Dressing Out Percent And Some Carcass Characteristic of EL Gash Sheep

Omer M. O. M¹, Ekhasil A.N² and Atif O.M.A³

Abstract

This study was conducted to evaluate dressing out percent and carcass characteristic potentials of EL Gash sheep, under their natural habitat in Kassala town abattoir, Thirty sheep 15 males and 15 females, were purchased form the different local market of El Gash Area. Each sex was comprised of five groups, according to the age studied. live animals body weights were be taken before and after slaughtering. The evaluation of dressing out percent carcass yield characteristic were be taken. The slaughter data results significant difference between the two sexes. The result indicated that dressing out percentage were 49.4% and 47.3% for the male and the female respectively with overall average of 48%. Slaughter at different ages showed significant differences in some parts of internal organs between the two sexes. Alive weight, muscle, bone, trims, head, skin, rumen full, intestine full intestine empty, liver, heart, lungs reproductive organs and spleen were heavier in male than the female it might be due to the sex male hormone, but mesenteric fat, omentum fat, kidney knob canal fat [k.k.c.f], and fat were heavier in female than the males while muscle, bone, fat, trims, head, mesenteric fat, omentum fat, spleen and knob canal fat (k.k.c.f)were significant.

Keywords
Dressing- percent- carcass -EL Gash sheep

Introduction

Dressing out percentage

The relationship between the live weight before slaughter and the weight of the carcass is important in many commercial situations. In breeding system dressing out percentage is linking between growth performance and carcass characteristics and is very sensitive to the conditions under which live weight are taken. The dressing out percentage is the amount of the live weight that will enter the cooler in the form of a carcass and should be calculated as: (hot carcass weight ÷ live weight) x 100 and were affected greatly by nutrition, age, breed, species and condition of weighing. The economic value of any breed of sheep as a meat animal is partly depended on weight of carcass at weighing. The economic value of any breed of sheep as a meat animal is partly depended on weight of carcass at weighing. The economic value of any breed of sheep as a meat animal is partly depended on weight of carcass at weighing. The economic value of any breed of sheep as a meat animal is partly depended on weight of carcass at weighing. The economic value of any breed of sheep as a meat animal is partly depended on weight of carcass at weighing. The economic value of any breed of sheep as a meat animal is partly depended on weight of carcass at weighing. The economic value of any breed of sheep as a meat animal is partly depended on weight of carcass at weighing. The economic value of any breed of sheep as a meat animal is partly depended on weight of carcass at weighing. The economic value of any breed of sheep as a meat animal is partly depended on weight of carcass at weighing.

Whole sale cuts

The consumer prefer lean portion above all other parts of carcass and it’s a great importance the producer must produce a carcass weight according to the desirable and preferences of consumer to reach the point of his aim with more satisfactory on this objective.

The lean means the edible meat with subcutaneous and intramuscular fat. Edible meat is divided into first quality and second quality. The desirable muscle which make first quality meat are situated in the proximal parts of the hind limb and the dorsal area posterior to the 5th rib in sheep and goats, and it includes the following leg and chump, loin and best end of neck.

Whole sale cuts

The percentage of prime first quality meat is not affected by carcass weight. As slaughter weight increase carcass lean decrease and sub-cuteness fat increase and there is no change in intramuscular fat. The relative growth of...
bone, muscle and fat were reversed under semi-striation. The depletion of fat was rapid and the degree of involvement of muscle and bone depended upon the severity and length of time in semi-starvation.\(^\text{10}\) reported carcass joints percentage for Ashugor and Watish as the follows:

- Leg and chump 24.73, 24.82, lion 10.68, 10.21. Best end of neck 7.7, 7.4 Breast 10.16, 10.4 Scrug 2.7, 2.84 weight of different joints for the Hammari sheep prototype as: leg and chump 4.69, single for quarter 4.72 kg, loin1.34 kg, Best end of neck 1.16 kg. Breast 0.80 kg and neck 1.22 kg.\(^\text{11}\).

