

MEAT INSPECTION AND JUDGEMENT

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The fully integrated production systems in quality Assured Meat Schemes resources proper and systematic meat inspection producers. The total meat inspection comprises of antimortem inspection of the animals awaiting slaughter, post-mortem inspection of carcass, viscera head and re-inspection.

Antemortem inspection (AMI) is the first line of defense in the wholesome meat production. The health of the animals intended for slaughter is of primary importance. Inspection pens in the lairage should be sufficiently large with ample natural/artificial light to enable proper inspection and to detect any abnormalities. All animals should be inspected on the day of arrival in the abattoir, on the unloading ramp itself. Then daily inspection and repeated on the day of slaughter.

AMI has 3 main areas of concern in quality assured Meat Schemes.

Public Health

Animal Health

Animal Welfare

1. For P. H. purpose the veterinarian must separate normal animals from those suffering from a potentially zoonotic disease or which present a hygienic risk to the slaughter hall environment owing to their filthy state. Animals which may contain residues must be detained for testing post-mortem.
2. Animal health aspect requires the veterinarian to identify notifiable diseases, since, may such diseases (FMD, SF) will first be recognised at an abattoir.
3. The AMI procedures allows the veterinarian to assess the welfare of animals throughout the transportation, slaughter & dressing.

Procedure : Animals should be inspected in rest and in motion when they are not exited. Those showing any signs of ill health should be segregated for a detailed examination. Attention should be paid to the posture/gait, condition of the animal, manner of walking, level of nutrition, reaction to the environment, condition of hide/skin, external genitalia, mammary gland, respiratory system (for nasal discharge, blood tinged froth, quality of respiration, coughing etc.) digestive system for salivation, rumination, consistency and odour of faeces, injuries, swelling or oedema, symptoms of any diseases which may suggest that such disease is developing body temperature (in suspected or obviously diseased animals), blood smear (in cases in which a disease is suspected which could be diagnosed by examining the blood) and cleanliness of animals.

Judgment : (1) Normal or apparently healthy animals are sent for slaughter (2) systematically affected/generalized infectious where treatment is impracticable tagged "condemned". condemned animals are transferred to the carcass rendering department for disposal without entering/passing through the edible products section (3) Animals with localized infection or a condition which might respond to treatment are classed as "suspects"- They are isolated in an isolation block. These animals are subjected to a detailed examination. Suspects are slaughtered separately after the slaughtering of health animals. They should undergo a detailed post-mortem inspection. A. M. I. card with findings should be available while conducting post-mortem inspection.

Abnormalities encountered during antemortem inspection :

Cattle : Actinomycosis, Actinobacillosis, Emaciation, Black quarter, Tumours, Tuberculosis, Ring worm, Mange, Mastitis, Transit fever, Foot and Mouth Disease, Rabies, Anthrax, Tetanus, Septic metritis, Toxicity.

Calves : Immaturity, infected navels with joint enlargement, calf diphtheria, ring worm white scour, cow pox.

Sheep & Goat : Tetanus, Emaciation, Sheep scab, Foot and Mouth Disease, Caseous lymphadenitis, Pneumonia, Gid.

Pig : Swine fever, Swine erysipelas, Foot and Mouth disease, Rabies, actinomycosis of udder, Tumour, Hog cholera. Stags and boars are separated from regular kill for examination of sexual odour.

Animals met with accidents/injuries and other animals for emergency slaughter should be accompanied by veterinary certificate, indicating their disease status, particulars of treatment given (especially with antibiotics) as well as a statement that they are not suffering from a disease likely to infect other animals or cause danger to human health. Those with injury should be bled immediately and eviscerated within one hour.

The A. M. I. is important because

1. Certain diseases/affections can only be recognised in the AMI, but are undetectable in post-mortem inspection. These diseases may have direct public health significance. Eg. Rabies, Listeriosis, Tetanus, heavy metal/drug toxicity, Meningitis.
2. A. M. I. report will be useful in making a sound post-mortem judgment.
3. Removal of diseased animals by A. M. I. will prevent contamination of the abattoir and will prevent persons getting infected.

Some of the common diseases encountered during AMI and its significance .

