



# DISPOSAL OF CARCASSES

(A part of Unit III- 3<sup>rd</sup> Prof. Year)

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# Inspection of Animals

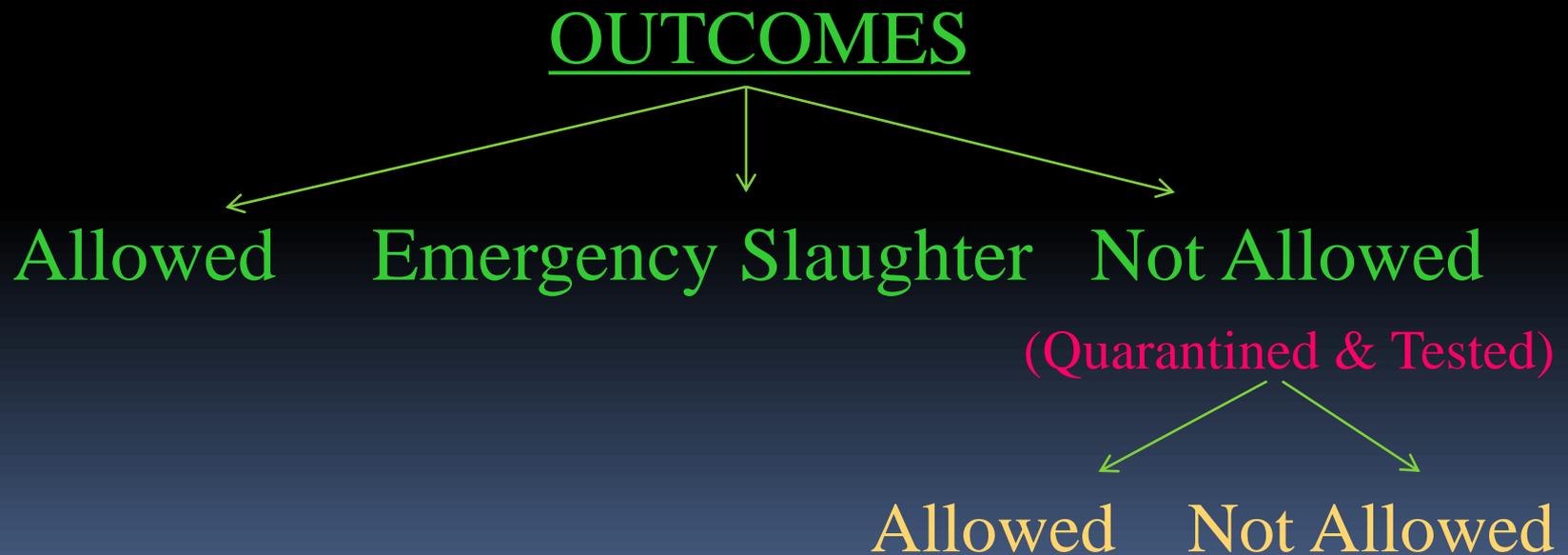
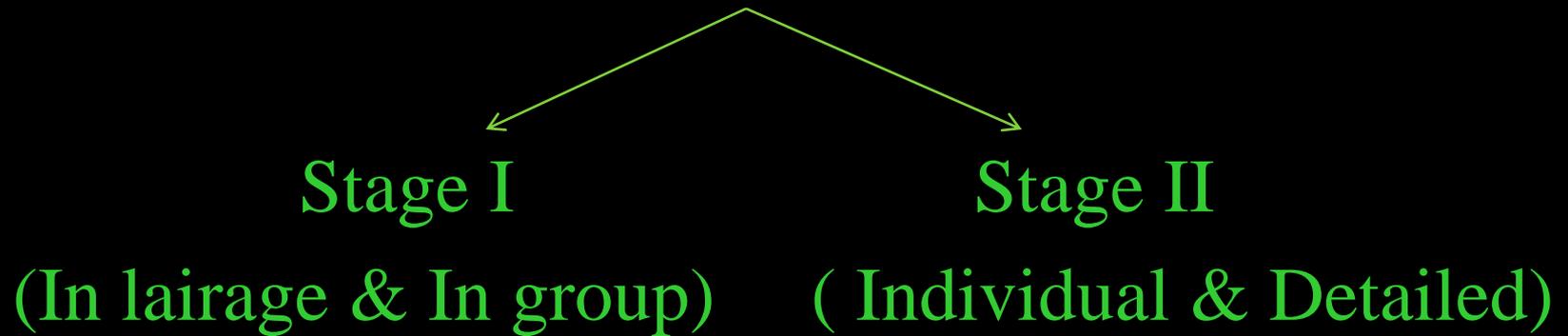
Stages

