



# American Dairy Goat Association

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## LINEAR APPRAISAL SYSTEM FOR DAIRY GOATS ©



## LINEAR APPRAISAL PROGRAM 2014

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### Introduction

Dairy goat breeders who use the American Dairy Goat Association's linear appraisal and production testing programs recognize the value of using the information provided by these animal evaluation programs as guidance in making management decisions that involve the selection of sires used in their breeding program. These management decisions influence the structural correctness and genetic potential of individual animals, which determines their lifetime in the herd and their overall production level.

Understanding how the condition of type traits affects the structural durability and the reproductive and production efficiency of an animal is critical to effective herd management. The goal of ADGA's linear appraisal system is to provide dairy goat breeders with an increased awareness of proven sires that transmit strong traits to their offspring. Identification of the strengths and weaknesses of individual does and the availability of sire summary information based on linear data can be used together to determine desirable matings in a herd.

This booklet serves as guide to ADGA's linear appraisal system. It contains:

- A general description of the linear appraisal system.
- A description of the primary and secondary traits included in the linear appraisal system, along with explanatory drawings that highlight the biological extremes of each trait and the intermediate condition.
- A sample copy of the appraiser's report form, including the evaluation scale for each primary and secondary linear trait.
- A discussion of the evaluation of the eight general structural and functional areas and the notation of remarks and defects.
- A discussion of the evaluation of the four major categories (general appearance, dairy strength, body capacity, and mammary system) and the determination of the final score.
- Information on preparing for a herd linear appraisal.

## Linear Appraisal

ADGA recognizes the need for a linear appraisal system that evaluates individual type traits that affect structural and functional durability in order to take full advantage of the potential for genetic improvement through selection. ADGA's linear system:

Evaluates each trait individually, rather than as part of a group of traits.

Evaluates each trait from one observed biological extreme to the other.

Includes traits that have economic importance and are at least moderately heritable.

Provides a system of evaluation that can be applied uniformly on a scale of 1 to 50 points (a 50-point range has been shown to distinguish differences in body measurements with acceptable accuracy).

The linear appraisal system includes 13 primary traits and 1 secondary trait that are used by the appraiser to evaluate functional conformation. To these linear traits have been added eight structural and functional areas (head, shoulder assembly, front legs, back legs, feet, back, rump, and udder texture) that are evaluated by the appraiser as Excellent, Very Good, Good Plus, Acceptable, Fair or Poor. The appraisal system also includes room for the appraiser to notate up to two remarks and/or defects. The last part of the linear appraisal system is an evaluation of the animal in the four major categories (three for bucks) and the determination of a final score for the animal. Only the linear trait scores and the animal's final score are part of the computerized linear appraisal data base used to develop sire summaries; the other information is included to provide the herd owner with additional information about the individual animals that are appraised.

Dairy goat herds evaluated with the linear appraisal system will be instrumental in helping develop the data base needed to determine the heritability of structural traits in dairy goats and, eventually, their relationship to longevity and production.



**2007 ADGA Appraisers**

## Primary and Secondary Traits

The term “linear” in a linear appraisal system refers to the fact that traits are rated on a linear scale that goes from one biological extreme for that trait to the other. Scores for each primary and secondary trait are assigned by the appraiser within the 50-point range that represents the biological range for the trait. Evaluation of linear traits is, except during training or in situations where verification is desired, based on observations by trained appraisers, rather than on actual measurements for each trait. As is true with dairy cattle linear systems, experienced appraisers achieve equal or greater accuracy and consistency while evaluation linear traits much more rapidly and less expensively using techniques based on observation compare to making actual measurements for every trait. The biggest problem associated with making actual measurements is the difficulty in trying to restrain an animal in a natural position long enough to make an accurate measurement, especially when the differences being measured are small.

The following guidance is provided to help the herd owner understand the evaluation system for the 13 primary traits and one secondary trait that are included in the linear appraisal system. The appraiser evaluates these traits without regard for age, management, or environment, or stage of lactation. The primary traits are traits that are believed to have economic importance and enough variation to provide a basis for selection when the data is summarized by sire. The secondary trait has been included in order to gather research data for further evaluation of the trait’s economic and genetic importance.

Three general criteria were used in the selection of the linear traits to be included in ADGA’s linear appraisal system.

- 1 – The trait must have some economic value, either in terms of increased longevity, which reduces culling rate, or in creased production.
- 2 – The trait must be heritable (genetically-controlled) enough so that progress or improvement can be made at an acceptable rate through the selection of sires. Traits that are not at least moderately heritable are more effectively handled through herd management practices (such as culling) and are no suitable for inclusion in a linear appraisal system. Generally, heritability of .15 or higher is accepted as indicating at least moderate heritability of a trait. The heritability information that is available on dairy goats pertains mostly to production factors. Very little information exists on the heritability of structural traits in dairy goats. The heritabilities used in the selection of traits for ADGA’s linear appraisal system were based on 4 years of dairy cattle linear data. Although the absolute heritability of traits is not known or expected to be the same for dairy cattle and diary goats, the relative indications of heritability of the various traits of interest should be similar. One of the potential benefits of ADGA’s linear appraisal system is the determination of the actual heritabilities of type traits for dairy goats when sufficient data has been gathered to perform the calculations.
- 3 – It must be possible to assign a value to the trait with acceptable repeatability among appraisers. This means that it must be possible to define the trait and all its components and the associated evaluation criteria precisely enough that the trait can be evaluated by appraisers with acceptable repeatability.

## **Optional Young Stock Appraisal Program**

In response to many requests from the membership, ADGA has instituted the Optional Young Stock Appraisal Program. This program is intended to be an aid to breeders in evaluating their young stock and should be used as an adjunct to our regular Linear Appraisal Program.

Owners may choose to do as many, or as few, kids and yearlings of any breed as they want. This program is a totally optional activity. Young stock appraisal may be used to help achieve the minimum stop fee associated with Linear Appraisal.

Any doe kid from four months of age up to two years, that has never freshened, may be evaluated. Bucks from four months of age up to one year may be evaluated. Bucks will be considered one year or older on the first day of their birth month and as such will be scored in the mature Linear Appraisal program.

Young stock need not be registered, but must be tattooed. The appraiser will read the tattoo. Should the tattoo not match the registration/recordation certificate, the animal will be scored as an unregistered animal and the owner will be asked to have the certificate revised to show the correct tattoo.

