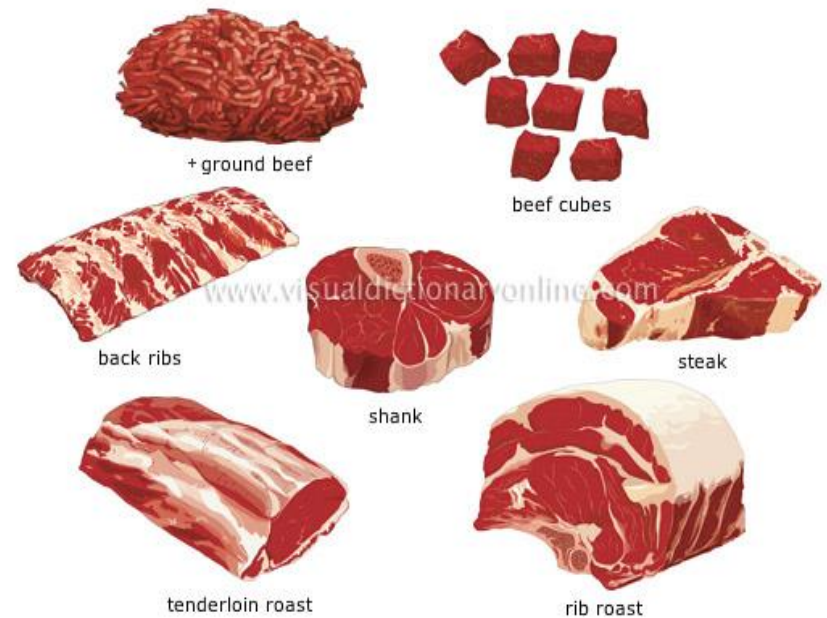
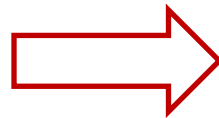
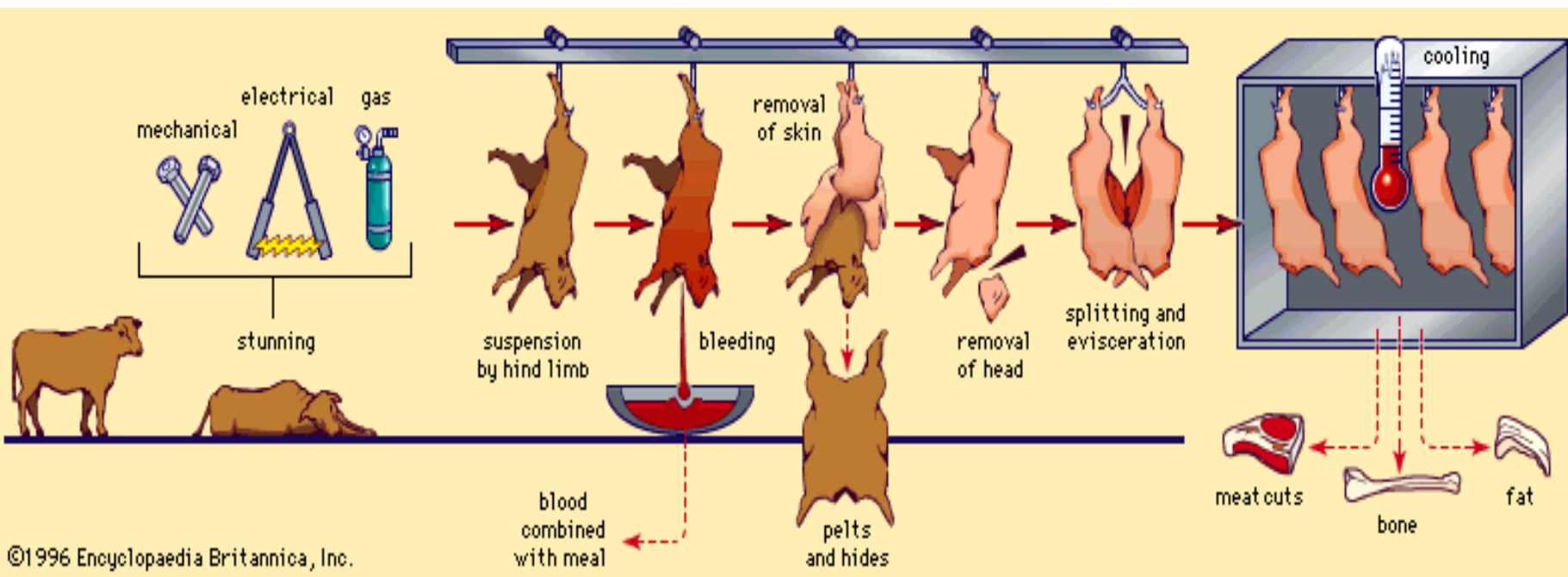


SLAUGTERING PROCESS





What is the SLAUGHTER?

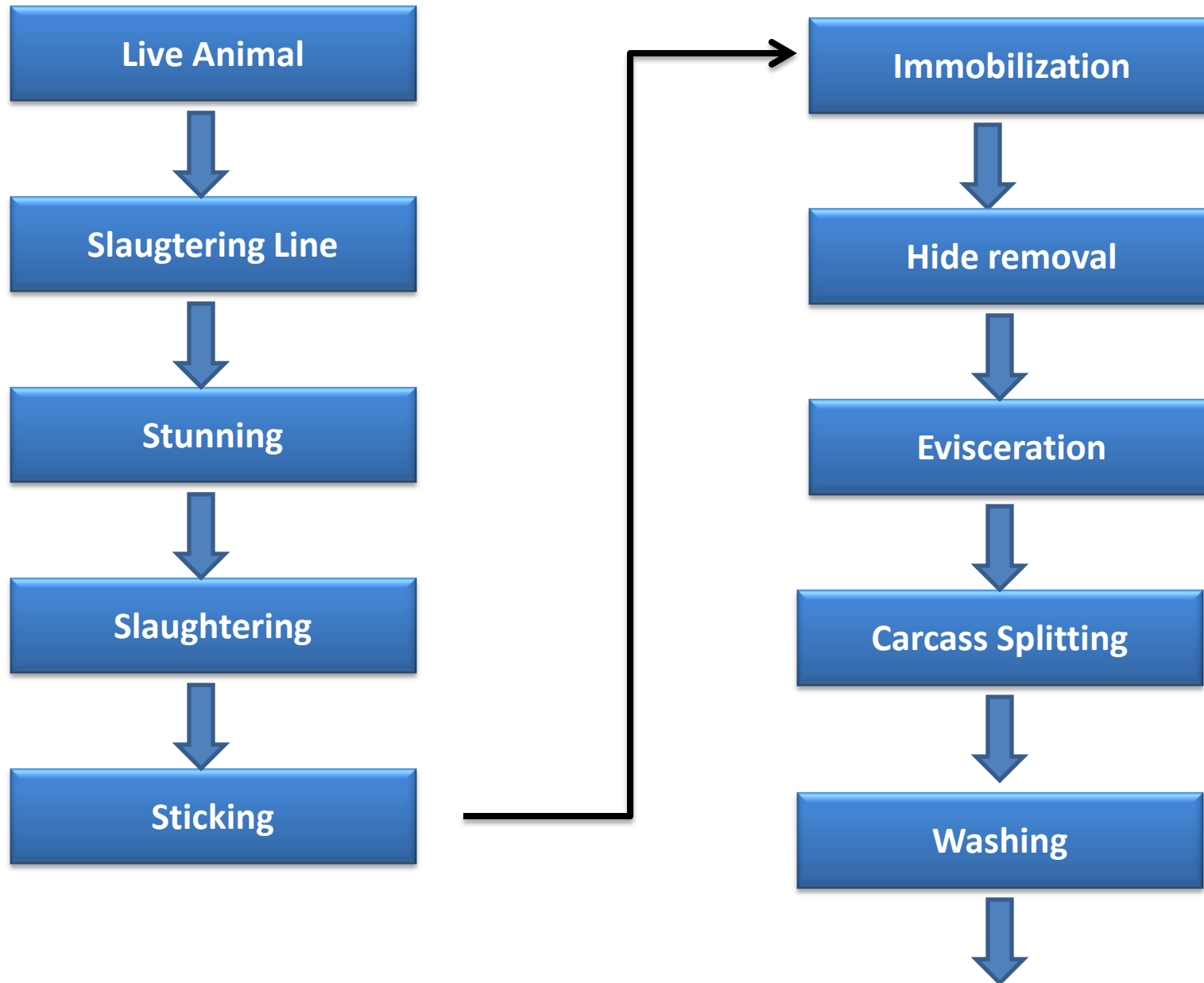
- **Slaughter** is the term used to describe the killing and butchering of animals, usually for food.
- Commonly it refers to killing and butchering of domestic livestock (*tame animals*).

