


MEAT INSPECTION (PARA – 404) - PART I

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Meat Inspection

Definition:- It is a professional examination of meat and meat products for its fitness for human consumption.

- Meat inspection is mandatory when meat is slaughtered and processed for sale.
- Meat inspection includes;
 - a) Review of plan for slaughtering
 - b) Construction of slaughtering house
 - c) Collection
 - d) Laws for gentle slaughtering
 - e) Storage and sale
 - f) Provision of disease-free and wholesome meat to the consumer.

Terminology

Meat:

Flesh of any animal which is used for food.

Wholesome meat:

Meat free from diseases, having good color & palatable taste is known as wholesome meat

Pork:

Meat of pig

Beef:

Meat of large ruminants i.e. cattle, buffalo, camel

Mutton:

Meat of small ruminants i.e. sheep, goat

Red Meat:

Meat obtained from large and small ruminants.

White Meat:

Meat of poultry and fish is known as white meat.

Objectives of Meat Inspection

Following are the prime objectives of meat inspection;

- i) Chief purpose of meat inspection is to protect the man from danger to which he would be exposed by eating meat.
- ii) To prevent the diseased and unwholesome meat for sale

If meat is unwholesome, food/meat poisoning may result from some microorganisms such as;

- a) E.coli
 - b) Staphylococcus spp.
 - c) Salmonella enteritides
 - d) Clostridium botulism
- iii) To prevent some parasitic diseases by interrupting life cycles of such parasites.
It is done by;
- a) Excluding the dogs from the slaughter house.
 - b) Destroying the heads of the hydatid cysts.
 - c) By interrupting life cycle of trichinella spiralis
- iv) To enforce the use of humane methods of slaughtering of food animals
- v) To ensure the supply and provision of wholesome meat.
- vi) To seal or condemn the contaminated, emaciated and repulsive and unwholesome meat.
- vii) To prevent the substitution of meat i.e. to serve fetal calf for marketable cow.
- viii) To check the proper feeding and watering of animals awaiting slaughtering.
- ix) To prevent the slaughtering of fatigued animals.

Elements of Meat Inspection

1) Sanitation:

Every part of meat production premises must be inspected for sanitation; i.e. Livestock pen, sewage, equipments used etc.

2) Antemortem Inspection:

Objectives of antemortem inspection;

- a) To ensure that animals awaiting for slaughtering are properly rested.
- b) To reduce the contamination by separating the dirty and diseased animals from the healthy animals.
- c) To identify the sick animals and those treated with antibiotics.

Antemortem inspection includes to assess;

- Respiration of the animal, whether it is normal or abnormal
- Behavior of the animal, normal walking or walking in circle.
- Gait and posture of the animal, normal or abnormal
- Structural and conformational abnormalities, there may be any abscess, bloat formation, injury or lumpy jaw
- Discharge from the natural body orifices i.e. ocular and nasal discharge
- Fecal material for its consistency etc.

3) Postmortem Inspection:

Carcass and different organs such as liver, lungs, heart, kidneys spleen and lymph nodes must be inspected for any disease

It is the duty of meat inspector to destroy the meat unfit for human health and to prevent the use of harmful preservatives in the processing and manufacturing of different meat products.

4) Products Inspection:

Each step of the meat processing and manufacturing of meat products must be inspected. Meat products such as sausage, canned meat and cured meat are commercially available in the market.

- 5) **Lab Inspection:**
Analyze the ingredients used in the meat products and check the drug residues in the meat.
- 6) **Labeling and Marketing:**
Label of the processed meat and meat products must contain following informations;
 - a) Name of the product
 - b) Address of the manufacturer
 - c) List of the ingredients used

Transportation of Food Animals

Purpose:

- a) Slaughtering of animals
- b) Marketing of animals
- c) Change of ownership
- d) Restocking from draught are to better grazing area

Methods of Transportation

Following are some methods of transportation used for animals.

(1) Driving on foot / Trekking on hoof

It is a conventional method adopted for short distance.

It is a slow method of animal transportation.

It is used where rail or road infrastructure is not available.

In this method of transportation, animal shows no physical strain (stress).

Max. distance traveled in a day by:

- Large animals (i.e. Cattle) : 30 km - Small animals : 24 km

(2) Road Transport

Special built trucks or double deck truck are used for this mean of transportation.

Overloading and tying of legs is not allowed.

In a truck, Floor area required;

Spp.	Floor area (m ²)
Mature cattle	1 – 1.4
Small calves	0.3
Sheep/Goat	0.4

(3) Rail Transport

Special carriage wagons are used for such purpose build with feeding and watering system and have proper ventilation system.

This mode of transportation is used for covering long distances.

(4) Sea Transport

This mode of transportation is used for overseas shifting and moving of animals.

Specially built “ship vessels” are used for this purpose.

(5) Air Transport

It may not be applicable due to huge animal size and cost of journey.

Precautions of Pre-loading

- i) Premixing of animals: Keep the animals together so they get familiarity to each other as familiar animals can move better than the strangers.
- ii) Feeding and watering of the animals before transportation must be proper.
- iii) Do not mix the horned and hornless animal. If they are mixed, they may fight and produce bruises on their bodies and sever injury or fracture may result.
- iv) Feet of the animals should never tie.
- v) Diseases / pregnant or injured animals should not be transported.

Rest after transportation before slaughtering is very necessary. It must be as much as 48 hours. If this period of rest is not provided to the animal, the keeping quality of the meat is reduced. Because incomplete development of acidity in the muscles results into early invasion of putrifying microbes in the GIT.

Tired animals don't bled well and show incomplete bleeding, whereas complete bleeding is very much necessary for keeping quality of the meat.

Tired and fatigued animals absorb some microorganisms like E.coli via mucus membrane of the intestines into the blood circulation, which later on distributed to the body tissues. In this way, they lower the keeping quality of the meat.

Such meat is not satisfactorily for canning, salting and sausage making.

Meat of tired and fatigued animal appears dark and fiery. It gives impression that bleeding is incomplete. This darkening of the meat is due to;

- a) Chemical changes in the fatigued muscles
- b) Decreased oxygenation of blood hemoglobin. Due to which myoglobin turned muscles dark.

Fasting before Slaughtering

Animal should be kept on fasting for minimum period of 12 hours before slaughtering.

It reduces the chances of invasion of microbes from intestine to the blood circulation.

Animal must be supplied with ample supply of drinking water during the fasting period. It will ultimately, helps to lower the bacterial load in the intestine and also very much helpful for early removal of the hide during the carcass dressing.

Effects of Transportation

- i) Long journey produces hazards on the quality of the meat of the animals as animal may get bruises, injuries and fractures due to overloading or other reason.
- ii) Fatigued animals do not bled well and there can be seen incomplete bleeding.
- iii) There may be some suffocation due to lack of ventilation or overcrowding and undue stress on the animals.
- iv) Animals may become dehydrated, if they are traveled on a long journey without provision of drinking water. It may also result into weight loss and sever dehydration and ultimately death of the animal.
- v) Bloat may develop if feet of the animals are tied.
- vi) Animals may get poisoning if they are transported by first method i.e. trekking on foot because they may graze on different poisonous plants found in their way.