with good management. Conversely, does that do not reach production levels adequate to justify the level of nutrition being fed will increase in body condition to undesirable levels.

Stage of lactation: Does will normally be at their lowest body condition score during peak lactation. During a typical lactation curve, an animal's BCS will show an inverse relationship to the level of production (see figure). Since high-producing animals will lose body condition after kidding and during peak lactation, the feeding program should be adjusted to accommodate the nutritional need. As the days-in-milk increases, milk production will lower, and body condition score will increase. This is desirable for the doe to have body reserves in order to conceive and to carry a number of kids to term. It is not desirable for does to lose body condition during the dry period. They should kid at approximately the same body condition score as at dry-off. At freshening, does should have a relatively high score, in order for them to accommodate loss of condition during peak lactation. Occasionally, managers choose to "milk through" certain highproducing does. This is a management practice that is useful in commercial dairies to increase winter milk production, lessen the stress of kidding and late gestation on the milking does, and decrease the number of kids that have to be fed, managed and sold. Extended lactations can cause does to have higher BCS. This is to be expected and allowances should be made. It may be warranted to keep does separate from other management groups during extended lactations and feed them appropriately.



Expected Changes in BCS as a Function of Lactation Curve

<u>Stage of gestation:</u> Dairy goats, except for Nigerian Dwarfs, are seasonal breeders. Their typical breeding season is during the fall, and with a 150-day gestational length, they will kid during the spring. Therefore, dairy goats are typically bred when they are at approximately 215 days in milk. This is past peak lactation, so body condition should be ideal for good reproductive performance. Once pregnant, does should be fed to maintain a body condition adequate to support the last months of lactation and the gestation period. Does should not be expected to lose body condition during the dry period.

<u>Age:</u> As dairy goats age, they naturally lose muscle mass and it becomes more difficult for them to maintain body condition as well. When scoring older does and bucks, 7 yrs and older, care must be taken to allow for the reduction in muscle mass but still be able to evaluate the fat cover to determine if an older animal is maintaining an acceptable body condition.

<u>Health:</u> Many health factors will directly affect body condition in dairy goats. These include, but are not limited to: parasites, wasting disease, viral or bacterial disease, dental problems (both due to age and/or to malocclusion) and many other chronic conditions. A herd health program should be in place in order to adequately address these factors.

<u>Structural correctness</u>: Correct structure, as outlined in the General Appearance category of the ADGA Scorecard, is necessary for dairy goats to perform at peak and achieve longevity. The American Dairy Goat Association offers a Linear Appraisal program that evaluates dairy goats for both structural and linear traits. These data are provided to the US Council on Dairy Cattle Breeding (CDCB) and made available to the public. The data are available for both individual animals and the progeny of both sires and dams. A dairy goat with undesirable structure will be less able to walk to feed, forage and water, less able to compete with other animals in the group, and to get to and from the milking parlor. These traits will worsen with age, thereby limiting the longevity of animals with faulty structure. Poor structure and mobility should sometimes be considered as a factor in a lower body condition score.

<u>Management and feeding systems:</u> The type of feeding systems can be an important factor in managing body condition in a dairy goat herd. Management groups can be arranged by various criteria, some of which include age and/or parity, stage of lactation, somatic cell counts and/or udder health concerns. Timid or low body condition scoring goats can be grouped separately in order to provide them with adequate nutrition and access to feed. Conversely, over-conditioned goats may be housed where their access to feed is limited or lower quality feedstuffs are provided.

<u>Bucks</u>: Bucks also have a yearly cycle of body condition levels. The low point in their cycle occurs at the breeding season, when they are in "rut". At the onset of rut, bucks eat less and are increasingly active. Even if they are not penned with does, they will walk the fences, fight with other bucks and eat less. They typically start this activity in August and September and their body condition scores will reflect this by October. Body condition usually stays low until February or March, when they will show a gain in condition and can even appear over-conditioned through the summer months. It is important to allow some extra conditioning in summer in anticipation of the breeding season.

<u>Age at freshening</u>: Managers of dairy goats often chose to freshen some does at 1 yr of age, while holding some others back as "dry yearlings" and freshening them at $1\frac{1}{2}$ yrs or 2 yr olds. These different choices require different feeding programs, and result in very different BCS for the does, depending on age at freshening. Milking yearlings are bred at 7-9 months of age and are growing significantly while pregnant. They often have relatively low BCS at freshening, and that is to be expected. It is almost impossible to over feed milking yearlings (if milk production is adequate). On the other hand, does that freshen at $1\frac{1}{2}$ to 2 yrs of age will often exhibit higher BCS and should be managed in such a way as to minimize over conditioning before freshening.

<u>Behavior</u>: Unlike some other domestic livestock, there is a definite social order established in goat herds. Dominant goats will chase the more timid individuals away from the feed and shelter. Those animals will lose body condition simply due to limited access to feed and exposure to elements. It should also be noted that when introducing new animals to a group, a new social order will be established. Typically, the animals newly-introduced will be lowest in the new order. It is best to introduce new animals in groups rather than singularly. In order to minimize the impact of social order on large groups of goats, it is good to have ample feed bunk space as well as ample feed available to large groups of goats. When feed and/or feeding space is limited, the dominant goats will always eat more and the timid goats will have limited feed available to them.