ANIMALS:

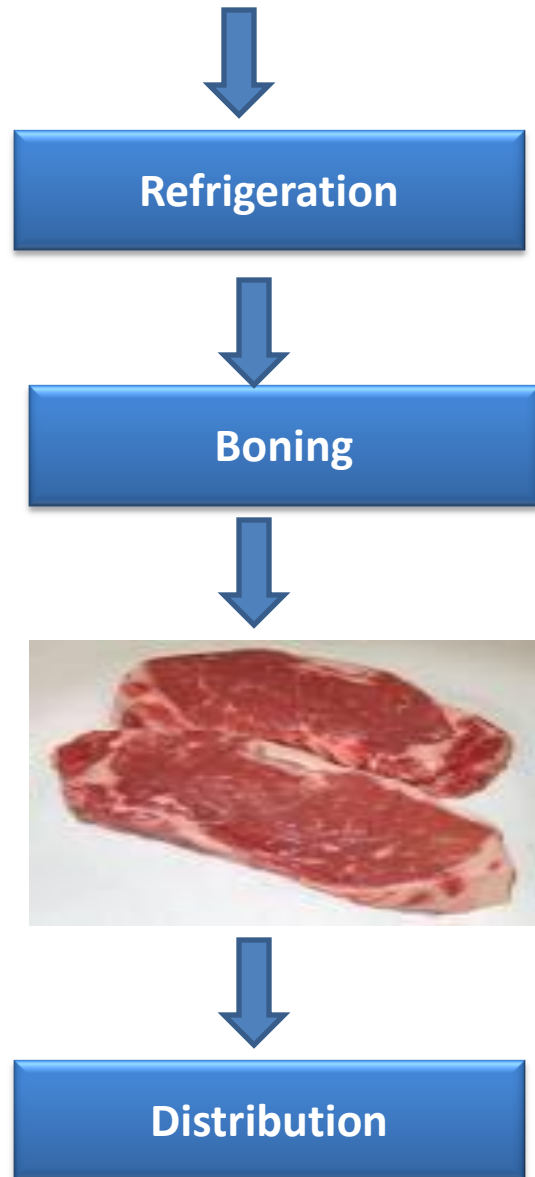
The animals most commonly slaughtered for food are

- Cattle(for beef and veal),
- Buffalo,
- Sheep (for lamb and mutton),
- Goats,
- Pigs (for pork),
- Horses (for horsemeat),
- Fowl, largely chickens, turkeys, and ducks.

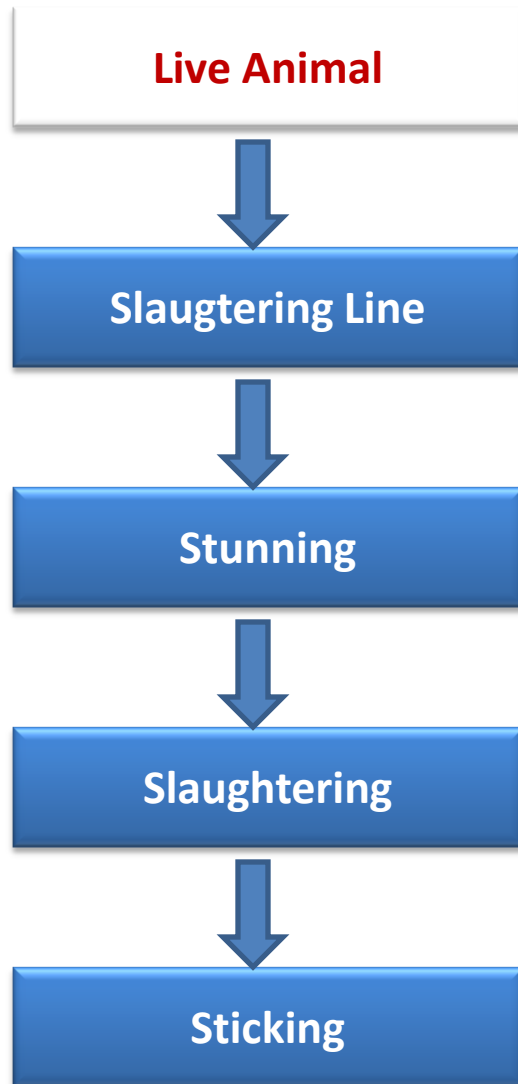
Slaughtering Process Flow Chart



Slaughtering Process Flow Chart(go on)



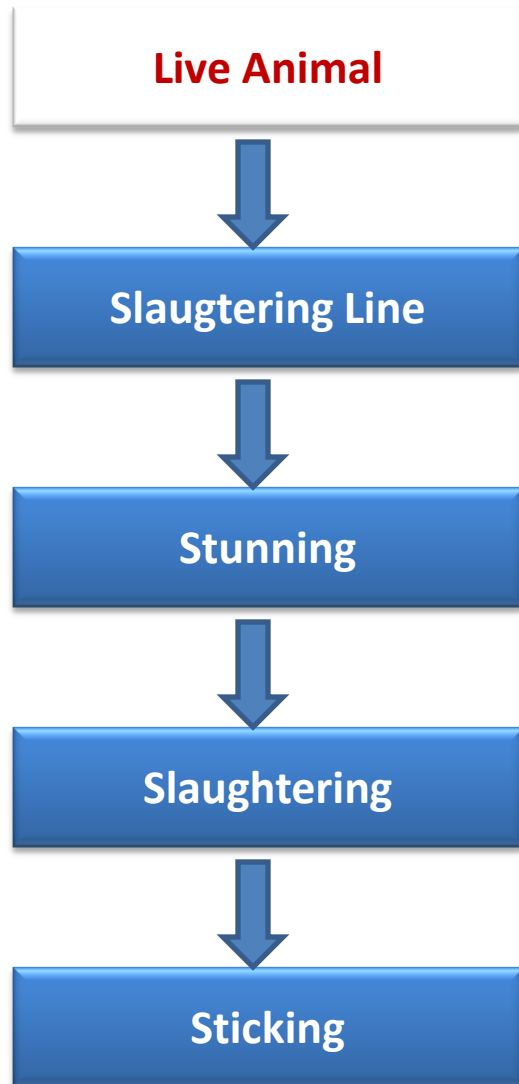
Slaughtering Process



Live animals must be:

- Healthy
- Physiologically normal
- Adequately rested
- Watered during holding
- Fed

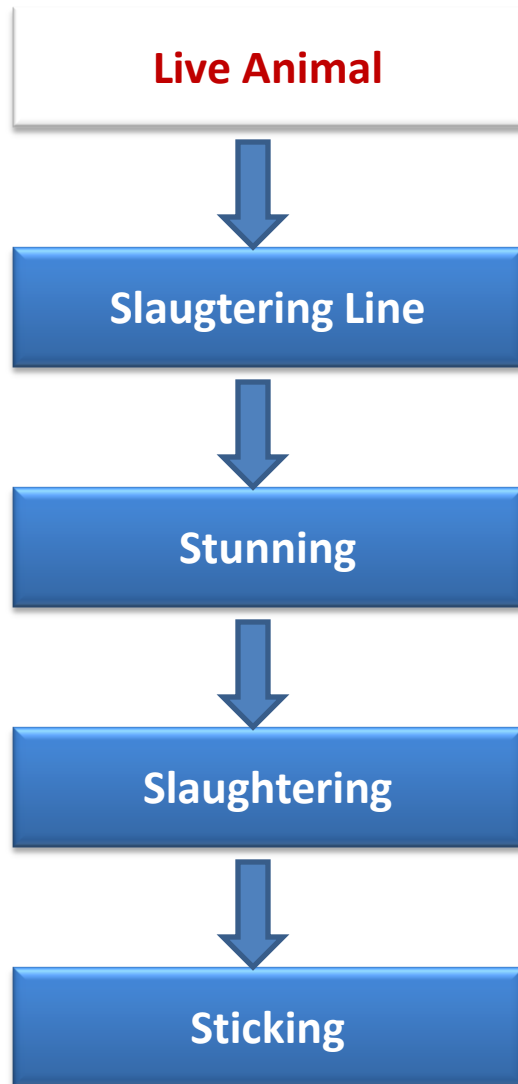
Slaughtering Process



Effects of transport:

- Stress
- Bruising
- Heart failure
- Poisoning
- Dehydration
- Etc.

