
Grading live animals and carcass

ICS: 65.020.30

Descriptors: liveanimals, cattle, sheep, goat, carcass, grading,

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Reference number
ES 2789:2006

Foreword

This Ethiopian Standard has been prepared under the direction of the Agriculture and Food Technology Technical Committee and published by the Quality and Standards Authority of Ethiopia (QSAE).

In the preparation of this Ethiopian Standard references have been made to the following:

- Codex Alimentarius, Meat and meat products including soups and Broths Vol.10
- Pakistan Standard 367:1963, Specification for ante mortem and post mortem examination of meat.
- Indian Standard 2537:1963 specification for beef and Buffalo. Flash -Fresh, chilled and frozen.
- Codex Alimentarius vol. C Recommended international code of Hygienic practice for fresh meat.

Acknowledgement is made for the use of information from the above publications

Grading live animals and carcass

1 Scope

This specifies requirements and grading of live animals such as ,cattle,sheep,goat and carcass

2 Grading live animals (cattle)

2.1 The development and conformation of the body is important in grading of live animals .

But the characteristics (frame size, hump development, weight) of the different breeds shall be taken in consideration

(When the animal presented for grading shows abnormalities with respect to sanitation and /or hygiene a veterinarian shall be consulted).

2.1.1 Breed of the animal

2.1.2 Determine the sex of the animal

2.1.3 Determine the age of the animal

2.1.4 Weigh the animal or estimate the live weight

2.1.5 Observe the animal from both sides, from the front and from the rear.

2.1.6 Palpate the loin in the area of the vertebra lumbar, the brisket, the ribs and the lower part of the flank to detected meat and fat coverage.

2.1.7 Decide the grade of the animal, following your findings and the established criteria.

2.1.8 Mark the animal with the corresponding data.

Example:

The animal presented for grading fulfills the following criteria:

a) Castrated or uncastrated with, 1 or 2 pair of permanent teeth changed, ca. 300 kg live weight

b) Very well body development

c) Moderate fat cover

This animal shall be marked: **B1 II**

2.2 Cattle

2.2.1 Categories

A = Uncastrated males with 1 pair of front teeth changed (min. weight 300 kg)

B = Uncastrated males with more than 2 pair of front teeth changed

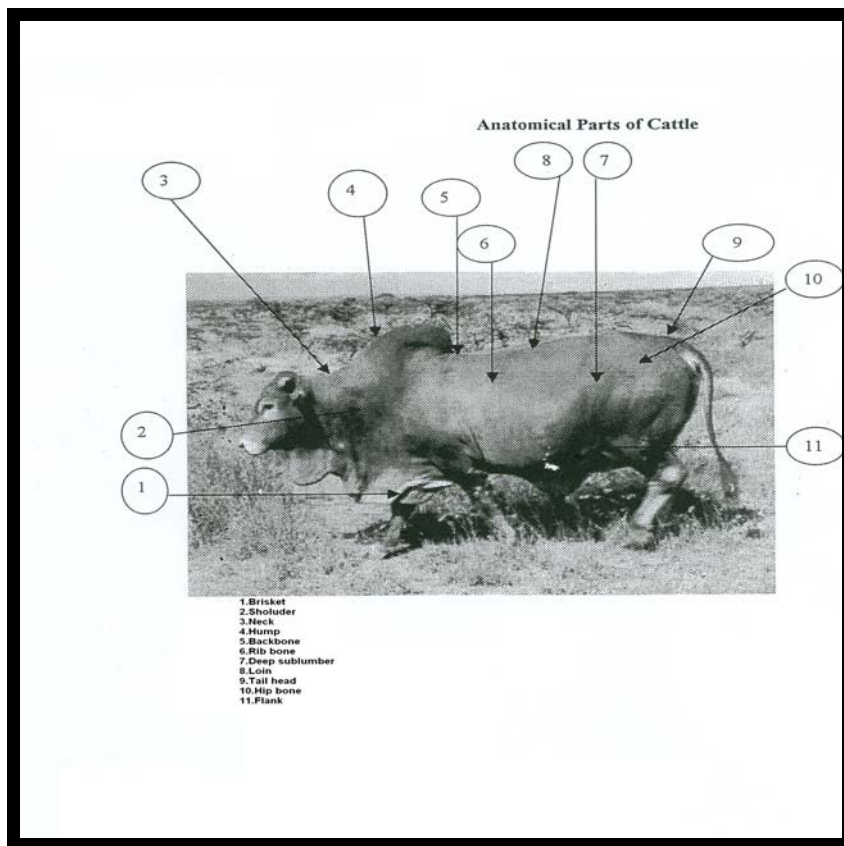
C = Castrated males with 1 pair of front teeth changed

