

A Guide to Udder and

Not just a convenience trait, selecting and culling based on conformation of teats and udders increases profit potential.

by
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The conformation of a beef cow's teats and udder are important in a profitable cow-calf enterprise. Females with poor udder and teat conformation

are a management challenge for cow-calf producers.

Cattlemen do not have the time or labor to manage around cows that need intervention at calving to physically "milk out" a quarter(s) so the calf can suckle or to save the quarter from infection.

Research findings in two experiments indicate the occurrence of clinical mastitis in beef cow herds was 17.5% and 11.9%, resulting in a reduction in weaning weights of 12.5% and 7.3%, respectively.

Poor udder and teat conformation can potentially lead to increased calf sickness, as teats may be contaminated with mud and debris from a lot or calving area before the calf suckles.

Although selecting and culling based on conformation of teats and udders may be considered convenience trait selection, selecting against poor teats and udders increases profit potential by increasing calf performance, reducing calf sickness, increasing longevity of the cow and reducing labor inputs.

Udder and teat conformation is moderately heritable (h^2 of udder attachment = 0.2 to 0.3; h^2 of teat size = 0.5), so enhancing teat and udder quality can be accomplished by selecting bulls whose female offspring have good teat and udder conformation and by not selecting replacement heifers from dams that have marginal teat and udder conformation. When selecting bulls from your seedstock provider, request the udder score of his dam or visually appraise the udder of the dam to help reduce undesirable udder conformation in your herd.

Udder suspension

A strong median suspensory ligament is essential for udder conformation. A weak median suspensory ligament results in a lowering of the floor of the udder, sometimes below the hock. This makes it more difficult for the calf to nurse, and the teats may drag in the mud when the cow walks. The teats may also be suspended

inward or outward, instead of straight down, when filled with milk.

Fig. 1 shows drawings of different median suspensory lines, which illustrates the strength and importance of this ligament. The median suspensory line/ligament in Drawing 1 is pronounced and

would be considered ideal. This type of attachment should allow for the udder to be carried above the hock for many years, and teats are suspended perpendicular to the ground when full of milk.

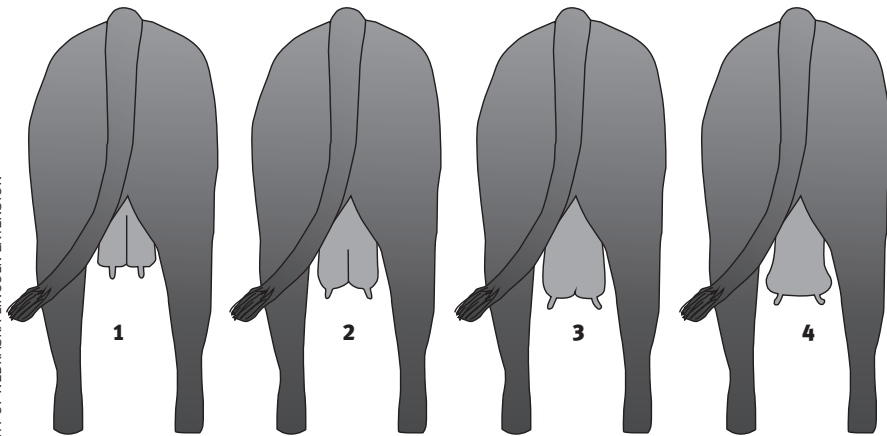
Drawings 2 and 3 in Fig. 1 illustrate different degrees of prominence of the median suspensory

ligament, with the suspensory line in Drawing 2 being more pronounced and more favorable than that illustrated in Drawing 3. Notice that as the median suspensory ligament becomes less prominent (weaker), the udder begins to "sag" below the hock, and the teats suspend closer to the ground. Also note that as the ligament becomes weaker the teats tend to splay outward from each quarter. This is more pronounced when the udder is engorged with milk.

Drawing 4 in Fig. 1 illustrates poor udder suspension and no evidence of a median line. In this situation, the udder will be suspended below the hock and teats will not suspend perpendicular to the ground when filled with milk.

Drawings in Fig. 2 illustrate ideal udder suspension from a side view. The ideal udder is tight to the body cavity. The floor of the udder should be level. The four quarters should be level from the side and rear. Some udders will slope downward from front to rear, which is less than ideal, and the rear udder attachment needs to be high. As the median suspensory ligament becomes less pronounced, the udder floor becomes more rounded.

Fig. 1: Median suspensory ligament providing various levels of udder support



Drawing 1: Prominent median suspensory ligament holds the udder tight to the body cavity. Teats are suspended perpendicular to the ground.