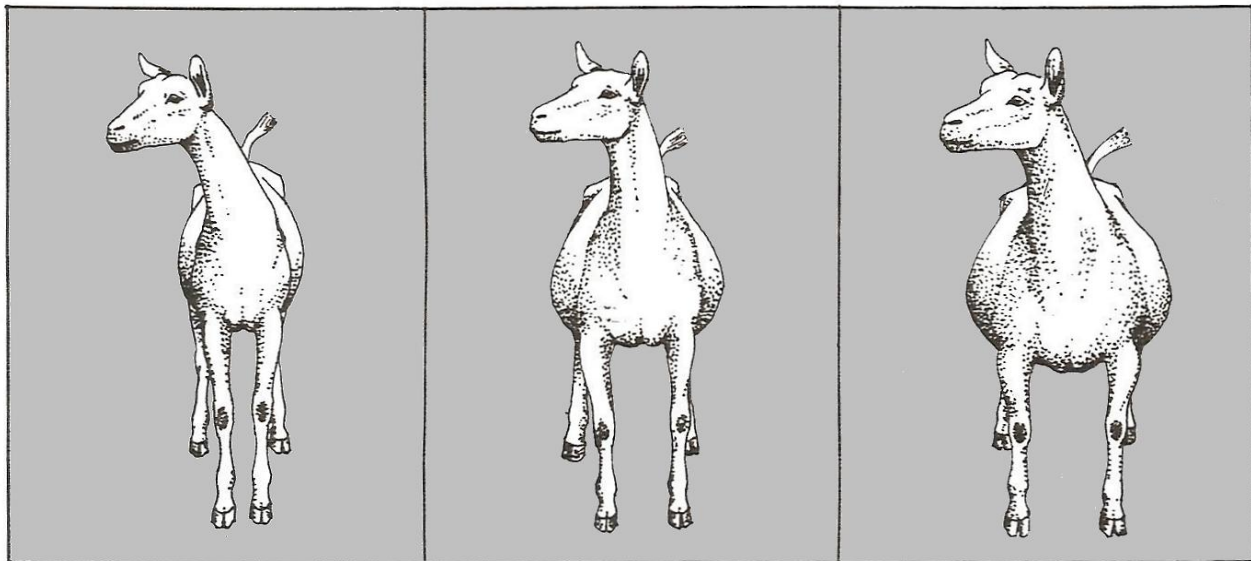
Information on registered young stock will be used in a future research project to compare junior and senior scores. Information on both registered/recorded and unregistered animals will be used to help form a statistical data base on traits for that breed, age and sex. None of the young Stock information will be included in any sire summary and will not be published in any form.

In the Optional Young Stock Program, eight linear traits are evaluated as well as the same structural and major categories as the adult program. The differences are that three traits, namely stature, rump width, and escutcheon height are recorded in actual inches instead of assigning a point value, and the overall rating is given in the form of a letter instead of a specific number.

## Form – Stature

The appraiser's evaluation of stature is based on the distance from level ground to the top of the withers. Goats 26" or less are considered extremely short and assigned five points or less. Goats that are 30" tall are considered intermediate in stature and assigned 25 points, while goats at least 34" tall are considered extremely tall and assigned 45 or more points. For each 1" difference in height, plus or minus, the point assignment changes by five. Stature in Miniature breeds is recorded in inches to the nearest ¼ inch as data is collected to determine the biological range. Stature in the Optional Young Stock program will be recorded in actual inches, rather than assigning a point value.

## Form – Strength



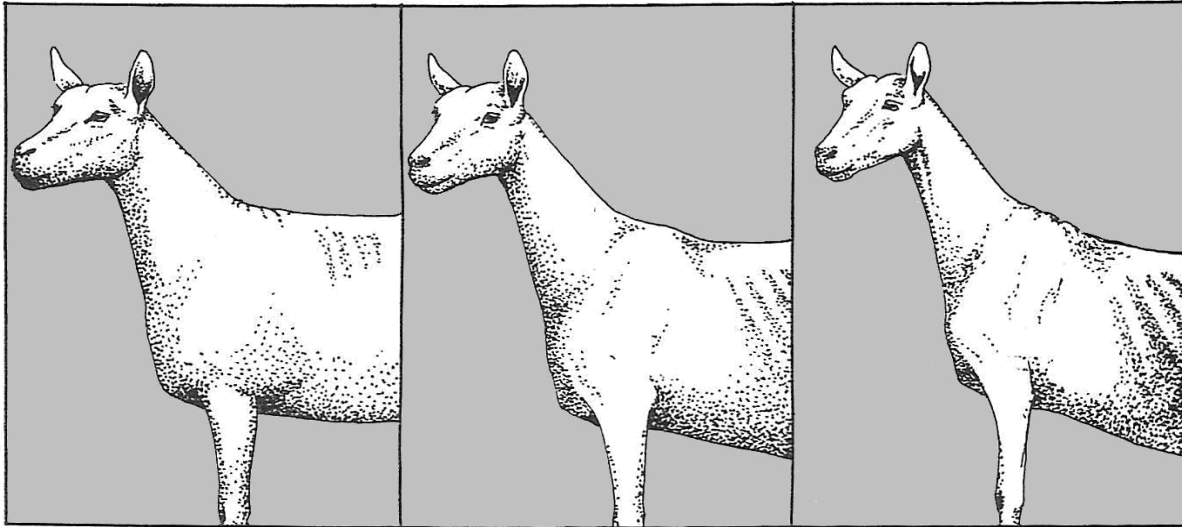
1-5 Points  
Extremely narrow and frail

25 Points  
Intermediate width and strength

45-50 Points  
Extremely wide and strong

The width and depth of the chest, the width of the muzzle, and the substance of bone in the goat's front end are used to determine the strength of the goat. The range for this trait is from extremely narrow and frail to extremely wide and strong. Width and strength is associated with the likelihood the goat can sustain high production and good general health. Strength is measured from weakness (less than 20 points) to strength (more than 30 points). The intermediate range is from 20 to 30 points.

## Form – Dairyness



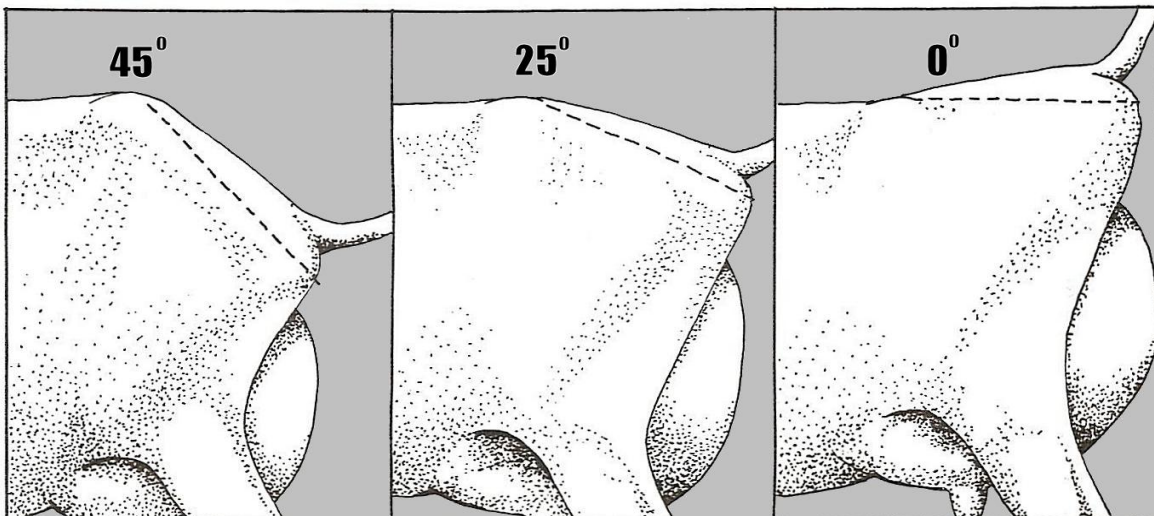
1-5 Points  
Extremely thick and coarse, round bone