D = Castrated males with more than 2 pair of front teeth changed

F = Females with 1 pair of front teeth changed (min. weight 200 kg)

G = Females with more than 2 pair of front teeth changed

External Anatomy of Cattle



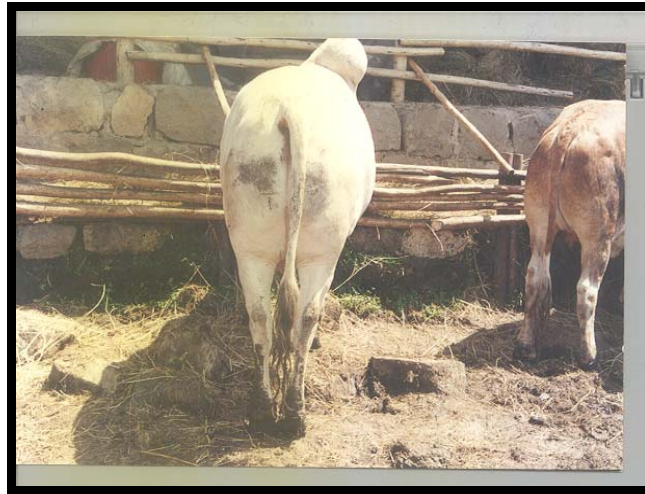
2.2.2 Grades:

Grades	Profile	Description
1	Convex Round	<p>Hind leg: very well developed, hipbone not visible tail head not visible, slightly bumpy.</p> <p>Loin: Very well developed, backbone not visible</p> <p>Shoulder: muscle very well developed, bones not visible</p> <p>Ribs: not visible, well covered with meat and/or fat</p> <p>Hump and brisket: very well developed</p>

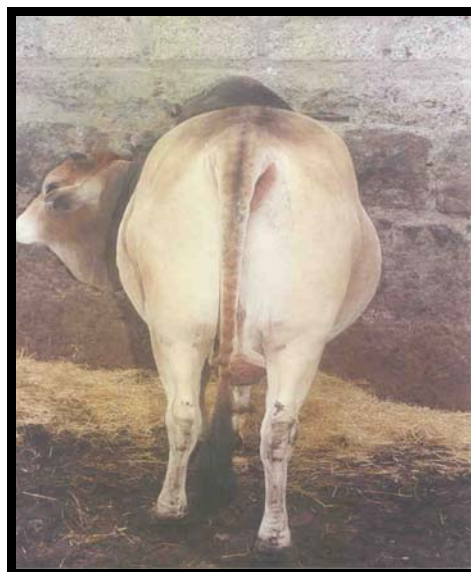


Grade 1 castrated ox side view

Grade 1 castrated Ox rear view



Grade 1 Bull side view



Grade 1 Bull rear view

<p>2</p>	<p>Straight</p>	<p>Hind leg: well developed, hipbone not visible tail head level Loin: well developed backbone not visible . Shoulder: well developed, Ribs: not visible Hump and brisket: full Brisket: moderately developed</p>
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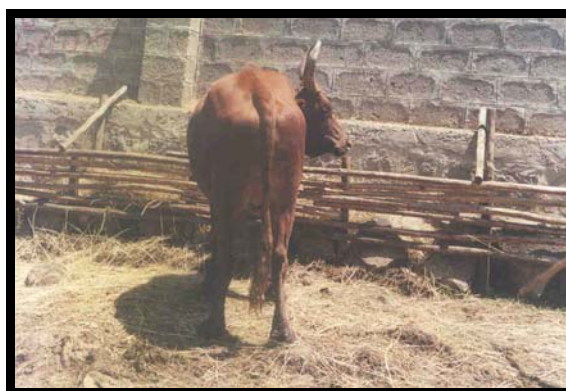
Grade 2 castrated Ox side view