Disease	Antemortem		Significance	
	U	P	-	-
Listeriosis	U	P	S	-
Forage poisoning	U	-	-	D
Anthrax	CU	-	S	-
White scour in calves	U	-	-	-
Rabies	U	-	-	-
Pseudo rabies	U	-	-	-
Scrapie	U	-	-	D
Tetanus	U	-	-	D
Black quarter	CU	-	S	-
Swine erysipelas	U	-	S	-
Vesicular exanthema	U	-	S	-
Vesicular stomatitis	U	P	S	-
Pasturient paresis	U	P	S	-
Grass tetany	U	-	S	-
Epithelioma of eye	CU	-	S	-
Actinomycosis	CU	-	S	-
Actinobacillosis	U	P	S	-
Shipping fever	U	-	-	-
Ergotism	U	-	S	-
Cutaneous streptothricosis	U	-	-	-
Chlorinated hydrocarbon poisoning	U	-	-	-
Organophosphorous poisoning	U	-	-	-

U - Unit for slaughter
 CU - Conditionally unfit, if slaughtered treat as 'suspected'
 D - Destroy and dispose

S - Suspect
 P - Postpone slaughter

- Detection of contagious diseases in A. M. I. will help to locate the origin of the affected animals which will be of help for effective animal disease control programmes.
- Symptoms in the live animals will give a hint to the possibility of residues in meat. Eg. Drug/pesticide misuse or poisoning.

While conducting antemortem inspection care should be taken to recognize cold slaughtered animals.

Post-mortem inspection & judgment

The official Veterinarian must always bear in mind that he/she alone is responsible ultimately to the consumer for the certification as to the safety of the meat leaving the plant. The authority which lies with the Official Veterinarian to stop slaughter & dressing operations on ground of lack of hygiene, defective dressing techniques or inadequate inspection must be exercised fearlessly when required.

It is essential that live animal identification be retained on the carcass & organs until it passes the meat plant. For the days kill or batches a slaughter programmer will have been completed giving details of stock, their class, name & address of owner, lot and batch of slaughter. Sequence are made available to

appropriate persons including the meat inspector, a live animal tag is not actually retained on the carcass/organs because of hygiene concerns, it is important to have a reliable system of substituting dead or live identifications so that details of procedure, ownership, carcass weight, disease information are maintained.

That techniques of post-mortem examination is modified from country to country according to facility and diseases present. Inspection should be carried out under good lighting and examination should be performed as soon as possible after slaughtering. All parts of animal, including blood must be submitted to inspection. This means that no part of the animal must be removed before inspection. All part of the animal including organs and hide should be identifiable with the carcass. Post-mortem examination should be carried out in a methodical manner without making unnecessary damage to carcass and organs and should be carried out as soon as possible after carcass dressing is completed. Beef and pork carcasses rapidly and if inspection is delayed particularly in cold weather the examination of the carcass is more difficult.

Decisions made at antemortem inspection should be communicated to those responsible for post-mortem inspection.

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together with all relevant details of animals involved especially details of those subjected to casualty slaughter.

The main purpose of post-mortem examination is to detect and eliminate abnormalities including contamination thus ensuring that only meat 'fit for consumption' is passed for food. Important subsidiary aspect of this inspection are checking the efficiency of slaughter and carcass dressing technique and the diagnosis of disease conditions for disease control purposes.

Routine post-mortem inspection of head and lymph node, viscera and its lymph node and carcass and its lymph node must be carried out with care in a hygienic manner and avoiding unnecessary cuts. It determine the character and extent conditions (the former being less important) and between acute, subacute, and chronic conditions. An acute active spreading lesion is regarded very critically but a healing one less so. The general disposition of the carcass, its organs state of nutrition any antemortem report and the results of any necessary laboratory test are all taken into consideration in making a final judgment.

Responsibility to the consumer must be upper most in the inspectors mind. At the same time there must be no unnecessary wasting of a valuable meat.

In addition to visual examination post-mortem inspection involves palpation of tissues and organs, incisions where necessary use of inspector's sense of smell and if indicated laboratory tests. It should be carried out in a systematic and hygienic manner, care being taken to avoid contamination, especially of a septic nature. Incision should be made in such away as to show a clear undissorted surface. A knife contaminated in any way must be discarded for sterilization and a clean knife is used. Careless incision can cause wide spread contamination of a carcass requiring unnecessary trimming or even total condemnation.

Prior to completion of inspection, no serous membrane, no evidence of disease no mark of identification or any other part shall be modified or be removed from the carcass.

Before the days slaughter commences the inspector must ensure that the premises, equipment and facilities are hygienic and in good working order and that meat operatives are properly clothed and adequate in number. Slaughter should not be allowed to commence until a satisfactory situation is obtained. When any undesirable situation arise during the course of the days work, slaughter should be suspended until it is rectified to the satisfaction of the inspector.