25 Points  
Intermediate in angularity and flatness of bone

45-50 Points  
Extremely sharp and angular, flat bone

When evaluating Dairyness, the appraiser considers length, cleanness and flatness of bone, length and leanness of neck, definition and sharpness of withers, degree of fleshing, femininity and refinement, and fineness and texture of skin. Dairyness is measured from coarseness (which is assigned 10 points or less) to extreme sharpness (which is assigned 40 or more points).

## Structure – Rump Angle



1-5 Points  
Extremely steep from hips to pins

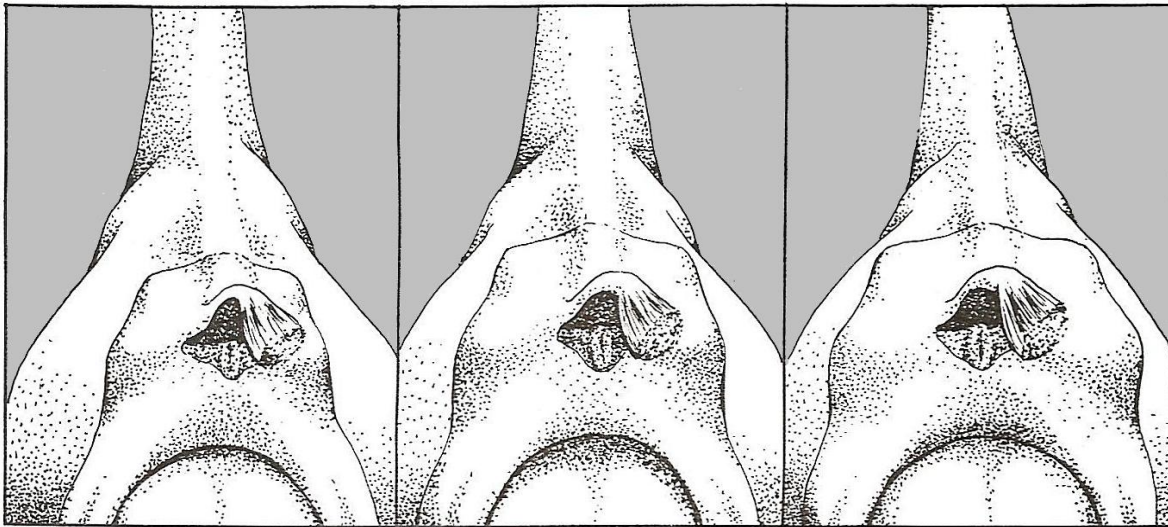
25 Points  
Intermediate slope from hips to pins

45-50 Points  
Extremely level from hips to pins

The angle of the rump or pelvis from hips to pins has a direct bearing on the reproductive performance of a goat because it influences the ease of kidding and drainage of the reproductive tract. The angle of the rump is also related to the length of udder from fore to rear, strength of fore udder attachment, and udder depth. Observing the goat on the move from the side, the appraiser evaluates the angle of the rump from the hips to the pins. Rump angle is measured from steepness, which is assigned 20 or less points, to levelness, which is assigned 30 or more points. Rumps intermediate in slope (30° to 20°) are assigned 20 to 30 points. Each difference of 5° in the rump angle, plus or minus, results in a difference in the score of 5 points. A rump angle of 50° or more is assigned 1 point.



## Structure – Rump Width



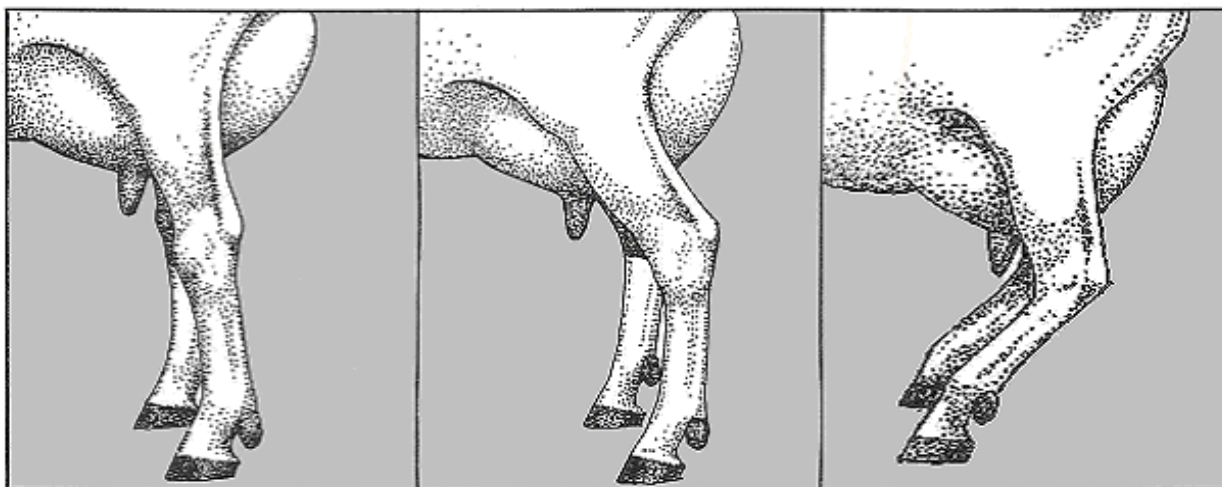
1-5 Points  
Extremely narrow

25 Points  
Intermediate in width

45-50 Points  
Extremely wide

The width of the rump is important for three reasons. The width of the rump relates to kidding ease; the wider the rump or pelvis, the easier the delivery of kids. The width of the rump also is an indicator of general body width throughout, as well as the potential for udder width. Rump width is determined as the width between the thurls; that is, the width of the pelvic girdle. An extremely narrow rump (5" or less) is assigned 5 points or less, a rump of intermediate width (7") is assigned 25 points, and an extremely wide rump (9" or more) is assigned 45 or more points. Rump Width in Miniature breeds is recorded in inches to the nearest ¼ inch as data is collected to determine the biological range. Rump Width in the Optional Young Stock program will be recorded in actual inches, rather than assigning a point value. The appraiser determines the width of the pelvic region from thurl to thurl. Each 1" difference in rump width, plus or minus, results in a difference in the score of 10 points.