Grade 2 castrated Ox rear view

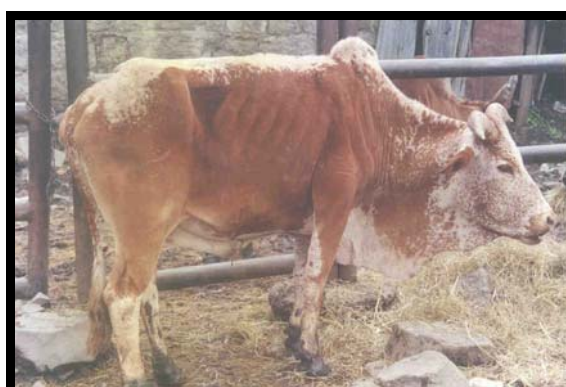
<p>3</p>	<p>Concave curved inside</p>	<p>Hind leg: moderately developed, hipbone visible tail head slightly raised. Loin: moderately developed, backbone Slightly visible. Shoulder: moderately developed, blade slightly visible. Ribs: slightly visible Hump and brisket: slack skin</p>
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Grade 3 castrated Ox side view



Grade 3 castrated Ox rear view

Grades	Profile	Description
4	Highly Concave	<p>Hind leg: poor developed, hipbone prominent tail head sticking out</p> <p>Loin: poor developed backbone visible</p> <p>Shoulder: poor developed, bone of shoulder visible.</p> <p>Ribs: highly visible</p> <p>hump and brisket: skin fold very small</p>



Grade 4 castrated Ox side view



Grade 4 castrated Ox rear view

2.3 Fat development:

Fat grade	Description
I	No fat development, some muscle visible (semi tendemosus, biceps femoris, quatriceps femoris), no fat could be detected by palpation, hump development moderate.
II	Moderate fat cover. Fat palpable at the flank and brisket, hump well developed
III	well developed fat cover. Fat palpable at the flank, ribs and loin, visible at the brisket. Hump full

3. Goat:

3.1 Categories:

A = Young male and female goat, age below eight month

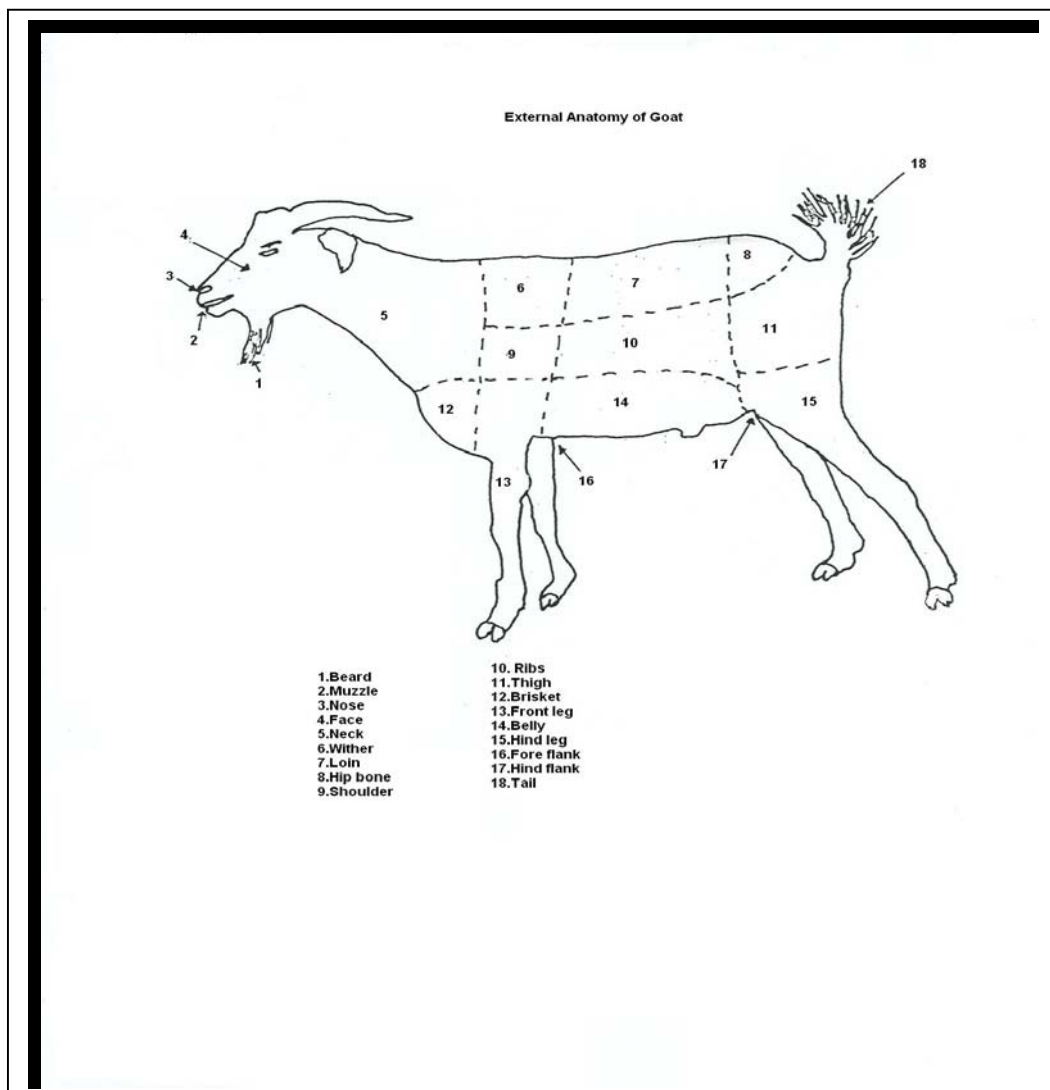
B = Uncastrated males, live weight below 20 kg