### Muscle: Bone ratio

The ratio between total muscle and fat content of the carcass is used as a genetic and nutritional parameter for growth in different breeds, the fat deposit can be controlled environmentally [Wood et al., 1980]. The breed and carcass weight both of them effected on the percentage of lean and the lean: bone ratio were inflected more by carcass weight than breed.\(^\text{12}\)

Muscle: bone ratio increase with fatness, due to increase in intramuscular fat or reflection of the carcass weight The effect of nutrition on muscle: bone ratio has been studied by Callow Who found that no significant differences in muscle: bone ratios from four different planes of nutrition.\(^\text{13}\) Also reported similar finding. muscle relative to bone from a high plane of nutrition was greater than from moderate plane of feeding.

The growth performance and carcass characteristics of tow type of Sudan desert sheep on intensive feeding the result were that, lean: bone ratio was 2.96 for Ashugor and 2.98 for Watish.\(^\text{10}\)

The ratio of fat to lean meat is an important quality character. The best carcass should have an optimum level of fatness and minimum bone. For the international trade the low ratio of fat to lean is preferred.\(^\text{14}\) The ewe deposit fat at faster rate and had more carcass fat and slightly less muscle and bone at an equality adjusted carcass weight compared with same ram.\(^\text{14}\) When the sheep have a diet based on sorghum average total muscle was 57.9. bone 17.9, fat 18.1.\(^\text{15}\)

Total muscle of 55.2, total bone 17.5, total fat 20.4 and trim 4.8 percent. [Babker et al.,1988]. Total lean in sheep was 54, total bone 18, total fat 23.8, trims 4.2 trims percent. And muscle to bone ratio 3.1.\(^\text{16}\)

### Non Carcass Component

Non carcass component included skin, head, feet, lungs and trachea, liver and alimentary tract it had been designated that the un skinned head, skin and feet as the external offal’s. Tongue, lungs, skin, liver, kidney, spleen, gastrointestinal tract (empty weight) and blood a internal offal. The edible portion of the offal in all the components except the skin, weighted about 26 percent of the body.

The importance of non carcass component is the determination of the edible and saleable portion of sheep meat and depend on the acceptability of the consumption. The development of the non carcass components is affected by age, breed and nutrition.\(^\text{17}\)

The male desert sheep increased in EBW, body components also increased in weight but at different rate. In a lamb with 15 kg EBW the value of the body component percentage were head (unskinned) 10.7, skin 14, pluck 3.3, liver 2, tail 0.6, feet 5, Omental fat 0.47, intestine 6, stomach 5.3 and testicle 0.5.\(^\text{18}\).

### Muscle composition

The composition of meat contain of 75% of water, 19% of protein, 3.5 % of solvable non protein, 2.5% of lipid, in organic component such as phosphorus, potassium, sodium, magnesium and trace element comprise 0.65% of fresh muscle weight. Vitamin in quantities minute.\(^\text{19}\) The values of water 67% protein 11.8% fat 11.2 and ash 1.2%.\(^\text{16}\) Water 60.87, protein 22.29%, fat 7.09% and ash is 2.24.\(^\text{20}\) Reported values of water 48.32%, protein 14.99%, fat 32.78 and ash 0.8% in fattened of sheep while in un fattened animals will be as the following water were 62.08%, protein 20.93%, fat 15.99% and ash 1.00%. the feeding, age, species and sex had highly significant effects on moisture, protein and fat in meat. Although the effect was not significant on ash, young animals had more ash in meat than older, ash in fattened animals was lower than in un fattened.

