Sustainable Agricultural Livelihood Restoration, Rehabilitation and Resilience in Kenya

Training Manual

2.4.9 SUB-MODULE 9: BODY WEIGHT AND BODY CONDITIONING SCORING

Many livestock farmers probably do not own livestock weighing scales which are relatively expensive. While disposing of animals, it is important to estimate the weight of the animal as this will determine the price. Weight may also be important during treatment for correct dosage and also amount of feed for supplementation depends on weight of the animal. Several methods have been developed to estimate weight of animals, the most common is the Dalton weight band which calibrates physical measurements into estimated weight directly and has an accuracy of up to 95%. Other methods have also been tried as detailed below

- Measure the circumference of the animal at the heart girth, as shown in "distance C" in the illustration.
- Measure the length of the animal's body, as shown in distance A-B in the illustration.
- Using the measurements from steps 1 and 2, calculate body weight using the formula;
- (Heart Girth2 X Body Length) ÷ 300 = Animal Weight in Pounds (Table 2.60). For example, if a beef cow has a heart girth equal to 70 inches and a body length equal to 78 inches, the calculation would be (70 x 70 x 78) ÷ 300 = 1,274 lbs (577 kgs)

Note 1 lbs = 2.2 kgs

Measuring a dairy heifer.

Measuring beef cattle.

Table 2.60. Estimation of live-weight of cattle using chest girth measurements					
53	23	103	98	152	280
55	25	104	103	154	290
57	27	106	106	156	301
59	29	108	112	158	313

Table 2.60. Estimation of live-weight of cattle using chest girth measurements					
61	31	110	118	160	325
63	33	112	124	162	353
65	35	114	130	164	366
67	37	116	137	166	378
69	39	118	143	168	392
71	41	120	150	170	406
73	43	122	158	172	420
75	45	124	166	174	435
77	47	126	174	176	451
79	49	128	182	178	467
81	51	130	190	180	483
83	55	132	198	182	500
85	59	134	206	184	516
87	63	136	214	186	534
89	67	138	222	188	552
91	71	140	230	190	570
93	75	142	240	192	590
95	79	144	248	194	610
97	83	146	256	196	631
99	87	148	264	198	653
101	92	150	272	200	675

Similarly, Weight Estimates for sheep and Goats have also been developed and are applied as those of cattle with linear measurements of the heart girth giving estimates of weight. The calibrated measurements are shown in Table 2.61.

Table 2.61. Body weight estimates for shoats as measured at heart girth	
Hearth girth (cm)	**Estimated body weight (kg)**
27	2
30	3
35	4
40	6
45	10
50	13
55	17
60	22
65	27
69	31
71	33

Table 2.61. Body weight estimates for shoats as measured at heart girth	
74 76 79	37 38 42
81	44
85 90 95	50 59 68
100 105 106	77 86 88

Weight Targets for Goats and Sheep

Generally accepted weight, growth rate and age targets are similar worldwide. However mature ewes can range from 50-100kg (average 60kg).

- Birth 3-4 kg
- Weaning (off milk) 16 kg (7-8 weeks)
- Mating 30-35 kg (7 months)
- Kidding 50-55 kg (12-15 months)
- Mature does average 60kg
- Mature bucks 80-100 kg

Body condition scores of livestock

Body condition scoring is a management tool designed to assess body reserves or fat accumulation of an animal. It is a great method for critically examining the nutritional status of the herd. Body condition scoring is a hands-on assessment that uses a numerical rating system based on the feel of the animal to assess body fat accumulation. The measure of body condition is based on a standardised set of visual criteria. A 9-point scale (1- 9) is used to categorize livestock from thin to obese (Figure 2.4). At times a 5-point scale (1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, and 5) is used. Both scales use identical criteria, but assign different numbers to the criteria.