C = Uncastrated males, live weight more than 20 kg

D = Castrated males, live weight below 20kg

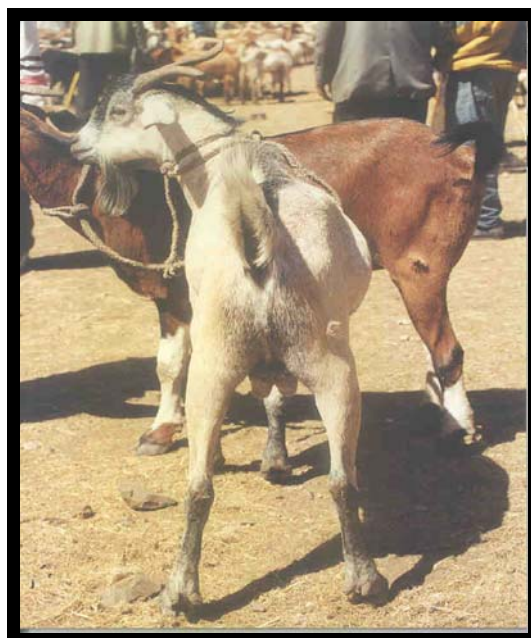
E = Castrated males, live weight more than 20 kg

External Anatomy of Goat



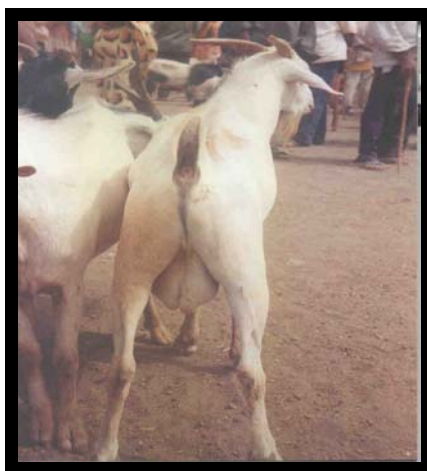
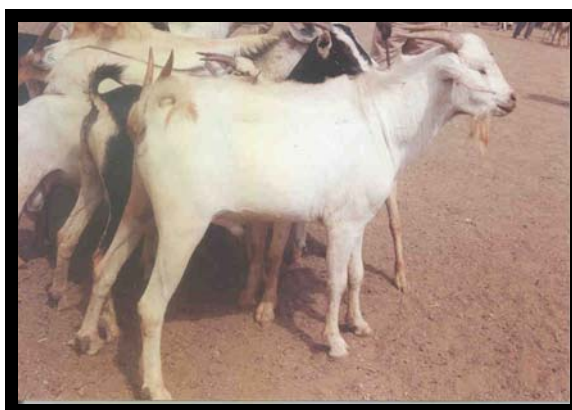
3.2 Goat:**3.2.1 Grades:**

