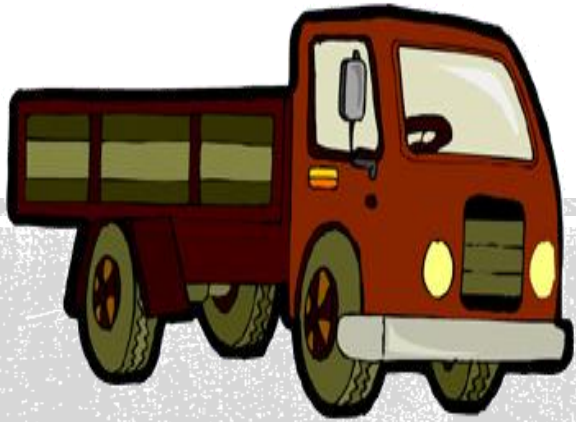




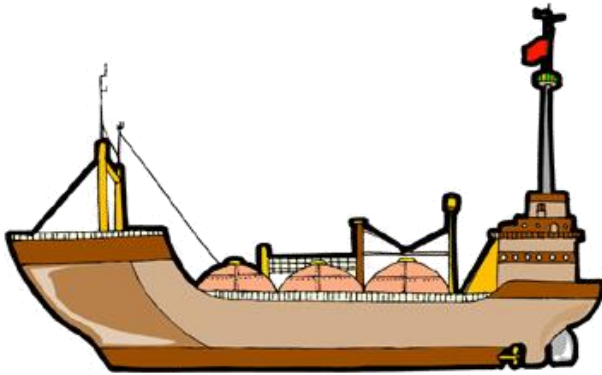
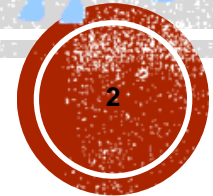
Unit 1

VETERINARY PUBLIC HEALTH AND FOOD SAFETY

(Credit Hours 3+1=4)



PATHOLOGICAL CONDITIONS ASSOCIATED
WITH THE TRANSPORTATION OF FOOD
ANIMALS

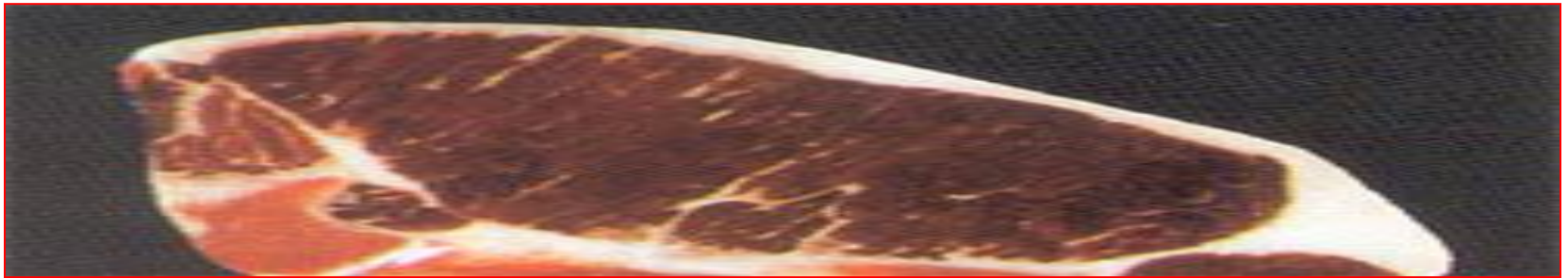


Pathological conditions associated with transport of food animals

1. Stress
2. Loss in weight during transport
3. Transport mortality
4. Conditions induced by transport

Stress

- Poor transportation can have serious deleterious effects on the welfare of livestock and can lead to significant loss of quality and production.
- Effects of transport and movement include:
 - **Stress**- leading to DFD beef and PSE pork.



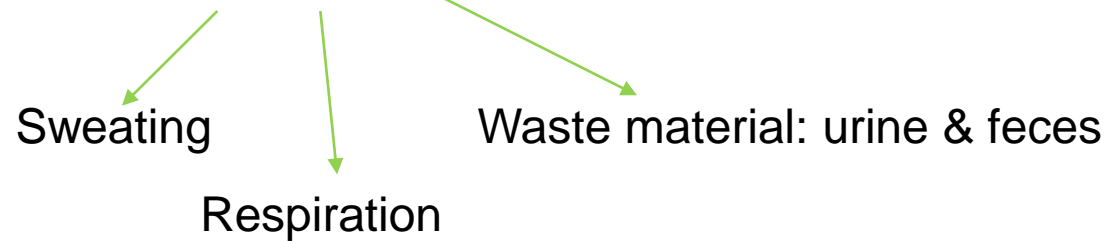
DFD beef



PSE pork

Loss in weight during transport

- Some loss in live weight during transport
- Loss is greater than loss solely by fasting for similar period
- Loss in weight → loss in water