## Structure – Rear legs, side view



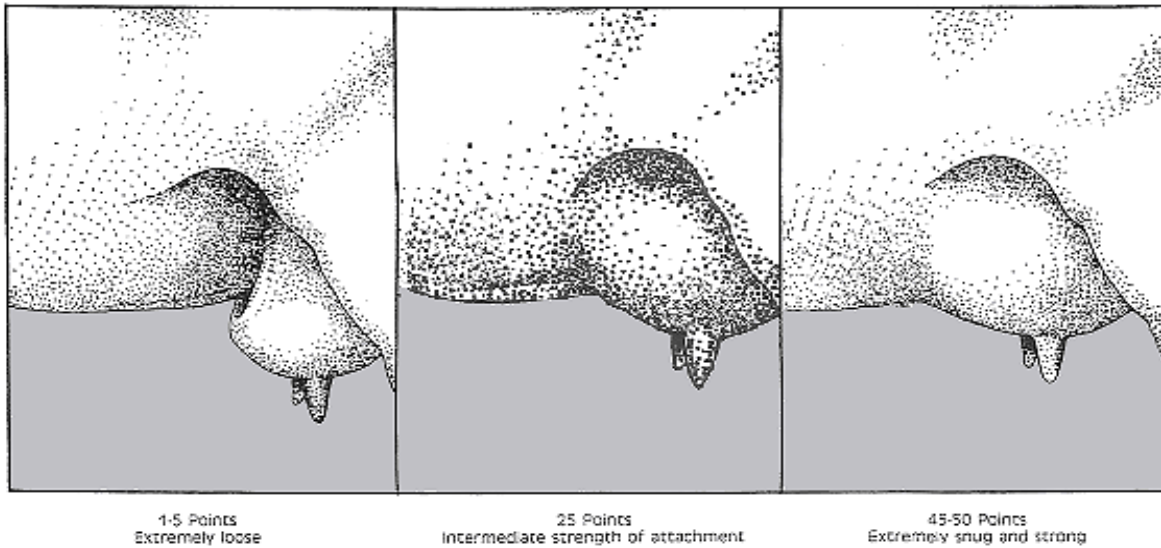
1-5 Points  
Straight-legged (posty)

25 Points  
Intermediate angle to hock

45-50 Points  
Extremely angled (sickled)

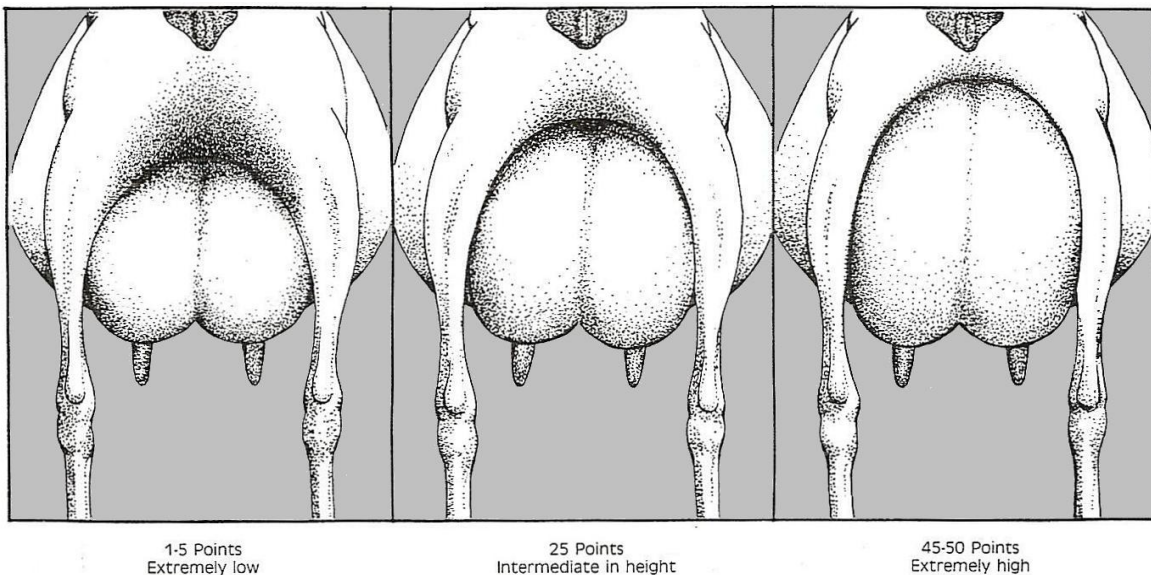
This trait relates to the durability of the legs and feet, as reflected by the degree of angle of the hock. By looking at the goat from the side, the appraiser can evaluate the degree of angle to the rear leg. The less angle or postier the leg, the lower the score. An intermediate angle in the hock relates to the midpoint of the range. Legs that tend toward straightness (or postiness) are assigned 20 or less points. Legs that tend toward greater angulation are assigned 30 or more points.

## Mammary – Fore Udder Attachment



In evaluating the fore udder attachment, the appraiser looks at the strength of the attachment of the lateral ligaments as they extend forward and laterally to the body wall. The scale ranges from an extremely loose attachment (5 points or less) to an extremely snug and strong attachment. Fore udders with lateral ligaments that are intermediate in strength and tightness are assigned 25 points.