Grades	Profile	Description
1	<p>Round</p> <p>Convex</p>	<p>Hind leg: muscle very well developed, like semi tendinosus, biceps femoris, quadriceps femoris, tail head level</p> <p>Loin: wide and very well developed up to the shoulder region backbone not visible</p> <p>Shoulder: very well developed, blade bone not visible</p> <p>Ribs: not visible</p> <p>Brisket: well developed, covered with meat and/or fat</p>

Grade 1 castrated goat side view**Grade 1 castrated goat rear view**

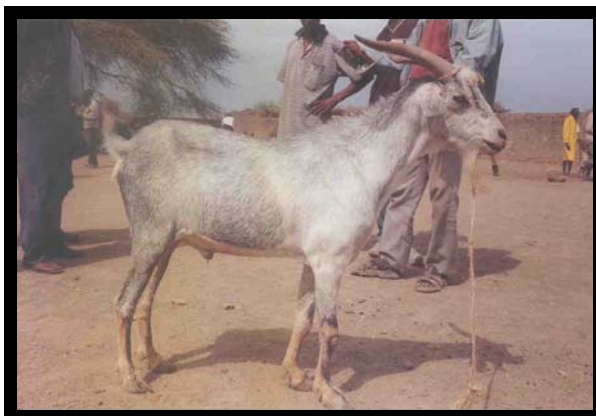
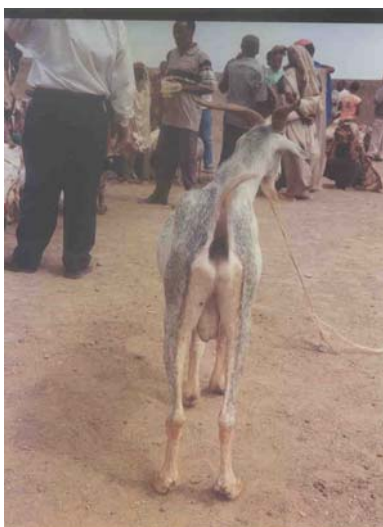
<p>2</p>	<p>Straight</p>	<p>Hind leg: moderately developed, tail head level Loin: moderately developed, backbone slightly visible Shoulder: moderately developed, blade bone slightly visible Ribs: not visible, moderate meat cover Brisket: moderately developed</p>
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Grade 2 uncastrated goat side view



Grade 2 uncastrated rear view

<p>3</p>	<p>Concave curved inside</p>	<p>Hind quarter: poor developed tail head slightly raised, bone visible Loin: poor developed, backbone visible Shoulder: Poor developed, bones visible Ribs: visible Brisket: Poor developed</p>
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Grade 3 castrated goat side view**Grade 3 castrated goat rear view****3.2.2 Development of the Fat cover**

Fat grade	Description
I	No fat development. No fat could be seen or detected by palpation, belly not bulged (pronounced)
II	Moderate fat cover. Fat palpable at the flank, visible at the brisket, belly bulged (could be due to overfeeding)
III	Well developed fat cover. Fat palpable at the flank, ribs and loin, visible at the brisket. Belly full.(shall not be due to overfeeding)