Ante-mortem Examination

&

Post-mortem Examination

# Ante-mortem Examination



- ✦ **Fit for Slaughter** : Normal and free from any symptom of disease.
- ✦ **Emergency Slaughter** : Animal in acute pain, Delayed slaughter contrary to wellbeing of animal (Fracture/Bloat/Tympany/ Prolapse etc.)
- ✦ **Suspected** : Animals are detained, quarantined and treated. (Curable diseases/ Poisoning)
- ✦ **Unfit for Slaughter** : Emaciated animals or animals affected with notifiable or communicable diseases or diseases which cannot be treated



# Notifiable Diseases in India

1. Anthrax
  2. Black Quarters
  3. Foot and Mouth Disease
  4. Haemorrhagic Septicemia
  5. Rinderpest
  6. Rabies
  7. Johne's Disease
  8. Tuberculosis
  9. Glanders and Farcey
  10. Epizootic Lymphangitis
  11. Surra
  12. Pourine
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## Unfit for Slaughter

- Emaciation
- Rabies
- Anthrax
- FMD
- BQ
- Tetanus
- Generalized Tuberculosis
- Swine Fever/ Hog Cholera
- White Scour
- Calf Diptheria
- Salmonellosis
- Acute Listeriosis
- Fluorine/ Selenium Poisoning

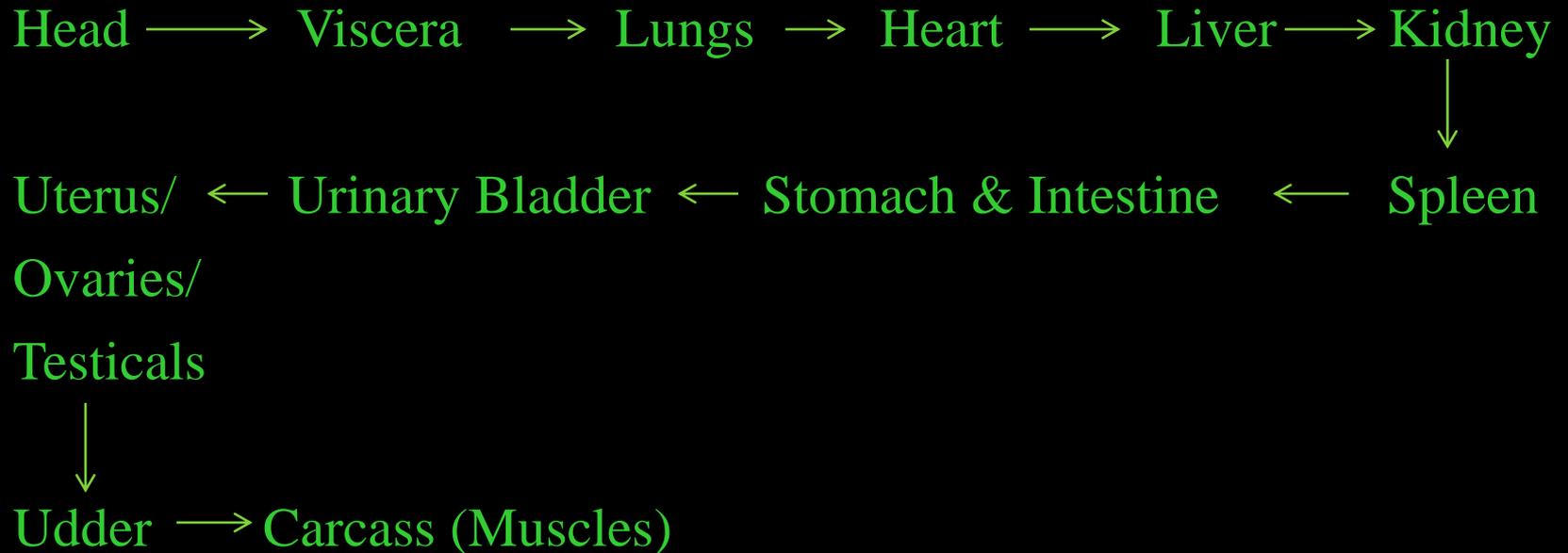
## Suspected for Slaughter

- Actinomycosis (Lumpy jaw)
- Actinobacillosis (wooden Tongue)
- Mastitis
- Localized Tuberculosis
- Sheep scab
- Localized caseous lymphadenitis
- Pneumonia
- Gut Oedema
- Swine Erysepalis
- Atrophic rhinitis
- Recovered Listeriosis
- Recovered Selenium Poisoning