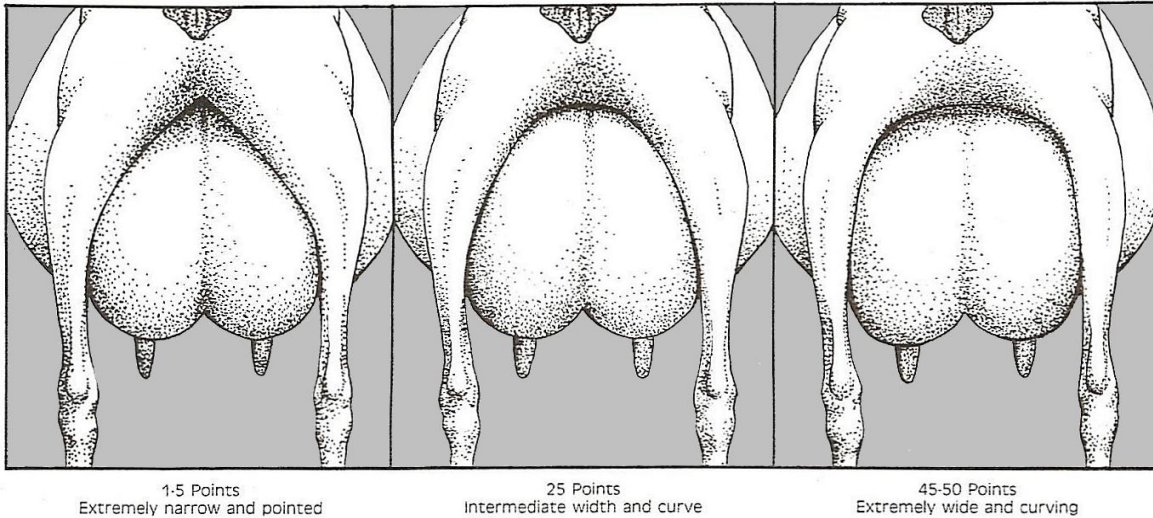
## Mammary – Rear Udder Height



The height of the rear udder attachment is an indication of the goat's potential capacity for milk, in that it affects udder capacity, and of the udder's ability to hold its shape and position through repeated lactations. Rear udder height is scored in proportion to the goat. An extremely low attachment is assigned 5 or less points; udder attachments of intermediate heights are assigned 25 points; while an extremely high attachment is assigned 45 or more points. Differences in hair and issue texture between the rear udder and escutcheon are used as aids in determining the point of attachment. This trait is not recorded in bucks. This trait is called "Escutcheon Height" in the Optional Young Stock program, and will be recorded in actual inches rather than a point value.

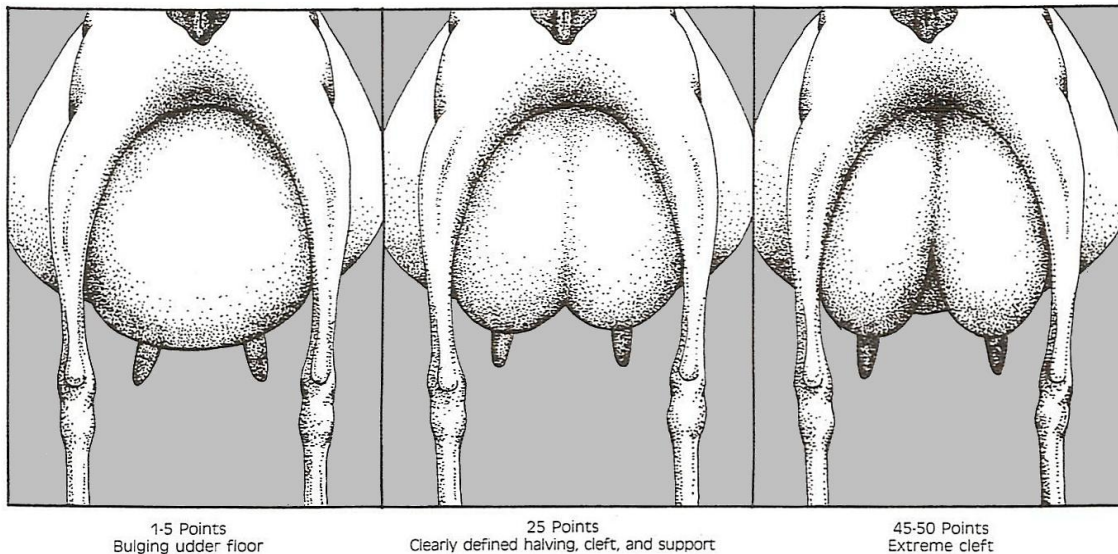


## Mammary – Rear Udder Arch



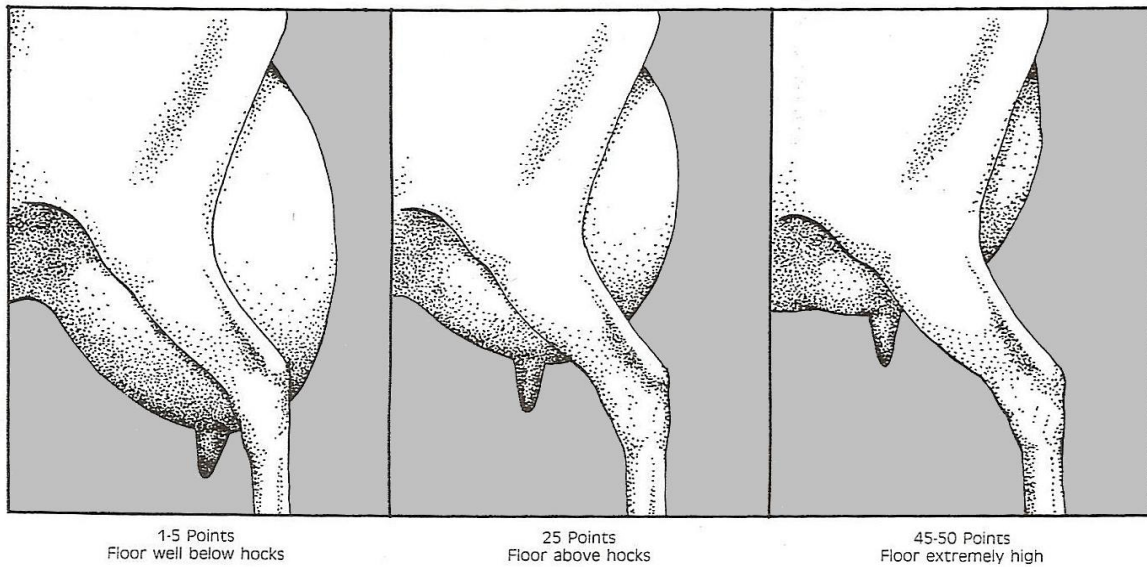
The evaluation of rear udder arch considers both the width and the shape of the attachment of the rear udder. The rear udder arch is an indication of the goat's potential capacity for milk, in that the width and shape of the rear udder attachment affects udder capacity, and the udder's ability to hold its shape and position through repeated lactations. An extremely narrow and pointed rear udder arch is assigned 5 or less points, a rear udder intermediate in width and arch is assigned 25 points, and a rear udder that is extremely wide and arched assigned 45 or more points. Rear udder arch is evaluated at the same spot as rear udder height. Differences in hair and skin texture between the udder and the escutcheon are used to determine the point of attachment. This trait is called Escutcheon Arch in the Optional Young Stock program.