4 Sheep:

4.1 Categories:

A = Young lambs, male and female, age under eight month

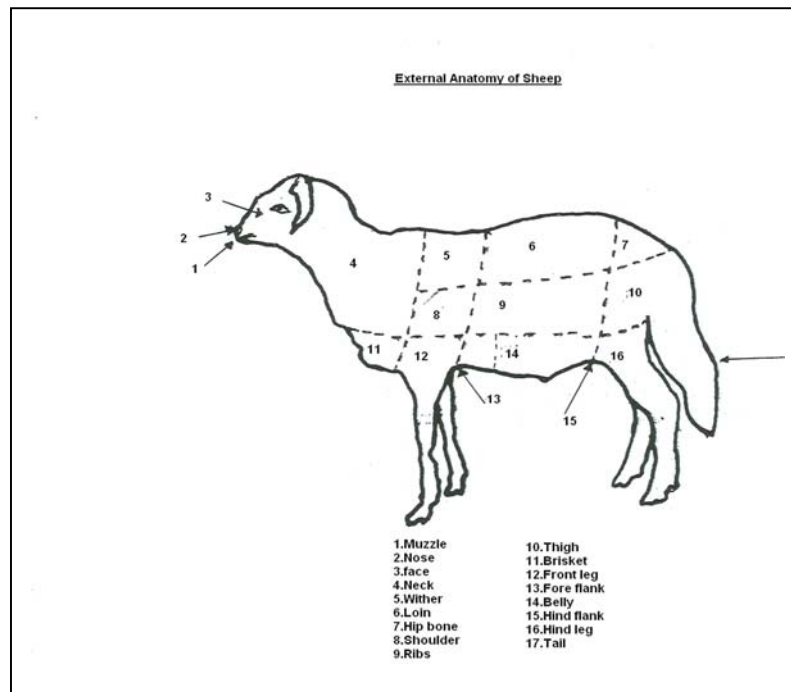
B = Uncastrated males, live weight below 25 kg

C = Uncastrated males, live weight more than 25 kg

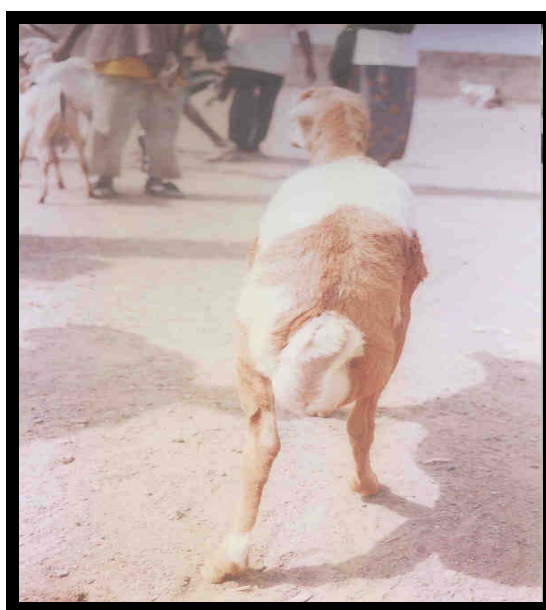
D = Castrated males, live weight below 25 kg

E = Castrated males, live weight more than 25

External Anatomy of sheep

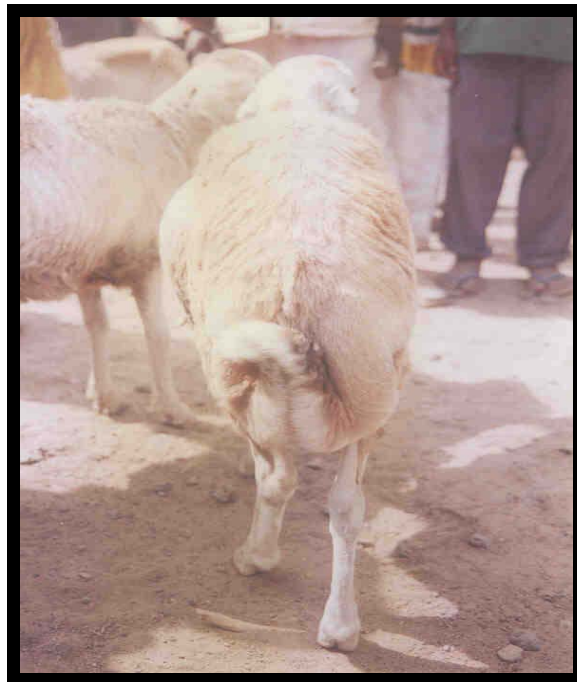


Grades	Profile	Description
1	Round Convex	Hind leg: very well developed, tail head level Loin: wide and very well developed up to the shoulder region backbone covered with meat and fat palpation) Shoulder: very well developed, blade bone can not been felt on pressing with fingers Ribs: well covered with meat and/or fat (palpation) Brisket: full and very well developed. Tail : well developed fat deposit