### Material and method

#### Slaughter Data

Evaluation carcass yield, characteristic and composition were done at Kassala town abattoir. Thirty sheep comprised of 15 males and 15 females were purchased form the local market. Each sex comprised of five groups [three animals at different five ages] with milk or temporary incisors (young group) and four animals with 1, 2, 3, or 4 pairs of permanent incisor (adult group). Animals were slaughtered after an overnight fasting except for water. Live Body weight and slaughter weight were recorded at the time of slaughtering. Slaughter was performed locally, severing the jugular vessels, esophagus and trachea without stunning. The animals were bled and the head was removed at it is atlano-occipital articulation, and dressing was then completed by skinning, evisceration and disjoining on cannons to remove the feet. The dressed carcass was weighted to give hot carcass weight by weighing balance. The internal organs and offals were weighted. Empty body weight was calculated after the determination of gut fill as the difference between full and empty alimentary tract. Dressing percent was calculated on the basis of live weight and empty body mass. Non carcass components as livers, heart, head, skin, feet, lungs, trachea, esophagus, spleen stomach, intestine and male reproductive oranges were weighted separately.

#### Live Animal Weight

Animals were physically handled and accurate. Live weight and dead weight after skinning and removing internal organs by using balance weighing\(^\text{17}\).

#### Dressing out percent

The dressing out percentage can be calculated as: (hot carcass weight ÷ live weight) x 100
Data Collection
Data collection was based on direct weight of animals by weighing balance.

Statistical analysis
Data were analyzed by using SPSS version (13) analysis of variance compared by Duncans multiply range test computer program.

Result and Discussion

Table 1. Carcass Characteristic of El Gash Sheep Male and Female

| Component        | Male        | Female       | LS  |
|------------------|-------------|--------------|-----|
| Weight (kg)      | Male        | Female       |     |
| Live weight      | 2.20 ± 42.3 | 1.84 ± 40.9  | *   |
| Hot carcass      | 1.18 ± 20.6 | 0.98 ± 19.4  | **  |
| Dressing percentage | 0.53 ± 0.53 | 0.53 ± 0.53  | **  |
| Muscle           | 49.19       | 47.43        |     |
| Muscle percentage| 0.53 ± 0.53 | 0.26 ± 11.2  | **  |
| Bone             | 0.10 ± 4.20 | 0.09 ± 3.8   | **  |
| Fat              | 0.10 ± 2.2  | 0.11 ± 3.3   | *   |
| Trims            | 0.06 ± 1.42 | 0.03 ± 1.14  | **  |

The dressing out percentage of El Gash sheep
in table (1) represents 49.4% for the male and 47.3% for the female with overall average 48%. This result may be due to the nutritional effects since these animals depend on the natural grazing which is fluctuating with the environment the result is on line with M. Scott Smith 2010 who reported that the average dressing out percentages of the sheep were 50-53%, similar with 3. Who said that the average and range of dressing percentage of Lambs 49-52%, agreed with 4 who founded that the range of values of ram dressing out percentage from 44 - 58%,typical with 5. Was reported that lambs with a mean slaughter weight of 32.3 kg, yielded 15.9 kg, warm carcass with dressing percentage of 49.1 (on empty body weight EBW, basis)

Whole sale cuts
No significant differences were observed in the proportion of El Gash sheep in the leg and chump, single short fore quarter, Breast, loin, neck and the tail except best end of neck was significant, this might be due the slightly different in weight between sex. The leg and chump, loin and the tail heavier in the female than the male. While the single short fore quarter, Breast, Best end of neck and the neck were heavier in male than the female El Gash sheep, this might be due to the sex differences, as a male sex hormone favors’ the growth of the head, neck and shoulder.

Muscle percentage
No significant differences were observed in the proportion muscle of leg and chump, single short fore quarter Breast and Best end of neck in both sexes of El Gash sheep except the muscle of the loin, neck and the tail were significant. The significant differences might be to the weight and sex. The muscle of the leg and chump, loin and tail were heavier in female than male of El Gash sheep while the muscle of single short fore quarter Breast, Best end of neck and the neck were heavier in female than male of El Gash sheep the result is on line with M. Scott Smith 2010 who reported the natural grazing which is fluctuating with the environment due to the nutritional effects since these animals depend on the female with overall average 48% . This result may be due to the nutritional effects since these animals depend on the female with overall average 48% .