Slaughtering Process

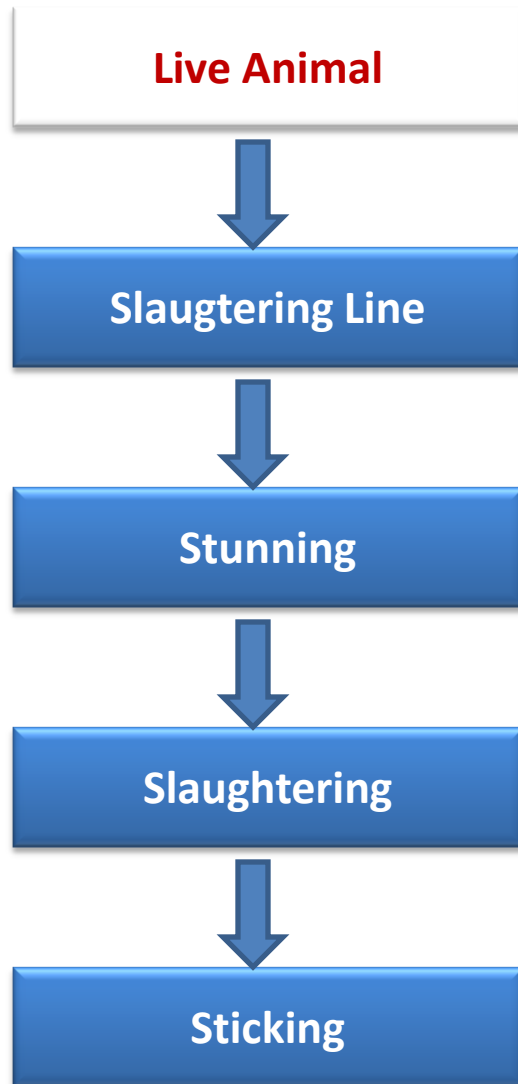


Methods of transport

- Road motor vehicle for transporting cattle

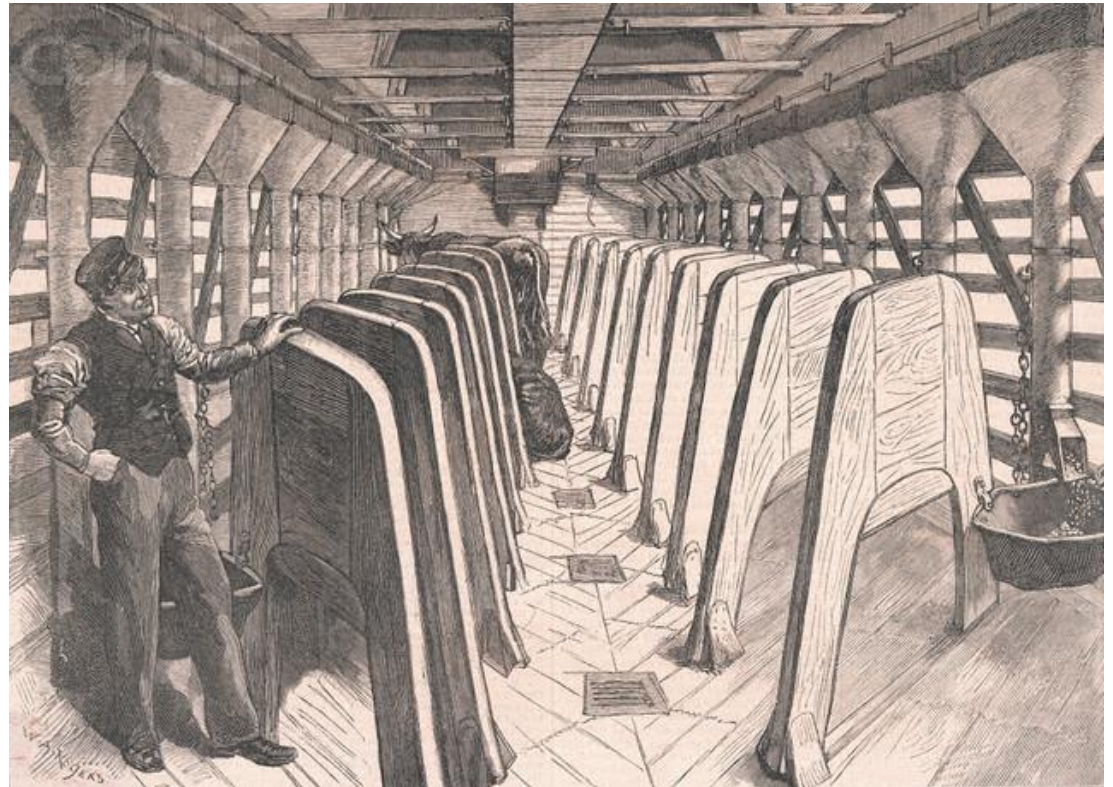


Slaughtering Process

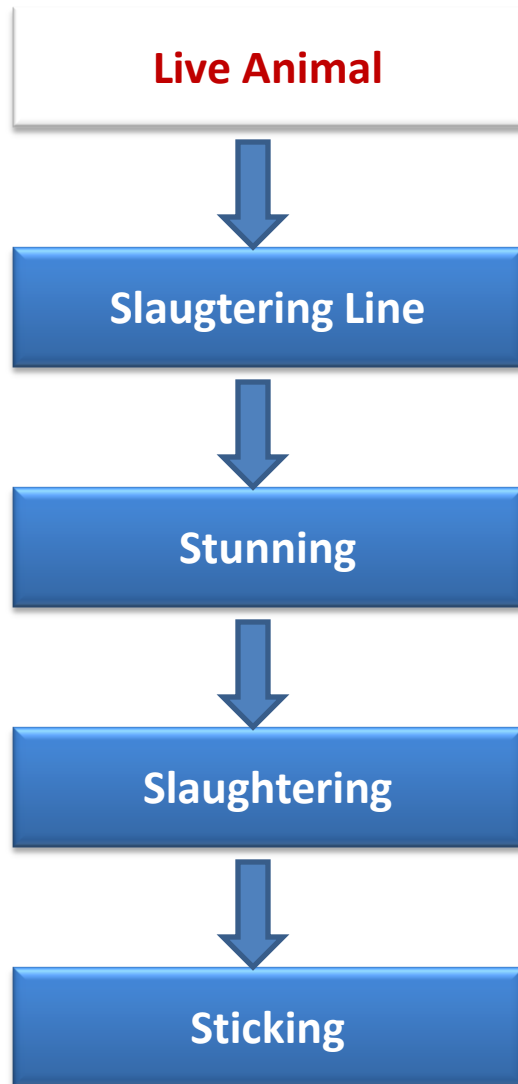


Methods of transport

➤ Large truck for cattle transport



Slaughtering Process



Methods of transport

- Double-deck truck for transporting sheep/goats



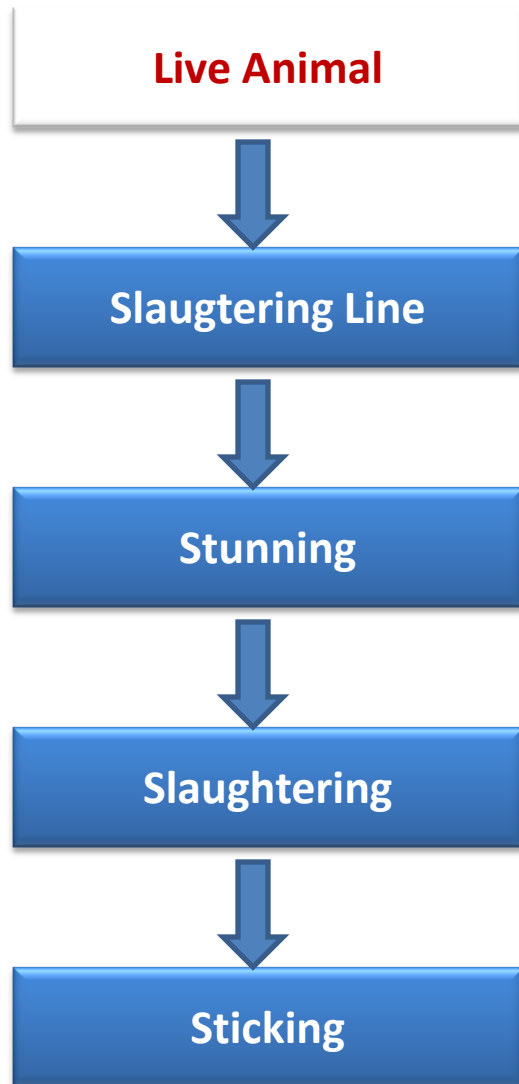
LIVE ANIMAL SHIPMENT



- **Cleaned and disinfected**
- **The floor coverings of the vehicle must be laid with straw, sawdust.**
- **Any behavior that may cause animals to overload the means of transport, injure them, and suffering**