Grade 1 uncastrated sheep side view**Grade 1 uncastrated sheep rear view**

2	Straight	<p>Hind leg: moderately developed, tail head level</p> <p>Loin: moderately developed, bade bone can be detected on pressing with fingers.</p> <p>Shoulder: moderately developed, blade bone can be detected on pressing with fingers.</p> <p>Ribs: not visible, can be detected.</p> <p>Brisket: moderately developed</p> <p>Tail: moderately developed fat deposit</p>
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Grade 2 uncastrated sheep side view



Gade 2 uncastrated sheep rear view

4.2 Fat cover development

Fat grade	Description
I	Small fat development, some fat could be detected.
II	Moderate fat cover, Fat palpable at the flank and loin, visible at the brisket, and tail.
III	Well developed fat cover. Fat palpable at the flank, ribs and loin, visible at the brisket and tail.

5 Grading carcass of beef, sheep and goat

5.1 Beef

5.1.1 Determination of beef carcass

The body of a slaughtered animal cut along a symmetric line through the column vertebral, the sternum and the symphysis pubica)

5.1.1.1 Parts belonging to a Beef carcass

Body of a slaughtered animal without head, legs separated in the carpal and tarsal articulation respectively, without skin, without the udder from females, undeveloped udder from heifers remains with the carcass, without penis and testicles from males, without organs of the thoracic and abdominal cavity, without kidneys, without tail, without diaphragm, without spinal cord

5.1.2 Determination of Sex of the Carcass:

5.2.1 Male:

- a) Body conformation. Bulged front quarter. Well developed neck, (hump) and shoulder.
- b) Testicular cavities in the abdomen
- c) Remaining tissue of the penis at the symphysis pubica

5.1.2.2 Female:

- a) Body conformation. Front quarter moderately developed. Shoulder, neck (hump) less developed.
- b) Undeveloped udder of heifers remain with the carcass
- c) Udder from cows removed from the carcass. Connective tissue of abdomen easy to detect.

5.2 Beef Carcass:

5.2.1 Categories:

JB = not mature, not grown up male or female with a carcass weight below 70 kg. The cartilage of the skeleton shows no sign of ossification.

JM = Carcass of grown up bulls, where the cartilage on the spine (button) up to the four thoracic vertebrae shows no significant sign and from the fifth to ninth thoracic vertebra shows signs of ossification. Discs intervertebral of the sacral vertebra with signs of ossification.

M = Carcass of other grown up bulls

O = Carcass of castrated males*

JF = Carcass of females below two years, that did not give birth yet. (Observe udder development). The cartilage of the spine up to the first four thoracic vertebrae shows no significant sign of ossification and from the fifth to ninth thoracic vertebra show signs of ossification. Discs intervertebral of the sacral vertebra with signs of ossification.

F = Carcass of other females

only to verify if the animal has been castrated at an age below 8 months

5.2.2. Weighing of the carcass

1. Determine the sex of the carcass
2. Determine the age of the carcass (ossification)

3. Determine fat grade
4. Observe the carcass from the inside and the outside and from the small side with a view at the loin and the hind leg
5. Decide the grade of the carcass, following your findings and the established criteria
6. Mark the carcass with the corresponding data.

Example:

The carcass presented for grading fulfils the following criteria:

Carcass of female that has given birth, (udder is separated from the carcass, ossification advanced)

Carcass shows a poor muscle development

Carcass shows a no fat coverage

This carcass shall be marked: **CF 2, 4, I**

5.2.3 Beef:

Grade	Description	Additional information
1	All profiles convex with a very well muscle developed	Hind quarter: silverside (biceps femoris), rump (gluteus medius) and knuckle (quadriceps femoris) very well developed Loin : wide, very well developed up to the shoulder region Shoulder : very well bulged, scapula not visible Topside (m. semi membramosus) overlapping the aitchbone (symphysis pelvis)..

2	Profiles straight with a good muscle development	Hind quarter: all muscle well developed Loin : well developed, back bone not visible Shoulder : bulged, scapula not visible Top side (m. semi membramosus) well developed
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3	All profiles concave with a moderate muscle development	Hind quarter: muscle moderately developed visible Loin: moderately developed, back bone slightly visible Shoulder: moderate developed, scapula slightly visible Topside moderately developed
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5.4 Development of the fat cover

Fat Grade	Description	Additional Remarks
I	Small or no fat coverage	No fat could be seen in the thoracic cavity
II	Fat visible on the whole body, except on the hind leg and shoulder	The meat between the ribs in the thoracic cavity is still visible
III	Whole carcass covered with fat. Large fat deposit in the thoracic cavity	The hind leg and shoulder totally covered with fat.