## Mammary – Medial Suspensory Ligament



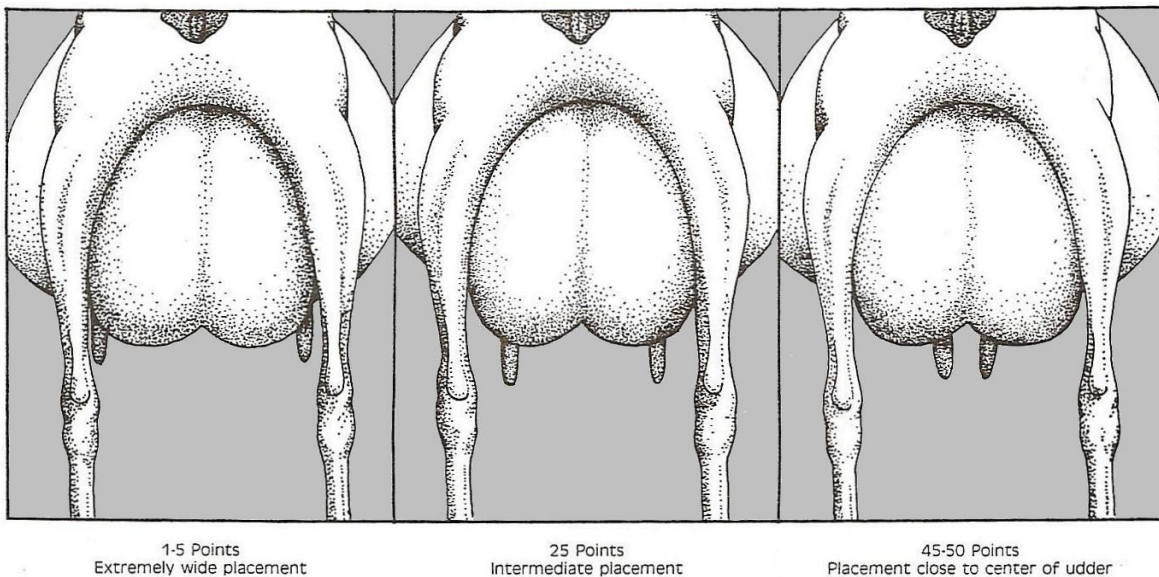
The medial suspensory ligament is the primary support for the udder. A strong medial suspensory ligament affects the goat's production potential by keeping the teats in place and the udder elevated, reducing the potential for injury. An udder with a weak medial suspensory ligament, resulting in a negative cleft or bulge in the floor of the udder, is assigned 5 or less points. An udder with clearly define halving and support (1" cleft) is assigned 25 points, and an udder with an extreme cleft (3" or more) is assigned 45 or more points. The assignment of an udder support score is based on the appraiser's evaluation of the amount of cleft in the floor of the udder attributable to the medial suspensory ligament. A difference of 1" in the amount of cleft, plus or minus, results in a difference of 10 points.

## Mammary – Udder Depth



The depth of the udder is measure relative to the hocks. While some degree of udder depth is necessary for capacity, an udder that is extremely deep is more susceptible to injury and mastitis infection. Udder depth is evaluated as the vertical distance between the floor of the udder and the point of the hock, when the rear leg is set in a normal position under the animal. A deep udder that is at least 2" below the hocks is assigned 5 or less points, an udder that is intermediate in depth (2" above the hocks) is assigned 25 points, and a shallow udder that is extremely high above the hocks (6" or more) is assigned 45 or more points. An udder that is 3" or more below the hock is assigned 1 point. Proportional adjustment is made for miniature breeds.

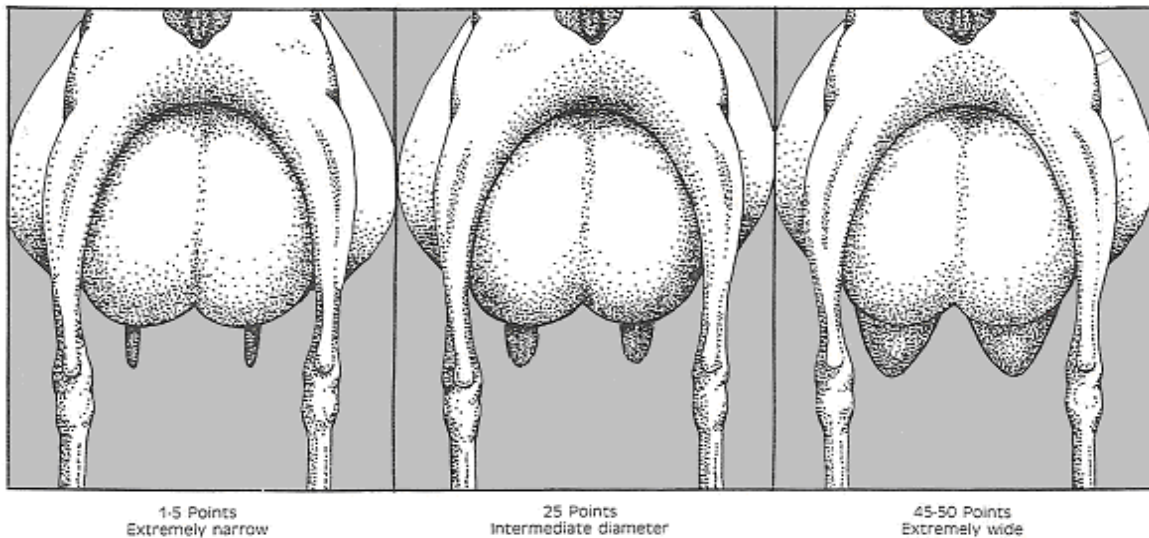
## Mammary – Teat Placement, Rear View



Teat placement, as viewed from the rear, is related to both ease of milking and susceptibility to injury. Teat placement is measured from being on the outside third of the udder half (less than 25 points) to being less than two-thirds of the way out (more than 25 points). Teats that are located one-third of the way out on the udder half are assigned 45 points; teats that are less than one-third of the way out are assigned more than 45 points. Position is determined by the center of the teat at the point where the teat attaches to the udder.