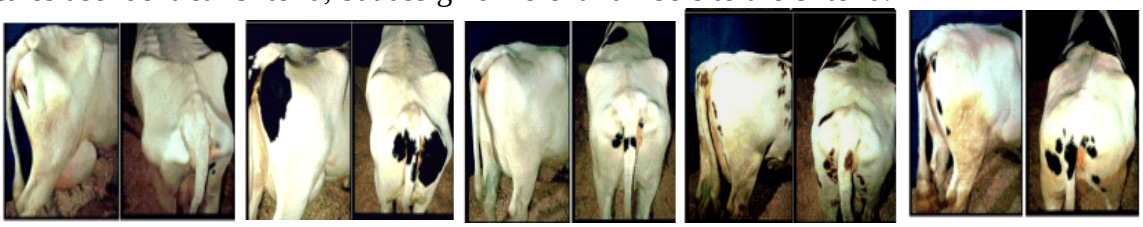

Figure 2.4: Categorization of livestock from thin to obese

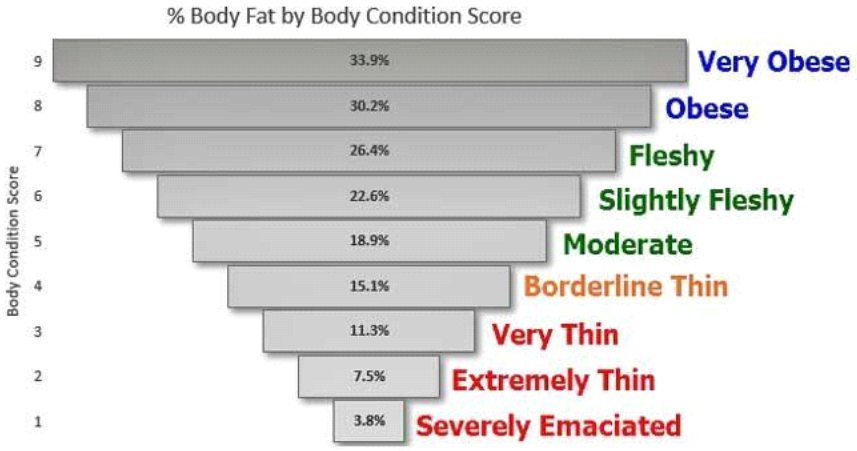

Figure 2.5: Cattle body condition scores vs. body fat (%)

The average weight difference between each of the different body condition scores is approximately 45 kg for a medium-framed cow. Thin animals score 1-3, moderate animals score 4-6 and fat animals score 7-9. The recommended score is moderate.

The animals are scored based on the protrusion of the hooks (tuber coxae) and the pins (tuber ischii) and the depression under the tail head (Figure 2.6)

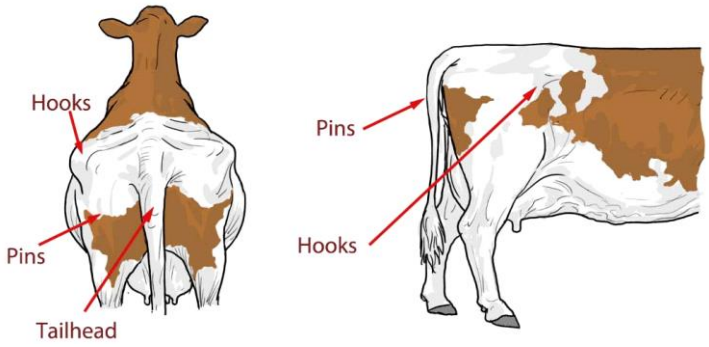

Figure 2.6: Hooks (tuber coxae) and Pins (tuber ischii) Protrusion in cow Illustrations

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Body Condition Score 1. Rump Area: Deep cavity around tail head. No fatty tissue felt between pins. Hooks are prominent. Pelvic bone easily felt. Skin is loose.

Body Condition Score 2. Rump Area: Shallow cavity lined with fatty tissue at tail head. Some fatty tissue fell under the pin bone. Pelvis easily felt. High-producing, early lactation cows should score 2.

Body Condition Score 3. Rump Area: No visible cavity around tail head. Fatty tissue is easily felt over the whole rump. Skin appears smooth. Pelvis is felt with slight pressure. Pins and hooks not prominent

Body Condition Score 4. Rump Area: Folds of fatty tissue are visible around the tail head. Patches of fat are present around the pin bones. Pelvis is felt only with firm pressure.

Body Condition Score 5. Rump Area: Tail head is buried in fatty tissue. Skin is distended. No part of the pelvis can be felt even with firm pressure. These cows can easily get the condition fat cow syndrome.

Desired Body Condition Scores of Cattle at Critical Times

Time of scoring	Desired score	Reasonable range
CowsbCalving	3.5	3.0-4.0
Peak Milk	2.0	3.0-4.0 1.5-2.0
Mid-lactation	2.5	2.0-2.5
Dry off	3.5	3.0-3.5

Condition Score Targets for Sheep and Goats

If farmers can accurately assess body condition, they can plan in order to achieve the desired body condition before kidding. This ensures that feed is used efficiently and that optimum production per doe is achieved. Some practical and economic factors will affect management but the underlying principle is that the higher the condition score at kidding, the greater the body reserves available for production in early lactation.

A doe in good condition (score 5-6) is more likely to get a kid than a doe in poor condition, and is more likely to have twins. She is more likely to have a quick birth, a healthy kid and good milk production. Improving one score in the score range 3-6 will give an extra 35 litres per doe over a lactation for dairy goats, and increase protein and fat levels by about 0.2% during the first five weeks of lactation. Improving a doe's or ewe condition score by one is equivalent to increasing her live weight by 6 kg.

Main indicators

- Short ribs: The projections sideways below the backbone
- Loin: The muscle area between ridge of backbone and short ribs

Base of tail: sometimes the tail may be raised especially pre and post kidding, giving a misleading impression of poor condition. The backbone on the rump may also be raised, an individual conformation factor not a condition score issue.