- ❑ Factors effecting the loss are:
 - ✓ Bodily condition
 - ✓ State of repletion
 - ✓ Season
 - ✓ Journey time

Loss in weight during transport

S.N.	Species	Loss in weight
1.	Pig	2.2 to 5.4 kg during 24 h.
2.	Sheep	3.6 kg during 24 h
3.	Calf (149 kg)	4.0 kg during first day of travel 1.8 kg on second day of travel
4.	Bullock (610 kg)	30 to 40 kg during first day of travel 5.0 to 6.0 kg in subsequent day of travel
5.	Lambs	7-8% of live weight

- Much of this regain in 24 h with complete recovery of live weight
- Recovery of liver glycogen in 96h
- The amount of wt loss in Pigs is increased with an increase in temperature & decrease in relative humidity

Transport mortality

- **Extremes of temperature:** Especially heat can be responsible for many losses in live stock
- **Pigs: pathological changes**
 - ✓ Acute cardiac dilation & acute pulmonary hyperemia
 - ✓ Lung: not conical but oval
 - ✓ Heavy & firmal than normal
 - ✓ Finger impression remain on palpation

Shipping fever

- Also known as Transit fever or shipping sickness
- It is catarrhal & often fetal disease
- Mainly effect the cattle in poor condition that have become fatigued by a long journey
- Occurs during cooler months of year
- Mainly responsible for severe losses in US and Canada but also in Europe & Asia
- **Main cause:** different biotype of *P. haemolytica*
 - ✓ Virus & Mycoplasma act synergistically
- **Clinical sign:**
 - ✓ Acute, toxaemic bronchopneumonia, high fever, depression, anorexia and good response to treatment

Transit tetany

- Occurs in pregnant cows, Ewes or feedlot lambs
- Reported in warm months of year
- The disease resembles milk fever
- Animal response to the calcium treatment

Salmonellosis

- In young animals: Calves & Lambs
- Transport stress, compounded by lack of food, water & by chilling
- Exhaustion, dietary changes & chilling on the journey may increase their susceptibility to latent [Salmonella](#) infection
- Increase passage of fecal matter due to transport stress & to weakening of defense mechanism

Other conditions

- **Bruising**- perhaps the most insidious and significant production waste in the meat industry.



Severe bruising - Cattle carcass

Other conditions

cont....

Knowledge of the exact time of infliction is necessary if steps are to be taken to prevent bruising

Approximate age of Bruise can be estimated by measuring by physical appearance

Time	Physical appearance
0-10 hrs. old	Red & hemorrhagic
Appx. 24 hrs. old	Dark colored
24-38 hrs. old	Watery consistency
Over 3 days	Rusty orange color (bilirubin) & soapy to the touch

Bilirubin test

- A more specific method of dating is based on a test which utilizes the formation of bilirubin
- Utilizes the formation of bilirubin from haemoglobin in the area of bruise
- Sample of bruised meat is soaked in Fouchets reagent (trichloro acetic acid & ferric chloride)

Time	Reaction
Up to 50 hrs. old	No reaction
60 to 70 hrs. old	Turn the solution light blue
4-5 days old	Turn the solution dark green

Other conditions

cont....

- **Exhaustion**- may occur for many reasons including pregnant animals or weaklings
- **Injuries**- broken legs, horns



Transport injury

Other conditions

cont....

- **Trampling-** this occurs when animals go down due to slippery floors or overcrowding
- **Sun burn-** exposure to sun affects pigs seriously
- **Bloat-** restraining ruminants or tying their feet without turning them
- **Poisoning-** animals can die from plant poisoning during trekking on hoof
- **Predation-** unguarded animals moving on the hoof may be attacked
- **Dehydration-** animals subject to long distance travel without proper watering will suffer weight loss and may die

- **Fighting-** occurs mostly when a vehicle loaded with pig stops, or amongst horned and polled cattle
- **Suffocation-** usually follows on trampling
- **Heart failure-** occurs mostly in pigs when overfed prior to loading and transportation
- **Heat stroke-** pigs are susceptible to high environment temperatures and humidity



THANK YOU