## Mammary – Teat Diameter

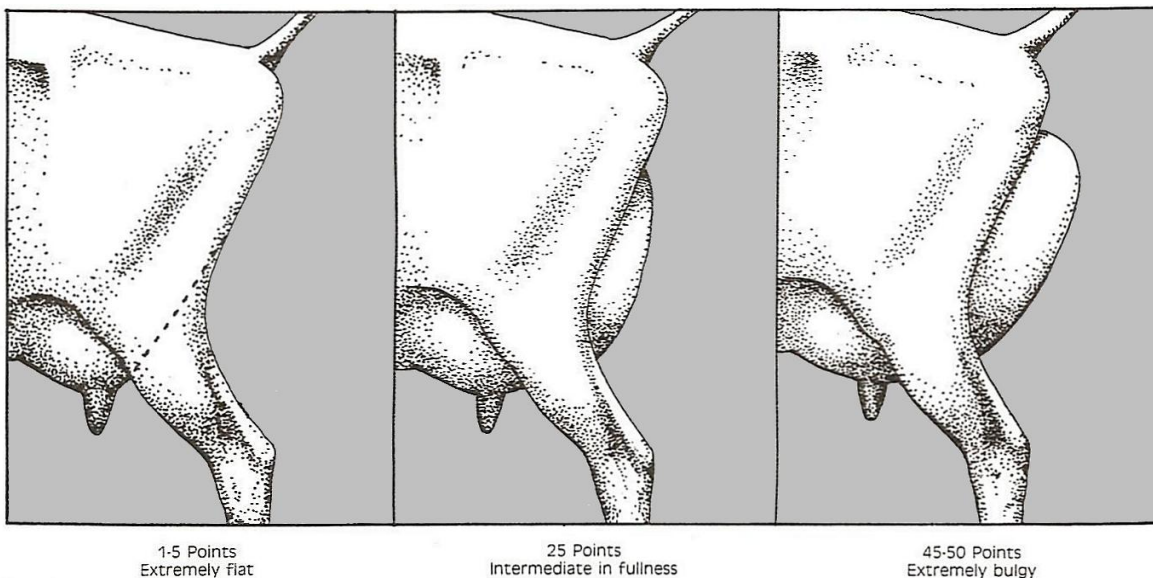


Teat diameter is evaluated as the diameter of the teat at its base where it meets the udder, as viewed from the rear. Both delineation of the teat from the udder and ease of milking are reflected in the evaluation of teat diameter. A very narrow teat,  $\frac{1}{2}$ " or less in diameter, is assigned 5 or less points; a teat that is intermediate in diameter ( $1\frac{1}{2}$ " ) is assigned 25 points; and a teat that is very wider ( $2\frac{1}{2}$ " ) or more in diameter, is assigned 45 or more points. A difference of  $\frac{1}{2}$ " in teat diameter, plus or minus, results in a difference of 10 points.

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## Secondary Trait

## Mammary – Rear udder, Side View



Rear udder, side view, is evaluated as the shape of the rear udder as it extends behind the rear leg when a goat is standing with her rear legs squarely beneath her. The shape of the rear udder from the teats to the rear udder attachment is an indication of the capacity of the rear udder for milk. Extremely flat rear udders, with little capacity, are assigned 5 or less points; rear udders with intermediate fullness are assigned 25 points; and rear udders that are extremely bulgy or protruding are assigned 45 or more points.



# DESCRIPTION OF TRAITS AND MEASUREMENTS

## LINEAR TRAITS:

### FORM

#### Stature (Standard)

- 5- Extremely short
- 15- Short
- 25- Intermediate
- 35- Tall
- 45- Extremely tall

#### Stature – (Miniature)

Measurement/Range to be determined

#### Strength

- 5- Extremely narrow and frail
- 15- Narrow and frail
- 25- Intermediate width and strength
- 35- Very wide and strong
- 45- Extremely wide and strong

#### Dairyness

- 5- Extremely thick and coarse; extremely round bone
- 15- Thick and coarse; round bone
- 25- Intermediate angularity and flatness of bone
- 35- Sharp and angular; clean, flat bone
- 45- Extremely sharp and angular; extremely clean, flat bone

## STRUCTURE

#### Rump Angle

- 5- Extremely steep from hips to pins
- 15- Considerable slope from hips to pins
- 25- Moderate slope from hips to pins
- 35- Nearly level from hips to pins
- 45- Extremely level from hips to pins

#### Rump Width (Standard)

- 5- Extremely narrow through pelvic area
- 15- Narrow through pelvic area
- 25- Intermediate width through pelvic area
- 35- Wide through pelvic area
- 45- Extremely wide through pelvic area

#### Rear Legs, Side View

- 5- Straight-legged (posty) in hock
- 15- Nearly straight (posty) in hock
- 25- Intermediate angle to hock
- 35- Considerably angled (sickled) in hock
- 45- Extremely angled (sickled) in hock

#### Rump Width (Miniature)

Measurement/range to be determined



## LINEAR TRAITS:

### MAMMARY

#### Fore Udder Attachment

- 5- Extremely loose attachment
- 15- Loose attachment
- 25- Intermediate strength of attachment
- 35- Strong attachment
- 45- Extremely snug and strong attachment

#### Rear Udder Height

- 5- Extremely low
- 15- Low
- 25- Intermediate height
- 35- High
- 45- Extremely high

#### Rear Udder Arch

- 5- Extremely narrow and pointed arch
- 15- Narrow and pointed arch
- 25- Intermediate width and curve to arch
- 35- Wide and curving arch
- 45- Extremely wide and curving arch

#### Medial Suspensory Ligament

- 5- Bulging udder floor, negative cleft  
Flat udder floor, lack clear halving; little or
- 15- no cleft
- 25- Clearly defined halving, clean and support
- 35- Deep cleft
- 45- Extreme cleft

#### Udder Depth (Standard)

- 5- Udder floor well below hocks; pendulous udder
  - 15- Udder floor below point of hock
  - 20- Udder floor at point of hock
  - 25- Udder floor above hock
  - 35- Udder floor well above hock
  - 45- Udder floor extremely high above hock; shallow udder
- Miniature** – proportionately scored

#### Teat Placement, Rear View

- 5- Extremely wide placement on outside of udder half
- 15- Placement on outside of udder half
- 25- Placement 2/3 of way out on udder half
- 35- Placement midway between 1/3 and 2/3 of way out
- 45- Placement 1/3 of way out on udder half

#### Teat Diameter

- 5- Extremely narrow teat
- 15- Narrow teat
- 25- Intermediate teat diameter
- 35- Wide teat
- 45- Extremely wide teat

#### Rear Udder, Side View (Secondary Trait)

- 5- Extremely flat, lacks capacity
- 15- Flat
- 25- Intermediate in fullness
- 35- Rounded
- 45- Extremely rounded, bulging or protruding

## STRUCTURAL CATEGORIES

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The Structural Categories are scored on the same scale as the Major Categories described below:

Head	Legs Front	Back
Shoulder Assembly	Legs Rear	Rump
	Feet	Udder Texture

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## MAJOR CATEGORIES and FINAL SCORE

The final score for an animal becomes part of the computer record used to develop sire summary information, while the evaluation of the major categories is used by the appraiser in arriving at a final score and to provide the herd owner with additional information about each animal.