Drawing 2: Intermediately prominent median suspensory ligament suspends the udder farther from the body cavity. The udder is suspended about level with the hock and almost perpendicular to the ground.

Drawing 3: With a very weak median suspensory ligament, the udder and teats are suspended below the hock. When the udder and teats are engorged with milk, teats splay outward.

Drawing 4: The median suspensory ligament is absent. The udder and teats are suspended below the hocks. The udder balloons and teats splay outward.

Fig. 2: Ideal udder suspension from a side view

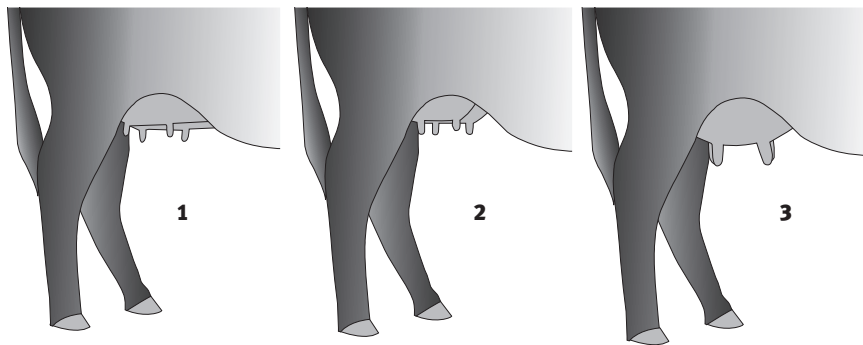
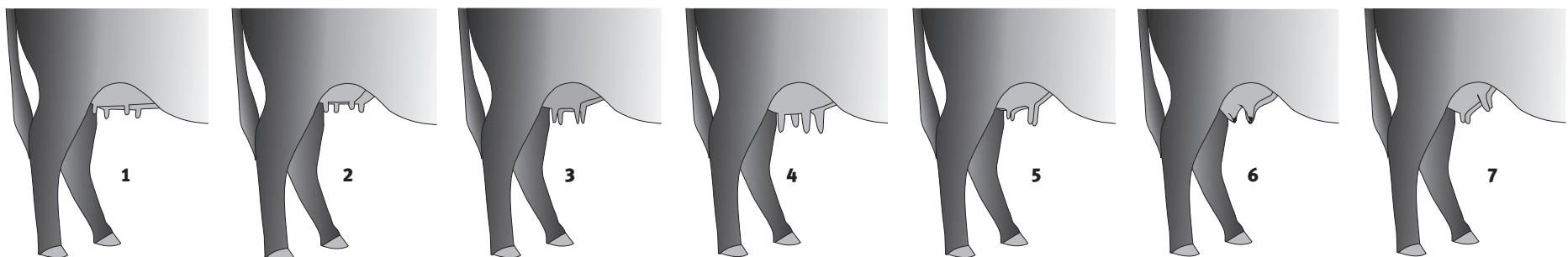


Fig. 3: Common teat sizes and conformations



Teat Scoring Beef Cows

Teat size, conformation

Common teat sizes and conformations are illustrated in Fig. 3. Teats should be medium in length and cylindrical in appearance. The diameter should also be consistent from the top of the teat to the bottom, with the end of the teat being rounded.

The teats should be placed in the middle of each quarter and point perpendicular to the ground. Fig. 3 displays drawings of typical teat conformations. The ideal teat is medium in length, cylindrical in appearance with rounded ends (drawings 1, 2, 3 and 4).

Less-than-ideal teats are less symmetrical and of different sizes and thickness (drawings 5, 6 and 7); are long, pointed and different sizes (Drawing 8); are thick and funnel-shaped (Drawing 9); or are a combination of thick funnel to thick pear shape (Drawing 10).

Teats should suspend perpendicular to the ground from the middle of each quarter when they are filled with milk. Sometimes teats will point inward or outward when filled with milk, which is less than ideal.

As teat length increases and udder suspension becomes weaker, teats are positioned closer to the ground, making it more difficult for the newborn calf to suckle and increasing the chance for teat contamination from mud or other debris.

