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## Specification of meat and fate in animals

### Carcass composition

A carcass is made up of various proportions of muscle, bone and fat. The ideal carcass can be described as one that has a minimum amount of bone, a maximum amount of muscle and an optimum amount of fat.

Market requirements differ in size of carcass and level of fatness acceptable. A certain proportion of fat is desirable to reduce drying out of the carcass. On the other hand, too much fat is undesirable.

**Muscle:** Water makes up 74% of the total muscle weight. The remainder of the muscle is protein, lipid, minerals and some vitamins.

**Bone:** Bone provides the rigid support to which the muscles are attached. The strength needed to support the weight of the animal.

**Fat:** Fat is basically a food or energy reserve for the animal and is laid down in special cells in various sites of the body

### Major factors affecting carcass composition

**Weight:** Carcass weight is a main factor affecting the composition of the carcass and is closely related to age at slaughter. As animals mature, they normally gain weight resulting in a heavier carcass. Much of the weight gain of a mature animal is fat rather than muscle. Thus, at heavier live weight, an animal's carcass will have lower proportions of muscle and bone and a higher proportion of fat.

**Age:** Increases in age, independent of changes in weight, tend to have little influence on the carcass composition of sheep. Normally, as animals age they gain weight that is largely made up of fat. It is this increase in weight that results in an increase in fatness.

**Sex:** At all weights, females tend to be fatter than ram lambs under similar management.

**Breed:** Some breeds mature earlier than others .

**Conformation:** The conformation of a carcass refers to its shape. Carcasses that are short in the leg and plump or 'blocky' in appearance are said to have 'good' conformation. Carcasses with a longer 'leggy' appearance are said to be of 'poor' conformation. Carcasses having good conformation generally contain more fat and less protein than those of poor conformation

**Nutrition:** The effect of nutrition on carcass composition is not a simple one as it involves the interactions among level of intake, the composition of the feed, and nutrient needs of the animal.

### **Meat colouring**

The red pigment that provides the characteristic colour of meat is called **myoglobin**. Similar to the blood pigment **haemoglobin** it transports oxygen in the tissues of the live animal. Specifically, the myoglobin is the oxygen reserve for the muscle cells or muscle fibres. Oxygen is needed for the biochemical process that causes muscle contraction in the live animal. The greater the myoglobin concentration, the more intense the colour of the muscle. This difference in myoglobin concentration is the reason why there is often one muscle group lighter or darker than another in the same carcass



reagent and disappearance after heating a water bath at  $80^{\circ}\text{C}$  indicate significance strong horse meat.

Another way to distinguish fat is a measure of the value or number iodine number, which is expressed in the amount of gm. that can combine with unsaturated fatty acids present in 100 grams of fat.

### **Biological tests to determine the type of meat**

Used in this field sedimentation test and complement fixation test and these tests are easy to performance and accuracy of the results for that use spread lately and these tests are not used in cooked meat sedimentation test deposition to differentiate between the meat of animals that different in species such as cattle, horses and sheep while the test is used haemagglutination test to differentiate between the type in same species such as goats and sheep

## Diffrentation Of Meat

- 1-cow: Red Cherry, increasing severity with age.
- 2-sheep: red light pink to be lighter in the small lambs.
- 3-calves: pale crimson red diagonal gray, and white when feeding only on milk.
- 4-Horse: dark red
- 5-Buffalo: dark red
- 6-goat: the color red and purple become <sup>ساح</sup>bleak when in contact with air, and is characterized by hair on the body surface of the carcass.

## Chemical methods to distinguish the meat and fat of animal

In addition to knowing anatomy differences for members of the sacrificial In some cases where the meat is a clip definitely small or meat that requires judgment on commercial fraud <sup>قرزوع</sup> follow chemical and biological methods to identify the type and source of the meat is the most important of these methods is to estimate the proportion of glycogen in muscle and in this regard the horse meat as well as meat fetal liver types contain high amounts of glycogen and must be taken into account that the amount of glycogen in gradually less meat after slaughter .

### For estimate the amount of glycogen in the meat:

Added 50 grams of shredded meat sample to 200 cm of water and then boil for 15-30 minutes some of the liquid taken after cooling in a test tube and in addition to the drop of a solution like (1 part iodine +4 part potassium iodide +95 part water).

### Result:

If the purple it color indicates that the amount glycogen few thus, the sample is not the meat of horses, if the color of dark brown as at the confluence of the liquid