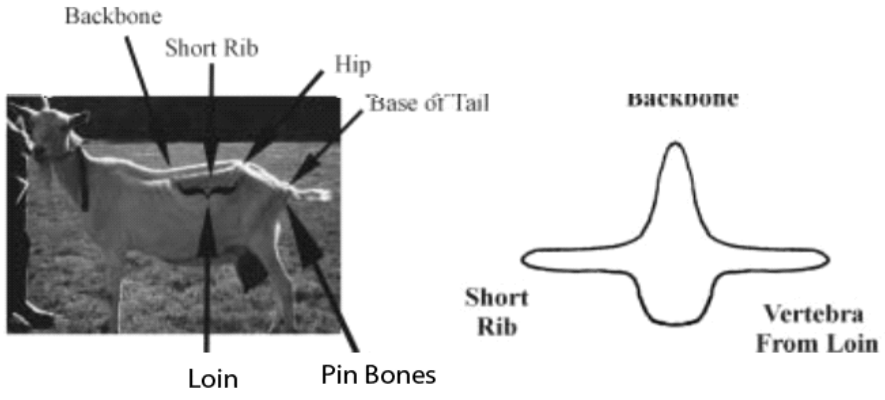

Figure 2.7: Body condition Indicators

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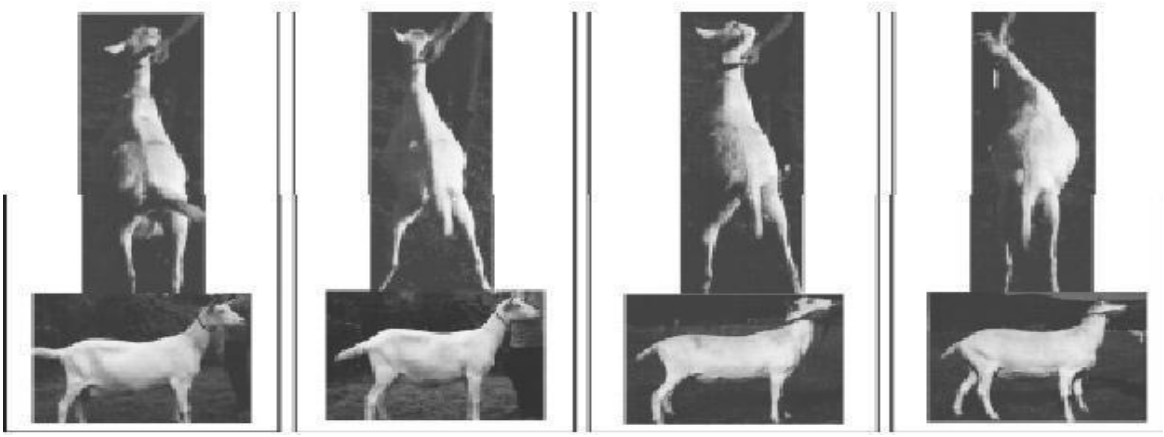
Goat and sheep body condition scoring



Score 1	Score 2	Score 3	Score 4
Minimal flesh over skeleton Backbone: A sharp prominent ridge, vertebrae clearly felt/ visible along its entire length. Short ribs: very sharp, fingers fit easily underneath	Ribs: easily felt / visible. Backbone: very prominent ridge. Short ribs: sharp, easily felt underneath. Loin: slight muscle, deeply concave. Hips: very prominent. Pins: prominent. Base of tail: deep hollows	Backbone: a prominent ridge. Short ribs: prominent, can feel under. Loin: moderately concave. Hips: prominent. Pins: slight cover. Base of tail: small hollows	Backbone: slight cover. Short ribs: smooth edges. Loin: slightly concave. Hips: slight cover. Pins: Light cover. Base of tail: slightly sunken

Figure 2.8: Illustrations of Body Conditions for Shoats

Score 5	Score 6	Score 7	Score 8
Short ribs: Light cover Loin: flat between 3 Points Hips: light cover Pin: rounded Base of tail: almost filled out.	Back bone: smooth cover. Short ribs: hard to feel. Loin: slightly rounded Pins: well rounded. Base of tail: filled out	Backbone: can only just be felt. Short ribs: hard to feel. Loin: well rounded. Rump: slightly rounded. Hips: well covered. Pins: well covered. Base of tail: some fat rolls across the rump above the tail.	Backbone: can only just be felt. Short ribs: can't be felt. Loin: very well rounded. Rump: rounded. Hips: not obvious. Pins: not obvious. Base of tail: fat roll across rump above tail.

Score Targets are based for Shoats

- Growing kids 5-6
- Joining 5-6
- Kidding 6
- Milking 3-5
- Bucks (mating start) 7

An average size doe/ewe will need to gain approximately 6 kg in order to increase one condition score.