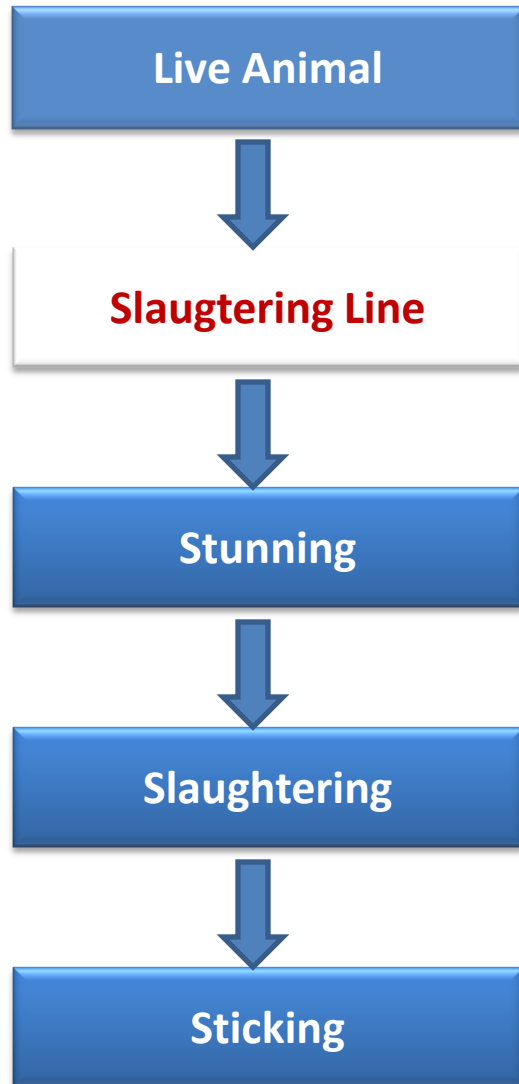
Slaughtering Process



- **Approximate floor space for transporting different classes of animals**

Classes of stock		Floor area/animal (m²)
Mature cattle		1.0 - 1.4*
Small calves		0.3
Pigs	porker	0.3
	baconer	0.4
	sow/boar	0.8
Sheep/goats		0.4
Ostriches		0.8

Slaughtering Process



➤ That is road between stable and slaughtering area



PADDOCKS

After the transport, live animals are brought to the pastures to rest. (At least 8 hours in winter and 12 hours in summer.)



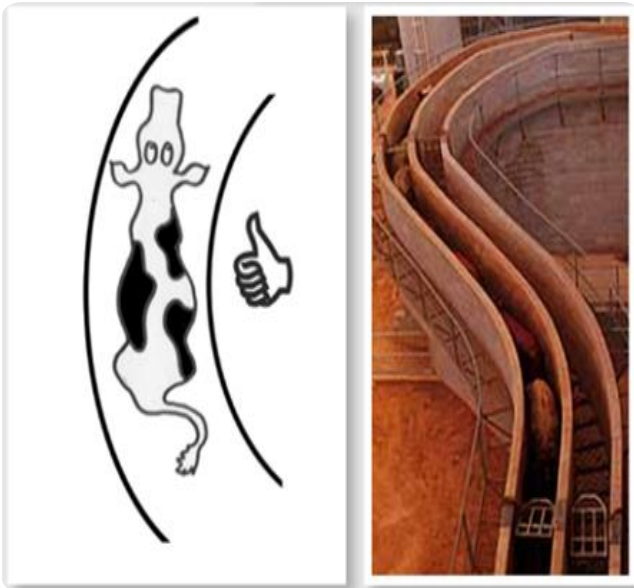
Paddock structure and layout;

- ✓ must be suitable for the type of animal.
- ✓ The handrails in the passages should be of sufficient height.
- ✓ handrails must be resistant to animal movements.
- ✓ Floors should be in a way that prevents slipping and jamming.
- ✓ Lighting should be sufficient.

TRANSITION TO CUTTING



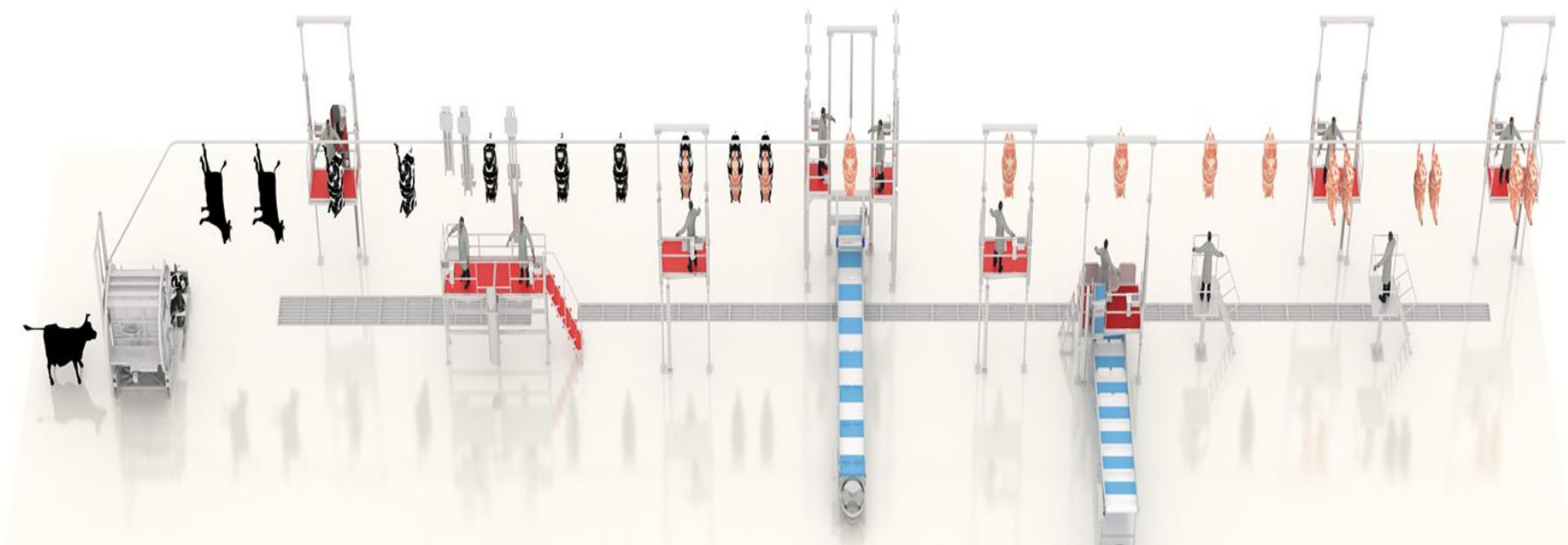
- This transport route must be wide and high enough for an animal to pass.
- there should be no noise, puddles or shadows.
- must go from dark to light.
- made with curved folds. (animals can move forward without fear and on their own.)





FOOT BATH

- The animal is directed to a foot bath to clean its feet. Its depth is approximately **80-150 mm** and length is **2.5 m**.
- It is cleaned in a water bath, then in a water solution (**5-10% copper-sulphate**) pool.



