Bleeding

To prevent the risk of recovery, animals must be bled as soon as possible after stunning. Bleeding involves severing the carotid arteries and jugular veins, or the blood vessels from which they arise. The animal then dies from loss of blood. It is important that all major blood vessels are severed. If only one carotid artery is cut the animal may take over a minute to die. the average amount of blood obtained in cattle slaughter being (13-15kg) while the calves being (3kg) but in sheep about (2kg) , the average of time bleeding in cow about (5 minutes) while in sheep about (3minutes).

Cattle and horses

Bleeding should be carried out by an incision made with a sharp knife in the jugular furrow at the base of the neck, the knife being directed towards the entrance of the chest to sever all the major blood vessels arising from the heart (Figure 1). In the interest of good hygiene two knives should be used, the first to open the skin and the second to sever the blood vessels.

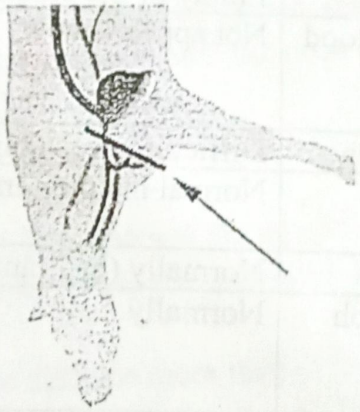

Figure 1: Bleeding cattle

Sheep and Goats

Bleeding may be carried out in a similar way as for cattle (Figure 2-1) or by an incision made close to the head using a blade at least 120mm long to sever both carotid arteries and both jugular veins, i.e. a cut across the throat (Figure 2-2)

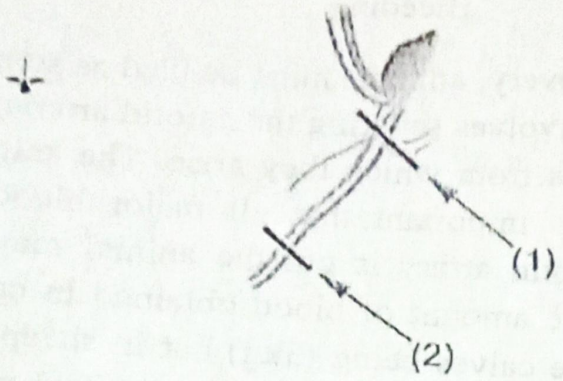

Figure 2: Bleeding sheep

Methods detection of bleeding quality

1- slaughter inspection:- depending on visceral and carcass inspection

2- laboratory examination:- depending on physical and chemical test

1- slaughter house inspection

	Organ	Well bleeding	ill bleeding
1	Left ventricles	Empty of the blood	Filled with blood
2	Subcutaneous blood vessels	Not appearance	Congested with blood and dark in color
3	Intercostals veins	Difficult in recognize	Filled with blood
4	Internal viscera	Normal in color and shape	Congested and watery
5	Meat	Normally (brilliant red)	Dark in color
6	Prescapilar lymph node	Normally	Mixed with blood but not enlargement

2- laboratory examination:- physical test and chemical test

a- physical test:

1. hemoglobin extraction test
2. blotting paper test
3. compressoric method

1. hemoglobin extraction test:

Putting (10) ml from distilled water into (5) gm of chopped meat in test tube and well mixed about (10) minutes

Result:

- In well bleeding: the color of water change to pink.
- In ill bleeding: the color of solution is dark red.

2. blotting test:

Putting piece of muscle on rectangle piece of filter paper, after (2) minutes notice the region that rise the fluid from the surface of muscle

Results:

- In well bleeding: notice light pink color formed on filter paper
- In ill bleeding: notice dark red or brilliant red color formed on filter paper

3. compressoric method:

Using a small piece of meat on filter paper and putting between two slides and compress on it in order to exit the juice and absorption by filter paper

Result:

- In well bleeding: the distance between piece and absorption of juice on filter paper is (1) cm and pink in color and circular in shape
- In ill bleeding: the distance more than (1) cm and irregular in edges and dark red in color

B- chemical test:

1. acid malachite green test
2. pseudoperoxidase test
3. reder's test

1. acid malachite green test:

Prepare meat extract by putting a small amount of meat (6) gm in (14) ml of distilled water for (15) minutes, after that put in test tube (0.7 ml of meat extract + one drop of acid malachite green + one drop of H_2O_2(3%)), shake the tube in order to form foam on the fluid surface, the tube is allowed to stand for (20) minutes for the development of color.

Result:

Degree	Appearance	Color	Judgment
1	Clear	Blue	Well bleeding
2	Turbid	Green	Moderate
3	Turbid	Yellowish green	ill bleeding

2. pseudoperoxidase test:

Take small amount of meat and saturated alcoholic guaiacum (1%) and putting two drop of H_2O_2(2%) and recognize the color

Result:

- In well bleeding: appear a slight tape with blue color around the meat.
- In ill bleeding: form dark blue color around the meat and the fluid is convert to dark blue

3. reder's test:

About (3) gm of chopped meat are put into test tube and 5 ml of Reder reagent are poured, reder reagent consist of (0.1 ml of lefler methylenum blue + 40 ml of distilled water + 0.05 ml saturated spirituous solution of fuxin, diluted with water for 10 times) The content of test tube is shacked and after 5 min reaction is inspected.

Result:

Degree	Appearance	Color	Judgment
1	Clear	Blue	Well bleeding
2	Clear	Green	Moderate
3	Turbid	Dark green	ill bleeding