This paper is offered to dairy goat managers as a companion piece to the ADGA video "Dairy Goat Body Condition Scoring" a link to which can be found on the ADGA website. <u>www.ADGA.org</u>. The site also contains information about Breed Standards, the Dairy Goat Scorecard, and ADGA Performance Programs.

Dairy Goat Body Condition Scoring: Sites for scoring.

Site 1: (side view) Shoulder region: This site includes: neck, brisket, point of shoulder, ribs above point of elbow.

Visual (palpation may be used to confirm visual findings):

- a) The shape of the neck, as viewed from the underline in side profile as it extends through the shoulder region and into the brisket.
- b) The degree of fleshing where the neck meets the shoulder blade from the withers to the point of shoulder.
- c) The degree of fleshing over the ribs, above the point of elbow.

Site 2: (top view) This area includes, loin, rump, hips and pins.

Visual (palpation may be used to confirm visual findings):

- a) In the loin, the degree of muscle and fat covering in the loin area as judged by the prominence of the transverse and dorsal processes of the lumbar spine. (diagram)
- b) In the evaluation of the rump, observe the degree of fill created by muscle and fat at the hip, thurl, pin and dorsal processes of the rump.

Site 3: (secondary site) tail and tailhead. (used for BCS scores 2 and below and scores approaching a 5).

- a) 2 and below: Tail (by palpation) with your thumb on the top and fingers underneath, feel at the base of the tail for the amount of flesh surrounding the bone and the elasticity of the skin.
- b) Approaching 5: Base of tail. The amount of fleshing visible above the tail bone at the base of tail.





Source: L. Fancher, 2014 American Dairy Goat Association
BCS Site: Top View

BCS Sites: Side View

Descriptions of scores 1-5:

BCS 1:

Site 1: Underline of the neck, extremely thin, and clearly demarcated, extending into a brisket lacking any muscle or fat cover, with the bone clearly visible. Junction of the neck & shoulder region; severe depletion of muscle mass, scapular spine clearly visible. All ribs are clearly visible through the area above the point of elbow.

Site 2: In the rump the bony contours of the hip and pin bones are very prominent. The lack of fleshing in the rump makes the dorsal process clearly evident. In the loin, the lack of musculature makes the transverse and dorsal spinous processes extremely prominent.

Site 3: There is little, if any, flesh around the tail bone and the skin under the base of the tail lacks elasticity.





This goat resided in a well-managed herd, but had a condition resulting in dramatic weight loss near the end of her life

<u>BCS 2:</u>

Site 1: Underline of the neck extremely lean, long and clearly demarcated, extending into a brisket with slight amount of muscling or covering. A minor degree of muscling is observed at the base of neck and shoulder. Ribs are clearly defined above the point of elbow. A minor degree of subcutaneous tissue covers the neck/shoulder junction and ribs above the point of elbow.

Site 2: In the rump, the bony contours of the hip and pin bones are easily observed. Minimal musculature is easily observable in the rump region due to a lack of fat cover. In the loin, the lack of musculature makes the transverse and dorsal spinous processes clearly prominent.

Site 3: Some fleshing palpable around the tail bone, skin freely moveable.



BCS 2: Side View

BCS 2: Top View

BCS 3: (Moderate)

Site 1: Underline of the neck is moderately lean and long, showing demarcation and blending smoothly into shoulder and brisket. Ribs have a modest degree of fleshing but are still visible.

Site 2: In the rump, the hips and pins are clearly visible but the bony contours are less well defined due to the presence of subcutaneous tissue. Moderate muscling makes the dorsal processes of the rump less visible. In the loin, additional musculature makes the dorsal spine less prominent.

Site 3: Not used at this score.



BCS 3: Side View



BCS 3: Top View

BCS 4:

Site1: Underline of the neck is smooth with some accumulation of flesh at the brisket. The neck is smoothly blended by the presence of fleshing overlying the neck shoulder and ribs. Ribs above the point of elbow are palpable but no longer visible.

Site 2: In the rump, the hips and pins are rounded and smooth by the presence of overlying tissue. Additional muscle and fat smooth the overall contour of the rump, making it appear well filled. The transverse and dorsal spinous processes are not prominent, and the loin appears level from side to side.

Site 3: Not used at this score.



BCS 4: Side View 1



BCS 4: Top View

BCS 5:

Site 1: Underline of the neck appears shortened by the prominence of flesh extending up from the brisket. Fleshing bulges at the junction of the neck and shoulder. There is an extreme accumulation of fleshing over the ribs, above the point of elbow and beyond.

Site 2: In the rump the hips and pins are poorly defined due to the accumulation of fleshing. The excessive flesh covering of the rump protrudes above its skeletal framework. In the loin there is a complete lack of definition of transverse and dorsal spinous processes giving the loin a bulging appearance.

Site 3: The amount of fleshing at the base of tail visibly protrudes above the level of the bone creating a dimpled appearance.



BCS 5: Side View



BCS 5: Top View

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