# Post-Mortem Examination

- ❖ Objective: To detect diseases not visible in the live animal.
- ❖ Conducted post slaughter, at the earliest.
- ❖ Extensive examination of organs and tissues.
- ❖ Conducted under a light intensity of 540 lux or 50 foot candles.
- ❖ Laboratory tests may be considered.

# Procedure for P.M.E.



- ✓ After general inspection meat lymph nodes are checked.
- ✓ Judgment- Passed/ Totally Condemned/ Partially Condemned/  
Conditionally Condemned

## ❖ Head

- Tongue: FMD, Stomatitis, Actinobacillosis, Trichinellosis (Pig)
- Masseter muscles: *Cysticercus bovis* ( Measly Beef)
- Lymph Nodes: Retropharyngeal, Sub-maxillary & Parotid (Tuberculosis & Actinobacillosis)

## ❖ Lungs

- Pleurisy, Pnuemonia, Tuberculosis, Fasciolosis, Hydatid Cyst
- Lymph Nodes: Bronchial & Mediastinal (Tuberculosis )

## ❖ Heart

- Tuberculosis, Pericarditis, Petechial Haemmorhages, Cyst.

❖ **Liver**

- Fatty Changes, Actinobacillosis, Abscess, Parasitic Infection, *Cysticercus bovis*, Fasciolosis, Hydatid Cyst, Oesophagostomum, Nematodes etc.

❖ **Spleen**

- Anthrax and Tuberculosis

❖ **Stomach and Intestine**

- Tuberculosis and Actinobacillosis

❖ **Uterus & Ovaries**

- Septic Condition

## ❖ Udder

- Mastitis, Abscess & Tuberculosis

## ❖ Carcass

- Bruising & generalized Oedema (Dropsy)
- ✓ Pigs: Skin examined for lesions and conditions like Erysipelas, Urticaria, Swine Fever; External masseter muscle for *Cysticercus cellulosae* and base of tongue for *Trichinella sp.*

\* Note: Never open a carcass, not even flaying without the consent of a veterinarian.

Contd...

After general inspection meat lymph nodes are checked

## Meat Lymph Nodes Inspected

### Cattle & Buffalo

Pre-scapular

Axillary

Pre-femoral

Popliteal

Ischiatic

### Sheep & Goat

Pre-scapular

Popliteal

Pre-femoral

### Pig

Popliteal

Pre-femoral

- \* If more than 10 cysts are obtained, carcass condemned
- \* Generalized Tuberculosis : 2 or more organs and lymph nodes affected or muscles joints and bones are affected.

# Disposal and Condemnation of Meat and Carcasses

## Techniques

Burial method

Burning or Incineration method

Chemical Method

Rendering Method

Composting Method

Landfill Method

# Factors Influencing Method of Disposal

1. Impact on environment.
2. Potential number of animals involved.
3. The impact on trade and the economic implications
4. Animal welfare consideration.
5. The characteristics of pathogenic organism.
6. Disease control implication
7. Impact on individual producers.
8. Financial and logistic consideration.
9. The reaction of the public.

# Points to be Remembered

1. Dead or infected animals should be removed promptly.
2. Never open the carcass without the permission of veterinarian.
3. No dragging of the dead/diseased animal.
4. Dead body is never disposed near water body.
5. Disinfect the spot where animal lived.
6. Before disposal keep animal on dry surface covered with a polythene sheet.
7. Protective clothing for personnel involved in this activity.
8. Condemned parts of the carcass should be lifted mechanically.
9. Vehicles involved, should be exclusive and covered from all sides
10. Disinfection of vehicles, instruments and animal houses.