Live Animal



Slaughtering Line



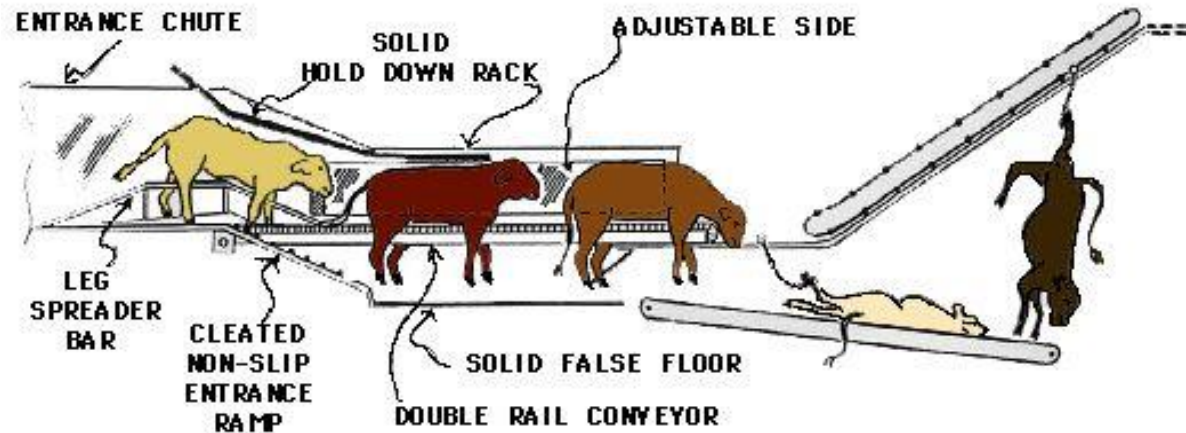
Stunning



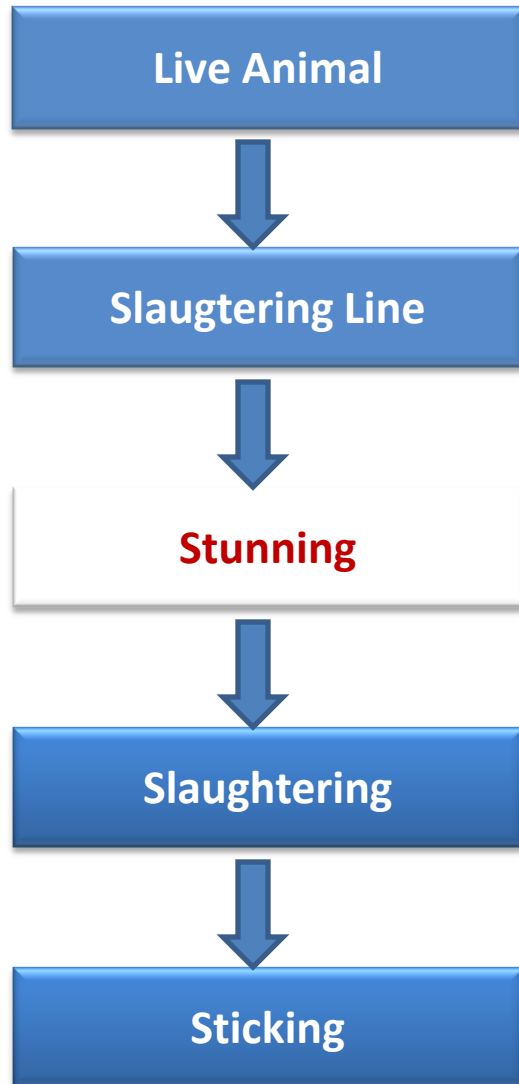
Slaughtering



Sticking



Slaughtering Process

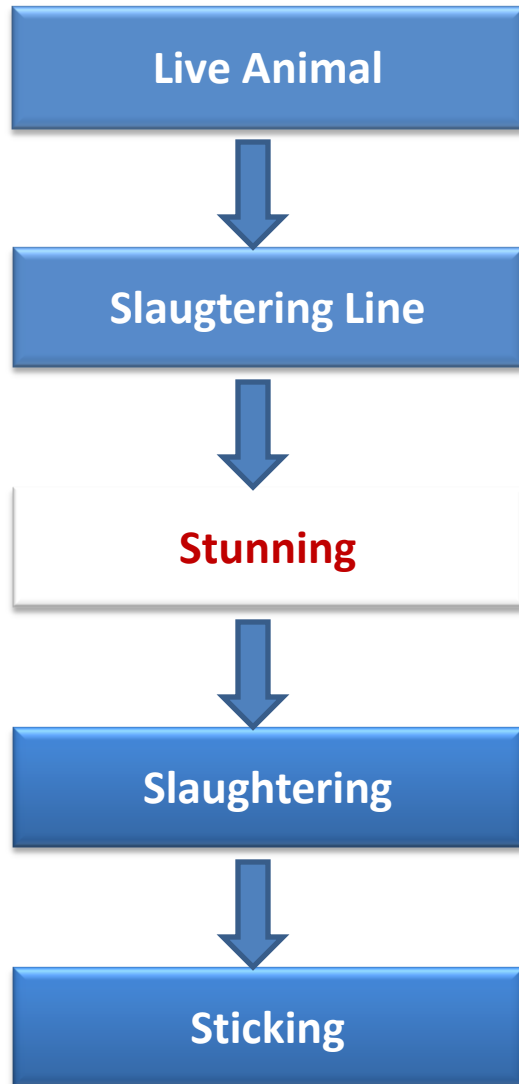


➤ **Stunning** is the process of rendering animals immobile or unconscious prior to their being slaughtered for food.

Stunning methods:

- Mechanical stunning
- Electrical stunning
- Carbon dioxide gas stunning

Slaughtering Process



Mechanical (captive bolt) stunning:

- This method is approved for, sheep, pig, goats, cattle, horses
- A captive bolt stunner is applied to the livestock so as to produce immediate unconsciousness in the animals before they are butchered



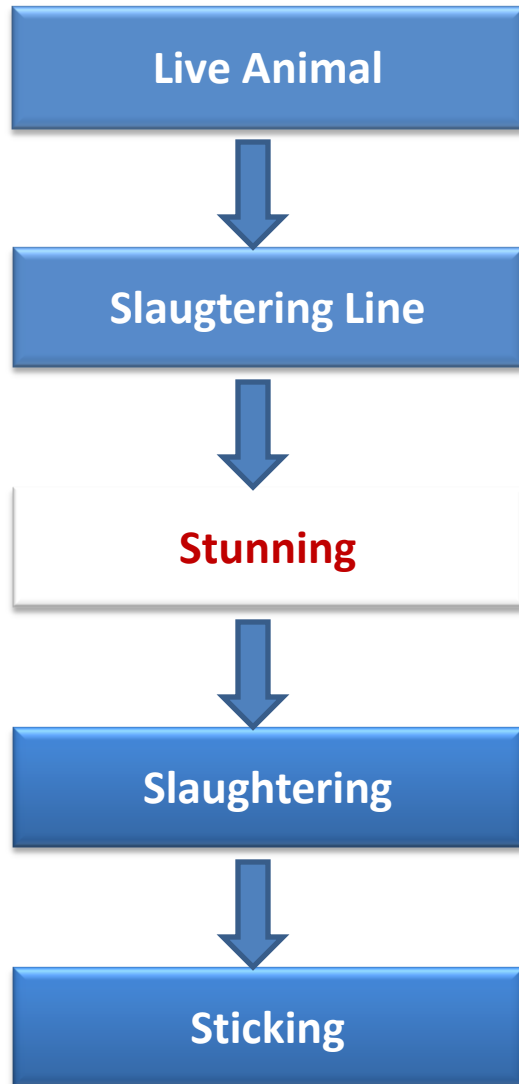
STUNNING

CIRCULAR CUTTING CELL

- For the slaughter of cattle.
- Suitable for halal slaughter.
- Prevents the animal from struggling by squeezing it.
- Designed to minimize butcher and animal accidents.