5.5 Goat:

5.5.1 Parts belonging to a goat carcass:

Body of a slaughtered animal without head, legs separated in the carpal and tarsal articulation respectively, without skin, without the udder from females, without penis and testicles from males, without organs of the thoracic and abdominal cavity, without kidneys, without tail, without diaphragm, without spinal cord, the last 5 to 6 vertebra of the tail remain with the skin

5.5.2 Categories

GM1 Males with carcass weight below 8 kg

GM2 Males with carcass weight more than 8 kg

GF1 Females with carcass weight below 6 kg

GF2 Females with carcass weight more than 6 kg

5.6 Goat: Grades:

Grade	Description	Additional Information
1	All profiles convex, round, with a very well muscle development	<p>Hind leg: very well developed, especially silverside (biceps femoris) and round eye (semi tendenosus)</p> <p>Loin : very well developed up to the shoulder region, backbone not visible, well covered with meat.</p> <p>Shoulder: very well developed, blade bone not visible (scapula</p> <p>Rips : not visible, well covered with meat</p> <p>Brisket : full, well covered with meat and/or fat</p>

2	Profiles straight with a moderate muscle development	<p>Hind leg: all muscle well developed.</p> <p>Loin: well developed up to the shoulder region, backbone slightly visible</p> <p>Shoulder: well developed blade bone (scapula) slightly visible</p> <p>Rips: slightly visible, moderately coverage with meat</p> <p>Brisket: moderately developed,</p>
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5.7 Development of the fat cover:

Fat Grade	Description	Additional Remarks
1	Small or no fat coverage	No fat could be seen in the thoracic cavity
2	Fat visible on the whole body, except on the hind leg and shoulder. Moderate fat deposit in the tail and brisket.	The meat between the ribs in the thoracic cavity is still visible. Fat cords in the muscle divisions clearly visible.
3	Whole carcass covered with fat. Large fat deposit in the tail, brisket and the thoracic cavity.	The hind leg and shoulder totally covered with fat.

5.7 Sheep

5.7.1 Parts belonging to a Sheep Carcass:

(Body of a slaughtered animal without head, legs separated in the carpal and tarsal articulation respectively, without skin, without the udder from females, without penis and testicles from males, without organs of the thoracic and abdominal cavity, without kidneys, without tail, without diaphragm, without spinal cord)

5.7.2 Categories:

- 5.7.2.1 SM1 Males with carcass weight below 10 kg
 5.7.2.2 SM2 Males with carcass weight more than 10 kg
 5.7.2.3 SF1 Females with carcass weight below 8 kg
 5.7.2.4 SF2 Females with carcass weight more than 8 kg

5.7.3 Grades

Grade	Description	Additional Information
1 Mutton	All profiles convex, and round, with a very well muscle development	Hind leg: very well developed. Especially topside and rump. Loin : very well developed up to the shoulder region, backbone not visible, covered with meat and fat respectively. Shoulder: very well developed, scapula not visible Rips : not visible, well covered with meat and/or fat respectively Brisket : full, well covered with meat and/or fat

2 Mutton	Profiles straight with a moderate muscle development	Hind leg: well developed. Loin : well developed up to the shoulder region, backbone slightly visible Shoulder: well developed blade bone (scapula) slightly visible Rips : slightly visible, moderate coverage with meat, slight fat cover. Brisket : moderately developed, slight fat cover
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5.7.4 Development of the fat cover:

Fat Grade	Description	Additional Remarks
1	Small or no fat coverage	No fat could be seen in the thoracic cavity
2	Fat visible on the whole body, except on the hind leg and shoulder. Moderate fat deposit in the tail and brisket.	The meat between the ribs in the thoracic cavity is still visible. Fat cords in the muscle divisions clearly visible.
3	Whole carcass covered with fat. Large fat deposit in the tail, brisket and the thoracic cavity.	The hind leg and shoulder totally covered with fat.