The four major categories are assigned a letter designation rating, rather than a numerical score. The same scale is used for Mature Does, Bucks and Young Stock, with the Mammary category used only for Mature Does. The final score represents how close the overall animal comes to the ideal. A numerical final score is assigned to all mature animals, except those rated Poor, where the letter "P" is used. Young Stock are all assigned a final letter rating rather than a numerical score. The designations and percentage ranges for scoring correspond to the following table:

Excellent	<b>E</b>	at least 90% of ideal – Mature Program
Extremely Correct	<b>EC</b>	at least 90% ideal – Young Stock Program
Very Good	<b>V</b>	85% to 89% of ideal
Good Plus	<b>+</b>	80% to 84% of ideal
Acceptable	<b>A</b>	70% to 79% of ideal
Fair	<b>F</b>	60% to 69% of ideal
Poor	<b>P</b>	less than 60% of ideal

The final step in the evaluation involves the determination of a final score for the animal. The appraiser uses guidelines which correspond to the judge's scorecard breakdown adopted by ADGA and implemented in January 1989. Each Major Category contributes to the Final Score based on the following percentages:

### **Mature Does (any doe which has ever freshened)**

General Appearance	35%
Dairy Strength	20%
Body Capacity	10%
Mammary	35%

### **Bucks and All Young Stock**

General Appearance	55%
Dairy Strength	30%
Body Capacity	15%

If goats last appraised before the month of their fifth birthday are reappraised, their new score may be higher, lower, or the same as their previous score. Scores for animals previously appraised in or after the month of their fifth birthday can be raised or remain the same but cannot be lowered during subsequent appraisal sessions. The exception to this is for does appraised fry on or after their fifth birthday and later reappraised as milker. In this case, the score while in production status becomes the new score for the animal, whether it is higher, lower, or the same as the previous score assigned while the animal was dry.

Linear type traits are evaluated without consideration of any factors. However, the appraiser can consider factors such as management or environmental conditions when evaluating the structural/functional areas. The appraiser then can consider age, stage of pregnancy or lactation, and production level when evaluating the four major categories and determining the final score when their effect on the evaluation is obvious.

## MISCELLANEOUS REMARKS AND DEFECTS

### REMARKS:

- 1 Dry
- 2 Stale
- 3 Springing
- 4 Abnormal kidding
- 5 Not in condition
- 6 Reserved
- 7 Reserved
- 8 Enlarged joints
- 9 Extremely restricted motion

### DEFECTS:

#### Feet and Legs

- 10 Spread toes
- 11 Shallow heels
- 12 Front feet turn out
- 13 Turned-over feet
- 14 Weak pasterns
- 15 Bowed front legs
- 16 Crooked front legs
- 17 Front legs turn out
- 18 Straight stifle
- 19 Close rear legs
- 20 Hocks turn in
- 21 Abnormal Hoof Growth
- 22 Bowed pasterns
- 23 Front legs too far forward
- 24 Crooked feet

#### Shoulders

- 30 Out at elbow
- 31 Open shoulder
- 32 Winged shoulder
- 33 Too prominent at point of shoulder
- 34 Weak or narrow shoulder assembly
- 35 Shallow chest floor
- 35 Tilted chest floor

#### Back and Rump

- 40 Low front end
- 41 Weak chine
- 42 Weak loin
- 43 Roached back
- 44 High dorsal process
- 45 Thurls too low
- 46 Asymmetrical rump

#### Mammary System

- 50 Udder tilted
- 51 Udder twisted
- 52 Extremely short fore udder
- 53 Undesirable udder texture
- 54 Unbalanced udder
- 55 Blind udder half
- 56 Teats too short
- 57 Teats too long
- 58 Teats lack delineation
- 59 Abnormal teat placement
- 60 Abnormal teat shape
- 61 Extra teats
- 62 Teats point out
- 63 Blind teat
- 64 Double teat or orifice
- 65 Misplaced orifice
- 66 Leaking orifice
- 67 Congested udder
- 68 Blemished udder (injury, trauma, disease)

#### Miscellaneous

- 70 Nose incorrect for breed
- 71 Color or markings incorrect for breed
- 72 Ears incorrect for breed
- 73 Crooked face
- 74 Weak jaw
- 75 Overshot jaw
- 76 Undershot jaw
- 77 Total blindness
- 78 Navel hernia
- 79 Abnormal testicles
- 80 Overmature for age
- 81 Overly refined bone
- 82 Over maximum height for breed

## **General Appearance**

In evaluation the general appearance of an animal, the appraiser considers the total structure of the goat, including the head, shoulder blades, back, loin, rump, legs and feet. Correctness in both size and conformation is indicated by an attractive appearance that reveals vigor, a harmonious blending and correlation of parts, an impressive style and attractive carriage, and a graceful and powerful walk. Strength, upstandingness, vigor, stretch, sound feet and legs, a level topline, a wide and level rump, and smooth blending are necessary for an animal to be considered Excellent or Very Good. Animals lacking these structural characteristics would be considered Fair or Poor, which animals intermediate in these characteristics would be considered Good Plus or Acceptable.

## **Dairy Strength**

To determine a rating for dairy strength, the appraiser looks at the bone structure (including the neck, withers, ribs, and thighs), flanks, angularity, openness, degree of fleshing, animation, and skin and hair.

A goat must have sharp lines, be angular and free from excess fleshing, have a strong but refined bone structure; a long and lean neck that blends smoothly into the shoulders' ribs spaced far apart to give openness to the body; thighs that are incurving, and be free from excess flesh to be rated as Excellent or Very Good. Animals that are intermediate for these characteristics are rated Good Plus or Acceptable, while animals that have round, heavy bones and are coarse are rated Fair or Poor.

## **Body Capacity**

The total volume of a goat (length, width, and depth of body) with regard to correct shape is considered in evaluating body capacity. A large, strong, vigorous animal generally has the ability to consume and utilize larger quantities of feed. Goats that are wide and deep in proportion to their stature, as indicated by a deep, strongly supported barrel; ribs that are wide apart and well sprung and tend to increase in width and depth toward the rear barrel; a large heart girth resulting from long, well-sprung foreribs; and a wide chest floor between the front legs and fullness at the point of elbow are rated Excellent or Very Good. Goats that are not seriously deficient in body capacity, but lack some in the characteristics listed above, particularly if they are lacking in spring of rib, are rated Good Plus or Acceptable. Goats that show definite deficiencies in body capacity, such as narrow, pinched heart girth; overall frailness; short ribs, resulting in a shallow animal; or ribs that are close together, resulting in a short, cramped body, may be rated Fair or Poor.

## **Mammary System**

In evaluating the mammary system, the appraiser considers capacity and shape, rear and fore udder attachments, texture, and teats. A capacious, strongly attached, well-carried udder of good quality, indicating heavy production and a long period of usefulness, is preferred. Udders with the following characteristics are rated Excellent or Very Good; long, wide, strongly attached, and capacious udder that extends well forward, with a high, wide, rear udder attachment and halves that are evenly balanced and symmetrical; a fore udder that is carried well forward, is tightly attached, and blends smoothly into the body; a texture that is soft, pliable, elastic, and free of scar tissue, so that the udder collapses well after milking; and teats that are uniform, of convenient length and size, cylindrical in shape, free from obstructions, set square and properly placed, and easy to milk. Goats with short, bulgy, or loose foreudders; low, narrow, loose, or pinched rear udders and udders that are tilted or pendulous are rated Fair or Poor. Udders intermediate in strength of attachment, balance, capacity, cleavage, and texture are rated Good Plus or Acceptable.