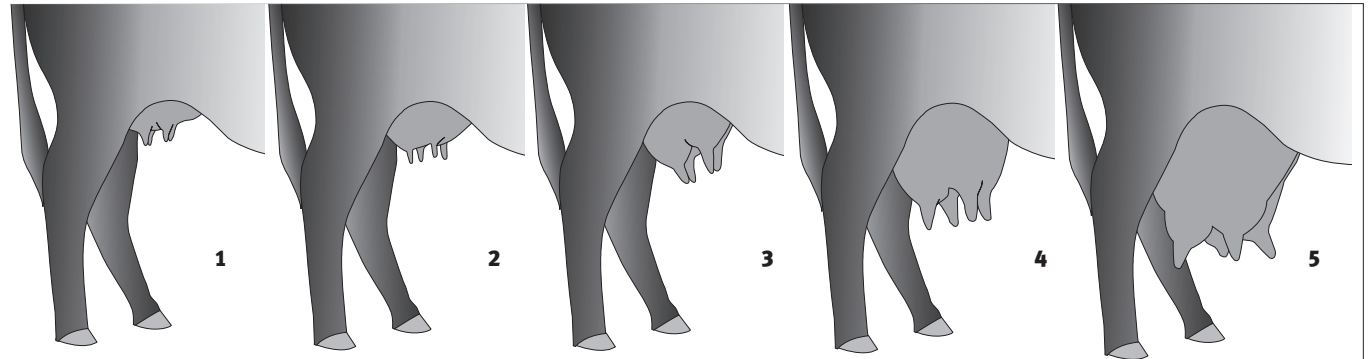
Scoring udder suspension

The ideal time to assign beef cows an udder score is within the first 24-48 hours after calving, as she begins to freshen. Udder conformation will decline as the female ages, but do not take age into account when assigning an udder score.

The following udder-scoring system was developed by the Beef Improvement Federation (BIF). This scoring system categorizes udder suspension and teat size. A teat score of 9 (very tight, highly desirable) to 1 (pendulous, not desirable) for udder suspension and a score of 9 (very small) to 1 (very large) for teat size.

The BIF scoring system doesn't account for teat and udder pigmentation.

Fig. 4: Udder suspension scoring system



Drawing 1: Very tight, very pronounced median suspensory ligament. Udder suspension score = 9.

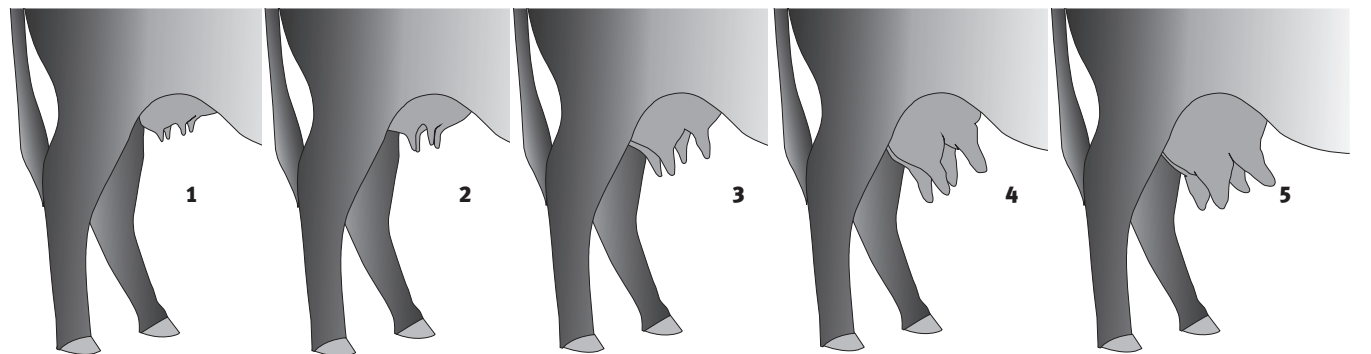
Drawing 2: Tight attachment, pronounced median suspensory ligament. Udder suspension score = 7.

Drawing 3: Intermediate attachment. Udder suspension score = 5.

Drawing 4: Loose attachment, weak median suspensory ligament. Udder suspension score = 3.

Drawing 5: Very loose and pendulous attachment, very weak median suspensory ligament. Udder suspension score = 1.

Fig. 5: Teat size and conformation scoring system



Drawing 1: Teat size is very small and symmetrical. Teat size score = 9.

Drawing 2: Teat size is small and symmetrical. Teat size score = 7.

Drawing 3: Teat size is intermediate in length; still have symmetry. Teat size score = 5.

Drawing 4: Teat size is large, variable in length and symmetry. Teat size score = 3.

Drawing 5: Teat size is very large, variable in length and symmetry. Teats appear to be thick. Teat size score = 1.

Pigmentation is desirable as it is a guard against sunburn of the teat and udder that can be caused by direct sunshine or reflection of the sun off snow.

Udder suspension scores associated with the BIF udder scoring system are illustrated in Fig. 4. The tighter to the body cavity that the udder is placed, the

more desirable. This allows for the calf to more easily locate the teats, and it is less likely for the teats to drag in the mud.