# Burial of Carcass

- ❖ Carcass buried in **2m** deep pit
- ❖ **Highest** part of carcass **1.5 m** below ground.
- ❖ Left over feed, bedding, excreta etc. all dumped in pit.
- ❖ **Top 5 cm of soil** where animal lived/died also buried in pit.
- ❖ **Skin** slashed and **drenched** with **crude phenol**.
- ❖ Carcass covered on all sides with **lime**.
- ❖ Pit filled with mud and covered with concrete object.
- ❖ **Anthrax** affected cases, **all orifices** plugged with cotton and **body** covered with bag, all soaked in **5% cresol**.

# Incineration of Carcass

- ❖ Incinerators operated at 600-800 °C.
- ❖ Suitable for all micro-organisms including *Bacillus anthracis* (anthrax).
- ❖ If incinerator absent, 0.5m deep pit is dug and filled with wood. Animal burnt in such a manner that it remains hung/suspended on the iron bars. No touching the ground or any supportive surface.

# Pyre Burning System

- ❑ Open system of burning carcasses on site with fuel.
- ❑ Well established procedure, requires no transportation.
- ❑ Environmentally hazardous and time taking.
- ❑ No verification of pathogen destruction.
- ❑ Less acceptable by public,

# Chemical Disposal of Carcass

- ❖ Practiced when animal dies from a disease which do not pose potential health hazard.
- ❖ Alkalis like Sodium hydroxide or Potassium hydroxide under heat and pressure digest the carcass tissues. The resulting effluent has a pH level of 11.4-11.7 and in most cases it can be discharged into the municipal sewage system.
- ❖ Requires specialized expensive equipment.
- ❖ Limited application in diseased outbreaks.

# Rendering

- **Most economical** method of carcass disposal.
- Movement of infected carcass from slaughter house to rendering plants, risky proposal.
- Carcass crushed into small uniform pieces and heated (**130 °C for 3.5 hrs**) under pressure.
- Fat, proteinaceous matter and water separated to **yield** products like **meat meal, bone meal and tallow**. ( processing speed: 12 tonnes/hr)
- **Discouraged** in **prion** infected carcasses.
- **Recontamination** by *Salmonella* sp. during handling and transportation of finished product.
- **Environmental concern: gas and odour emission.**  
Overcome (90%) by using cold water washing, scrubbers and bio-filters.

# Composting and Landfill

## Composting

- Layering of carcasses between strata of carbon rich substrate viz. straw, sawdust, rice husk etc. along with a final covering over the entire pile.
- Large carcasses: Single layered
- Small carcasses: Multi layered (poultry)
- Rate of decomposition: 1-2kg/day.
- Two stage process:

Stage 1- Thermophillic process: 70 °C x weeks

Stage 2- Mesophillic process: 30/40 °C x months

- Contamination may occur due to leaching.
- Thermophillic phases, restricts pathogenic activity.

## Landfill

- ❖ Similar to burial but on a larger scale.
- ❖ Practiced when animal dies from a disease which do **not** pose **potential health hazard**.
- ❖ Necessary equipment's, personnel, procedures and containment systems required.
- ❖ Transportation of carcasses pose risk of disease spread.

# Important Considerations

1. Avoided for carcasses affected with prion and spore forming bacteria.
2. Undertaken on an impervious base.
3. Practiced away from livestock production units.
4. Vehicles associated should be disinfected and sanitized after every trip.
5. Site for landfill and composting should be downwind from residential areas.
6. Site should be at least 1 m above water table level and 90 m away from water bodies.
7. Preferably tried indoors with gas permeable covers
8. To avoid *Salmonella sp.* growth pile should be turned and aerated.

# Post-Disposal Disinfection

- **Bedding**, straw manure etc. are buried, burnt or disinfected by mixing with **slaked lime**.
- Liquids like blood, urine and other excreta should be disinfected with 30% suspension of chloride of lime.
- Post disposal of carcass, **premises cleaned** with **lime water (1:20)** or with a **suspension of bleaching powder (1:20)**.
- **Metal tools** viz. hooks, handles and covers and **instruments** (knives/saws) **disinfected** by; **immersion in boiling water** or **washing** with **3.0% solution of washing soda** (sodium carbonate).
- **Metal parts** are also cleaned with aqueous solution of **phenol** or **cresol**.



# Best Choice for Disinfection.

1. 0.5% sodium hypochlorite
  2. 10% bleach
  3. 70% alcohol
  4. Borax
  5. 5% cresol
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THANK YOU