Head :

Incision of external and internal masseters (for cysticercus bovis) should be made parallel with lower jaw - retropharyngeal, submaxillary and parotid lymphnode to be examined. Tongue to be palpated : (Foot and mouth disease, necrotic and other form of stomatitis, actinomycosis, actinobacillosis. (Where an efficient antemortem inspection is performed which ensures that

animals presented for slaughter are apparently normal and where the incidence of tuberculosis is low, detailed examination of all visceral lymph nodes is not justified.)

Lungs :

Bronchial and mediastinal lymph nodes should be incised and the lung substances should be exposed by a long deep incision from base to apex of each lung if needed (Pleurisy, pneumonia, tuberculosis, hydatid cyst).

Heart :

Heart ventricles and auricles are incised from base to apex (pericarditis - haemorrhages Parasitic cysts - Linguatulae).

Liver :

Portal lymph node and large bile duct should be incised. When it is necessary for diagnosis incise bile ducts and liver substance - (Fatty change, actinobacillosis - abscess, telangiectasis hydatid cyst, Cb, fasciolosis linguatula, larval stage of C. radiatum).

Oesophagus, stomach and intestine :

Serous surface may show tuberculosis or actinobacillosis. Anterior aspect of reticulum examined for evidence of penetration by foreign body, mesenteric lymph node for T. B.

Kidney : Kidney and its lymphnode

Spleen : T. B., hematoma, infarcts.

Uterus : Evidence of pregnancy or of recent partition, in well bled and well set carcass it is not significant. In brucellosis reactors or suspects the uterus should not be incised or handled.

Udders

Carefully examined by multiple deep incisions about 5 cm apart (abscess, septic mastitis, T. B.) Supramammary lymphnode to be examined.

Carcass - Prescapular, prefemoral, external and internal iliac popliteal and renal lymphnodes are examined.

Sheep & Goat

Require less detailed inspection than cattle and pigs - Carcass to be examined for satisfactory bleeding, lungs and liver for parasitic infections.

Pigs :

Same overall routine as for cattle. Skin lesions are an important diagnostic features of swine erysipelas and swine fever.

Decision at post-mortem inspection :

Categories of judgment and judgment symbols used:

1. Approved for human consumption -A
2. Totally condemned for human consumption -T
3. Partially condemned for human consumption -D
4. Conditionally approved for human consumption -K

5. Inferior meat -I
 6. Approved for human consumption with distribution restricted to limited area -L

I. Approved for human consumption :

Criteria :

- (1) No evidence of any significant abnormal condition or disease.
- (2) Slaughter operation has been implemented in accordance with hygienic requirement.

II. Totally condemned :

- 1) They are hazardous to food handlers, consumers and or livestock.
- 2) They contain residues which exceed the established limit.
- 3) There are severe organoleptic deviation from normal meat.
- 4) The meat has been conditionally approved for human consumption but it has not been treated as stipulated within the indicated period of time.

III. Partially condemned :

Defects resulting from disease or other abnormalities are

localized, affect only part of the carcass or offals - The affected parts are condemned while the remaining part approved for consumption (unrestricted/restricted as appropriate).

IV. Conditionally condemned :

Carcasses that are hygienically unsatisfactory or hazardous to man or animal health but may be treated under official supervision in a manner resulting in safe meat.

V. Inferior meat :

Meat is safe from hygienic point of view. But shows characteristics that deviate from generally accepted standard may be approved for consumption on condition that the consumer is made aware that it is inferior - (type of abnormal divination eg. Abnormal colour test, insufficient bleeding) - alternate judgment is condemnation.

VI. Approved for human consumption with distribution restricted to limited areas. Meat obtained from animals coming from the areas kept under quarantine because of an out break of contagious animal disease - (national animal health legislation).

MPI NEWS

Meat products of India Ltd. engaged in the field of Meat Processing undertake the supply of young rabbit kits and piglings to farmers and buy back when grown (under the buy back scheme).

Pigs.

Piglings selling Price (10kg. Livebody weight) - Rs. 1250/per pigling at 45 days age.

Purchase Price of pigs:

- | | |
|-----------------------|--------------------------------------|
| 1. Below 45 kg. | - Rs. 25/- per kg. live body weight. |
| 2. 46 kg. to 60 kg. | - Rs. 30/- per kg. live body weight. |
| 3. 61 kg. to 120 kg. | - Rs. 34/- per kg. live body weight. |
| 4. 121 kg. to 160 kg. | - Rs. 30/- per kg. live body weight. |
| 5. 161 kg. above | - Rs. 25/- per kg. live body weight. |

Rabbit:

- | | |
|------------------------------------|--------------------------------------|
| Rabbit kits selling price | - Rs. 135/- per kit - 45 days age. |
| Purchase price of grown up Rabbits | - Rs. 45/- per kg. live body weight. |

Asst. Manager (Veterinary)