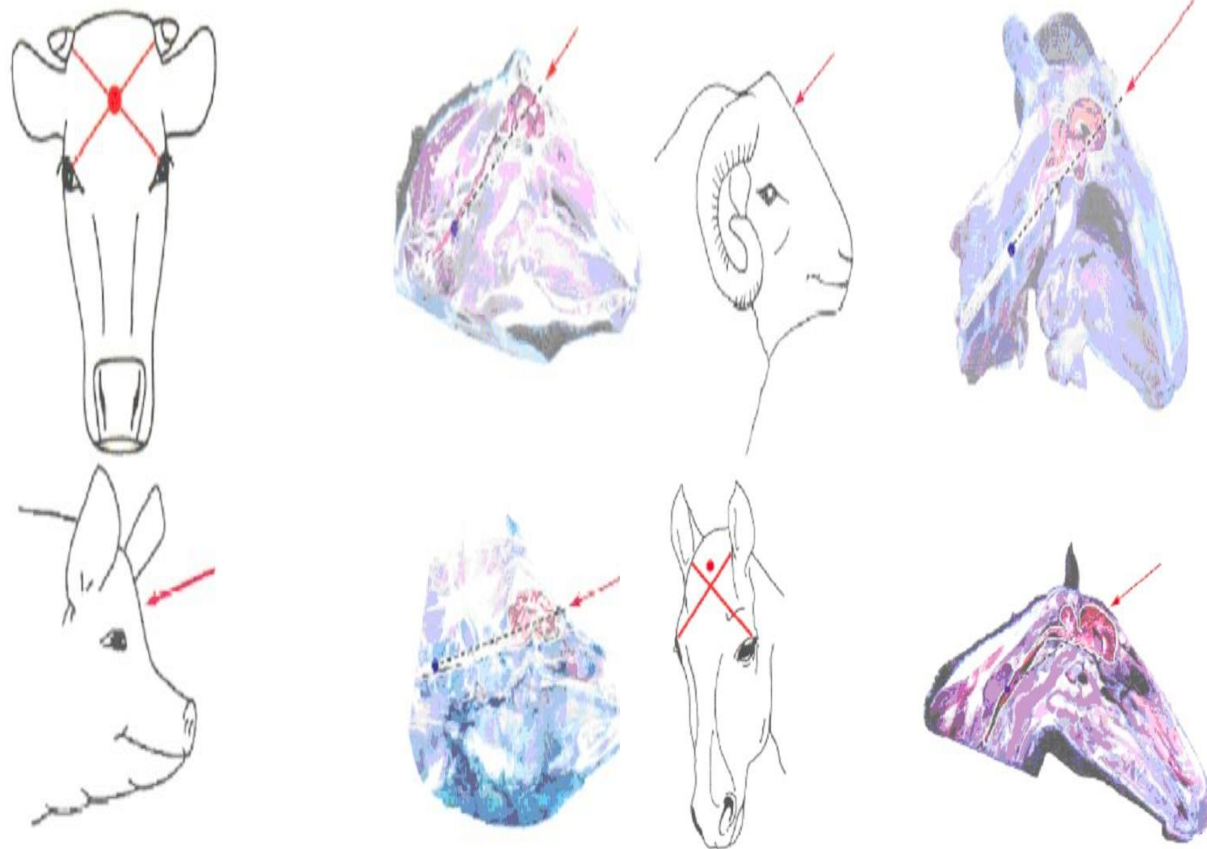


Slaughtering Process

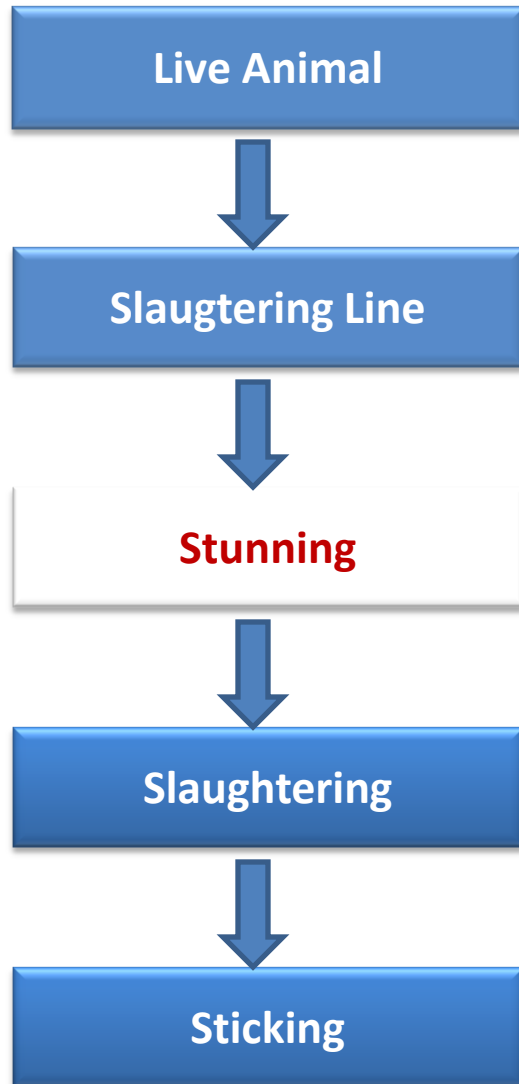


Mechanical (captive bolt) stunning:

➤ Correct positioning of stunning gun for different species (horse, cattle, goat, sheep and pig)



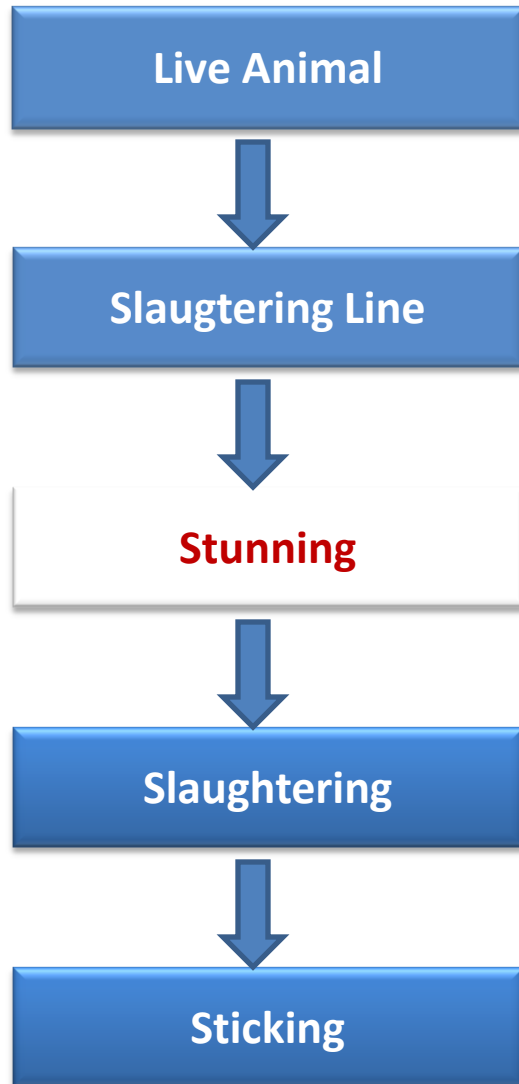
Slaughtering Process



Application of mechanical stunning:



Slaughtering Process



Electrical stunning:

- This method is approved for pig, sheep, calves, cattle, and goats.
- Electrical shock must be applied adequately.

Species

Cattle

Calves (bovines of less than 6 month of age)

Pigs

Sheep and goats

Lambs

Ostriches

Minimum current levels for head-only stunning

1.5 amps

1.0 amps

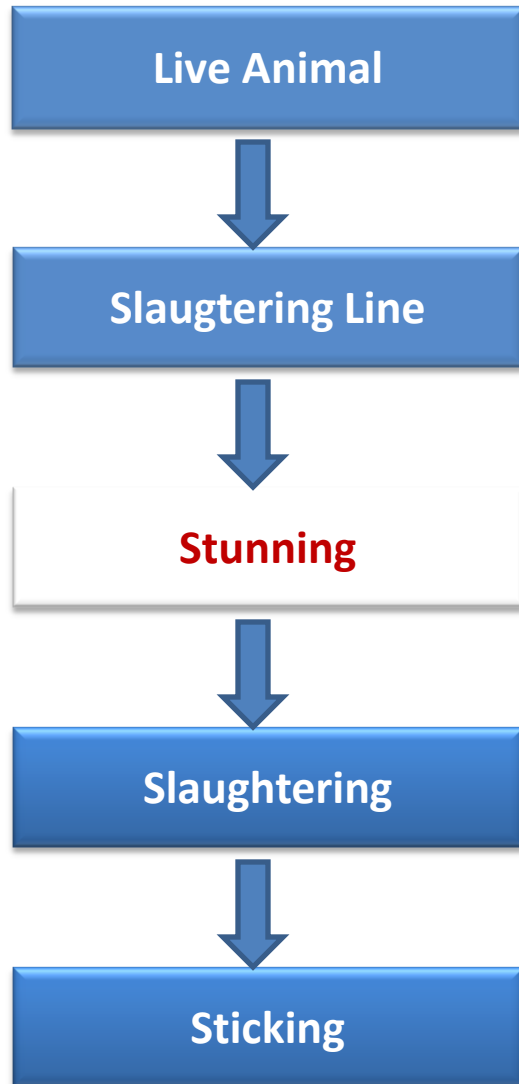
1.25 amps

1.0 amps

0.7 amps

0.4 amps

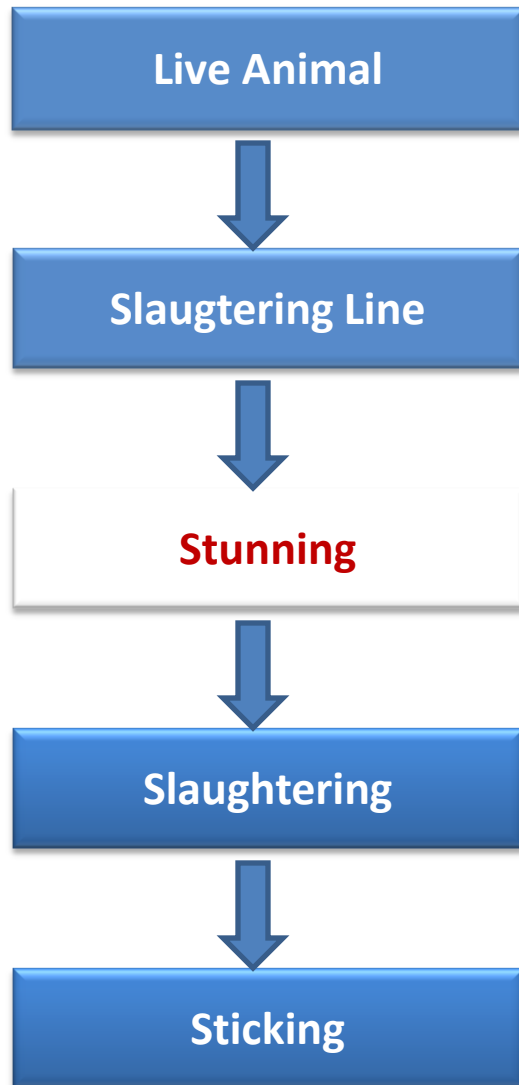
Slaughtering Process



Application of Electrical stunning:

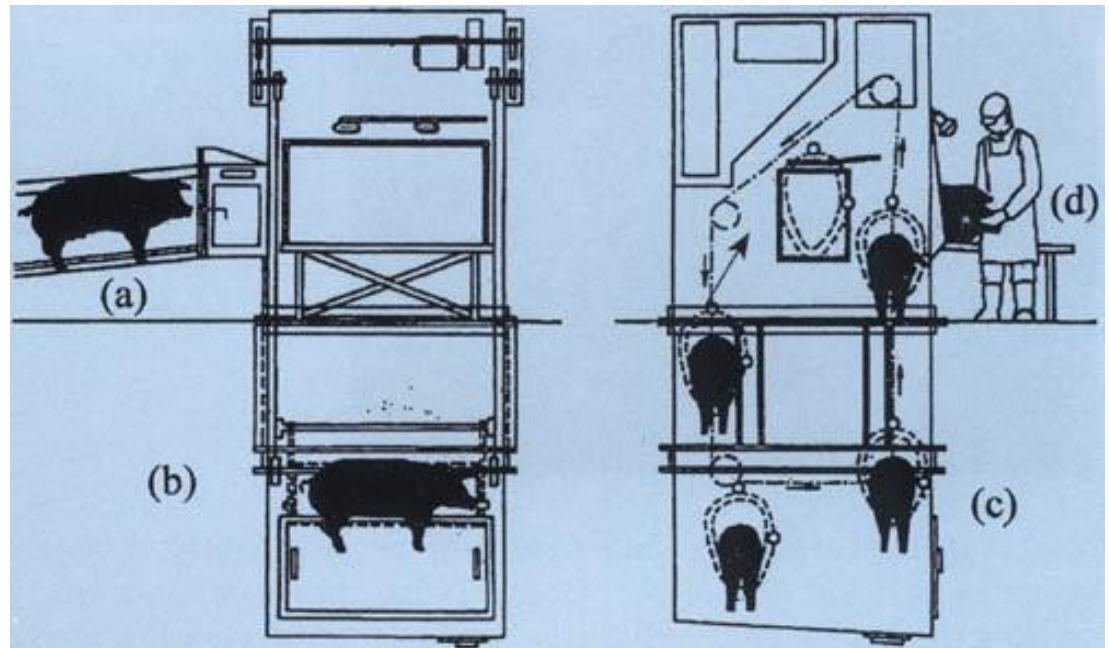


Slaughtering Process

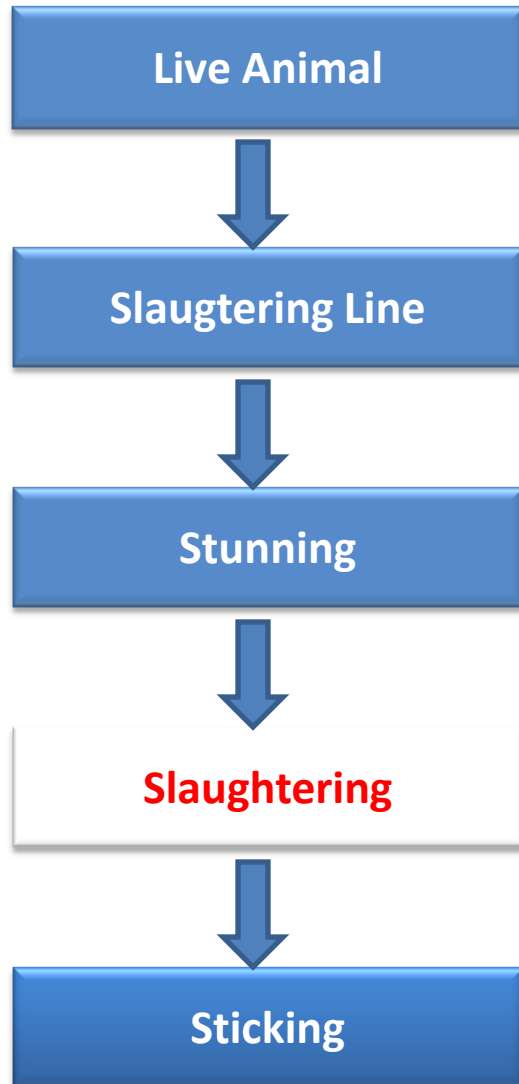


Gas stunning:

- This method is approved for pigs and poultry
- Stunning of animal by exposure to carbon dioxide (CO_2)



Slaughtering Process

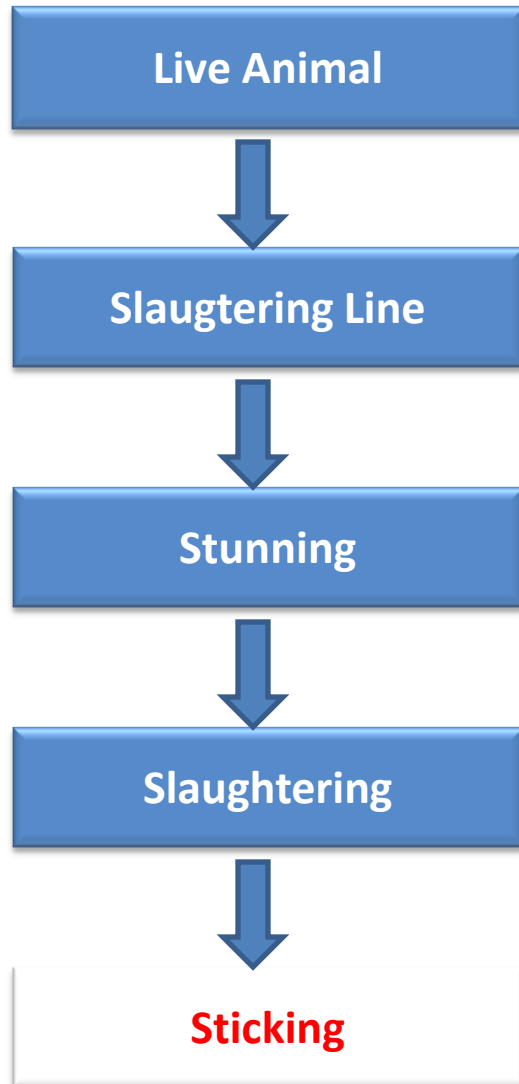


Slaughtering:

- Cutting of the carotid arteries and esophagus
- The point of knife is inserted about 2 cm in front of the breast bone



Slaughtering Process



Sticking: Removal of blood from the body.

Purpose of sticking:

- Reduce the microbial content
- Prevent blood splash
- Economical importance



Slaughtering Process

Hide removal



Evisceration



Carcass Splitting



Washing



Refrigeration



Boning

Hide removal:



PN-5323

Figure 23.—Siding.

TRANSFERRING STATION

- The cattle is transferred from the bleeding line to the processing line.

PRE-DEHIDING

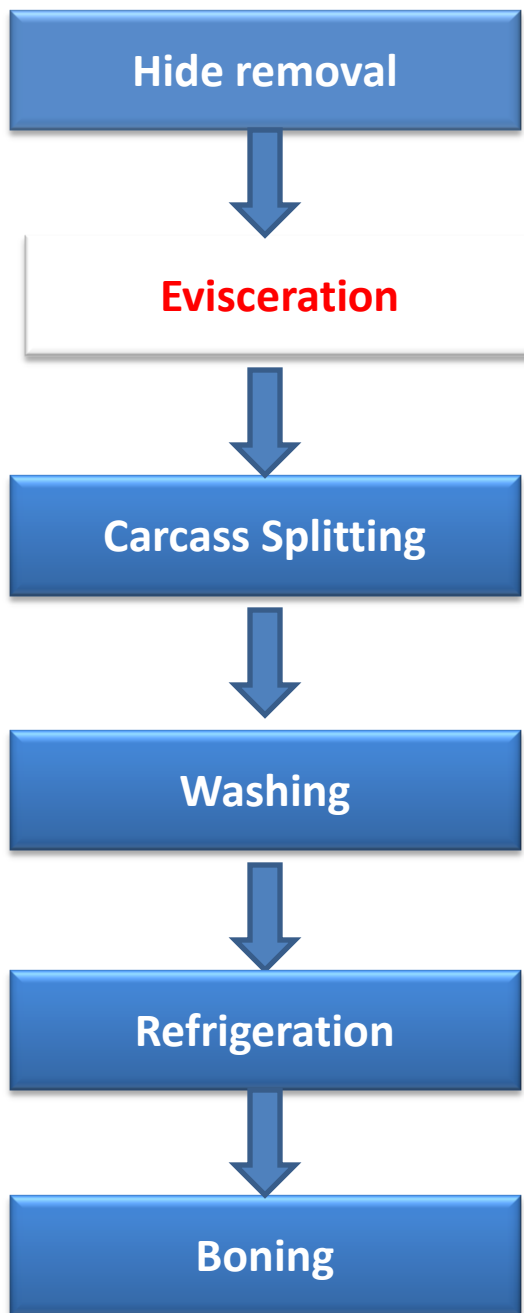
- The skin of the animal is opened from the chest part and the skin is prepared completely for dehiding.