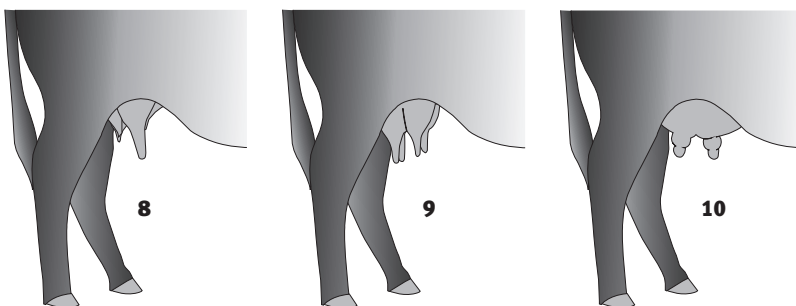
● **Udder Suspension Score 9:** The udder is placed tight to the body cavity and is well above the hocks. The quarters are mostly level from the side and rear view. The udder has high rear attachment, and the median suspensory ligament is pronounced (see Fig. 4, Drawing 1).

● **Udder Suspension Score 7:** Similar to an udder suspension score of 9, but the udder is suspended slightly farther from the body cavity. The median suspensory ligament is pronounced, keeping the udder level and suspending the teats perpendicular to the ground and above the hock. Because the median suspensory ligament is pronounced, the teats suspend perpendicular to the ground when filled with milk (see Fig. 4, Drawing 2).

● **Udder Suspension Score 5:** The median suspensory ligament is less pronounced and the udder is suspended farther from the body cavity. The teats begin to splay slightly outward when engorged with milk because of the weaker ligament. Also, the quarters may not be level. An udder suspension score of 5 is likely the commercial cow average score (see Fig. 4, Drawing 3).

● **Udder Suspension Score 3:** The median suspensory ligament is vague, resulting in loose attachment of the udder. The udder is suspended down to the hocks of the cow, meaning that the teats reside below the hock. The quarters are not level, and teats splay in an outward direction that is very pronounced when engorged with milk. Intervention may be required at calving. Replacement heifer retention from

(Continued on page 54)



A Guide to Udder and Teat Scoring Beef Cows (from page 53)

these dams is discouraged (see Fig. 4, Drawing 4, page 53).

●**Udder Suspension Score 1:** The median suspensory ligament is absent, resulting in a loose and pendulous attachment of the udder. The udder suspends below the hocks, and teats reside below the hock. The quarters are not level, and teats are

not perpendicular to the ground when filled with milk. Intervention is required at calving. Intervention is definitely required to avoid a spoiled quarter or mastitis. Replacements should not be kept from these dams, and producers should cull these cows (see Fig. 4, Drawing 5, page 53).

Scoring teat size

Teat size can vary considerably. Fig. 5, page 53, displays drawings of teat sizes associated with the BIF scoring system. As teat size becomes smaller, more symmetrical, and more central in placement on the quarter, it is more desirable. Teat size can be generally

It is seldom that cattle have the very small teat size. More common are the small, intermediate and large teat sizes. As teat size becomes larger, teats tend to be thicker, less symmetrical and suspend below the hock.

categorized as very small, small, intermediate, large and very large.

It is seldom that cattle have the very small teat size. More common are the small, intermediate and large teat sizes. As teat size becomes larger, teats tend to be thicker, less symmetrical and suspend below the hock.

- Teat Score 9:** Teats are very small in length, rounded at the ends and symmetrical. Teats are located in the center of the quarters and face perpendicular to the ground (see Fig. 5, Drawing 1).
- Teat Score 7:** Similar to teat score of 9, but teats are longer. Teats are located in the center of the quarters and face perpendicular to the ground (see Fig. 5, Drawing 2).
- Teat Score 5:** Teats are longer, larger in diameter, appear to be thicker and are less symmetrical compared to teat size 9, 8, 7 and 6. They may not be perpendicular to the ground or centered on the quarters (see Fig. 5, Drawing 3).
- Teat Score 3:** The teats are long and large in diameter, appear thicker and are not symmetrical. They may appear to be funnel-shaped. The teats may appear to begin to balloon at the point of attachment to the quarter. Because the teats are long, they are usually suspended below the hock. When engorged with milk, teats will not be perpendicular to the ground. Intervention is usually required at calving. Replacement heifer retention from these dams is discouraged (see Fig. 5, Drawing 4).
- Teat Score 1:** The teats are long, appear thick, and usually large and funnel/pear-shaped. Teats suspend well below the hock, which makes it difficult for a newborn calf to find, attach and suckle. Intervention is required at calving. Intervention is definitely required to avoid a spoiled quarter or mastitis. Replacements should not be kept from these dams, and producers should cull these females from the herd (see Fig. 5, Drawing 5).



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