Table 2. Yield of whole sale cuts of Elgash sheep as percentage of whole carcass weight

| Items             | Male      | Female    | S-level |
|-------------------|-----------|-----------|---------|
| Leg and chump     | 31.38 0.25| 32.00 0.25| N.S     |
| Single short quarter | 27.61 0.41| 27.22 0.25| N.S     |
| Lion              | 12.46 0.50| 14.49 0.50| N.S     |
| Breast            | 7.0 0.14  | 6.67 0.14 | N.S     |
| Best end of       | 8.80 0.16 | 7.99 0.16 | *       |
| Neck              | 9.28 0.16 | 8.88 .16  | N.S     |
| Tail              | 2.11 0.09 | 2.19 0.09 | N.S     |

Bone percentage
Significant differences were observed in the proportion bone of the loin and neck in both sexes of El Gash sheep this might be due to weight ages and sex. And no significant differences were observed in the bone of leg and chump, single short for quarter, Breast Best end of neck and the tail in male sheep and El Gash female. In El Gash sheep bone of single short for quarter, Breast Best end of neck, tail and the neck were heavier in males than the females while the bone of leg and chump, and loin were heavier in females of El Gash sheep than males.

Muscle: bone: Ratio

Table 1 muscle, bone were ( 12.02 ± 0.53 ) ( 4.20 ± 0.10 ) The ratio were 2.9 and this agreed with 16. Who reported in loin: bone ratio about Ashugar and Watish, . was 2.96 and 2.98 The fat deposited in female El Gash sheep higher than the male, this agreed with 16 who observe the feeding, age, species and sex had highly significant effects on moisture, protein and fat in meat.

Table 4: The result indicated that the live weight, muscle, bone, trims, head, skin, rumen full, intestine full intestine empty, liver, heart, lungs reproductive organs and spleen were heavier in male than the female this might be due to the sex male hormone affected growth of tissues and organs while mesenteric fat, omentum fat, kidney knob canal fat, spleen and knob canal fat (k.k.c.f), and fat were heavier in female than the males while muscle, bone, fat, trims, head, mesenteric fat, omentum fat, spleen and knob canal fat (k.k.c.f) were significant.
### Table 4. Non carcass Characteristic of El Gash Sheep Male and Female

| Component          | Weight (kg) | LS  |
|--------------------|-------------|-----|
|                    | Male        | Female |   |
| Skin               | 0.14 ± 2.9  | 0.11 ± 2.8 | N.S  |
| Head               | 0.14 ± 2.8  | 0.11 ± 2.6 | **   |
| Rumen full         | 0.25 ± 6.4  | 5.9   |
| Rumen empty        | 0.04 ± 1.3  | 0.06 ± 1.3 | N.S  |
| Intestine full     | 0.28 ± 4.0  | 0.23 ± 3.7 | N.S  |
| Intestine empty    | 0.78 ± 1.9  | 0.13 ± 1.7 | N.S  |
| Reproductive organs| 0.04 ± 0.3  | 0.03 ± 0.3 | **   |
| Mesenteric fat     | 0.03 ± 0.55 | 0.04 ± 0.42 | ***  |
| Kidney knob fat    | 0.02 ± 0.04 | 0.03 ± 0.03 | **   |
| Spleen             | 0.27 ± 0.38 | 0.01 ± 0.17 | *    |
| Liver              | 0.05 ± 0.5  | 0.05 ± 0.5 | N.S  |
| Heart              | 0.08 ± 0.2  | 0.01 ± 0.1 | N.S  |
| Lungs              | 0.08 ± 1.2  | 0.08 ± 1.1 | N.S  |
| Kidney             | 0.02 ± 0.1  | 0.02 ± 0.1 | N.S  |
| Feet               | 0.06 ± 1.2  | 0.66 ± 1.2 | N.S  |

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