DEHIDING

- In this section, integrated dehiding machine, movable drum and movable platforms on both sides are used together.



Slaughtering Process



Evisceration:

➤ Evisceration is a manual procedure of the viscera and gut from the carcass that requires careful handling to prevent any contamination from spillage.



EVISCERATION

BRISKET OPENING

- In this unit, a brisket opening saw is used and the chest part of the carcass is opened.

TRIPE EXTRACTING

- The tripe and intestine are extracted from the chest.

LIVER EXTRACTING

- The liver and internal organs of the animal are extracted and hanged to the liver conveyor. The parts are transferred to the internal organ room without manual interference.



CARCASS SPLITTING

- In this unit, the carcass separates the carcass from the center with the help of a saw on a pneumatic moving platform.

VETERINARY CONTROL

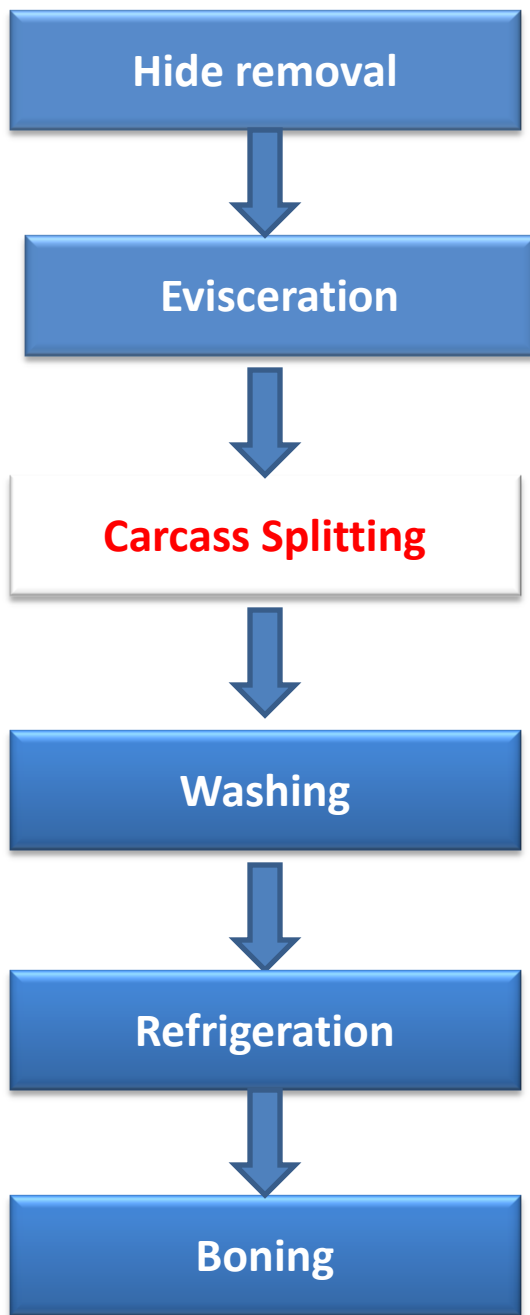
- carcass, liver, head and tripe are checked by the veterinarian. The animal diagnosed as being superior is directed to the suspect cold room.



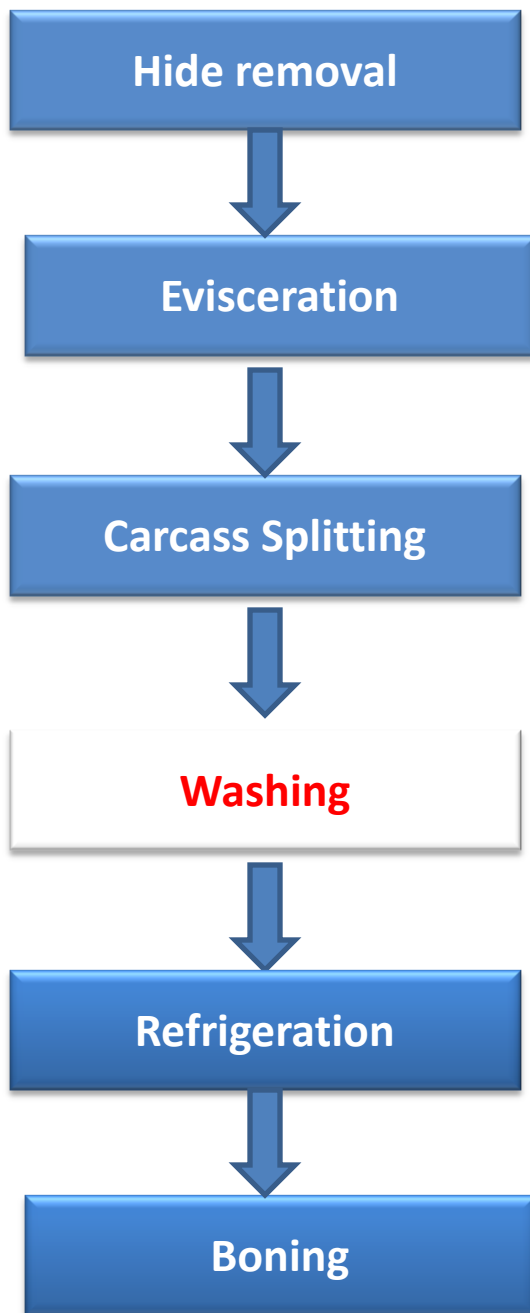
Slaughtering Process

Splitting of Carcasses:

➤ The whole carcass was cut into halves from center of the backbone.



Slaughtering Process



Washing of Carcasses:

(with spraying hot water about 40-50°C)

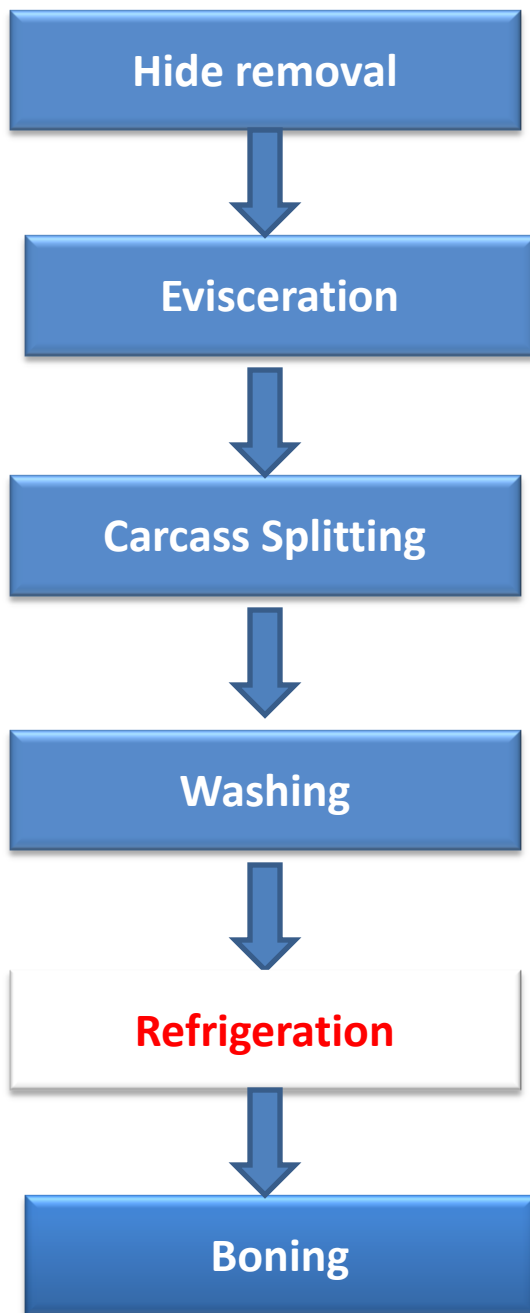
- Carcass washing is to remove visible soiling and blood stains and to improve appearance after chilling
- Good hygienic practices



Slaughtering Process

Refrigeration of carcasses:

- Delay bacterial growth
- Extend the shelf-life

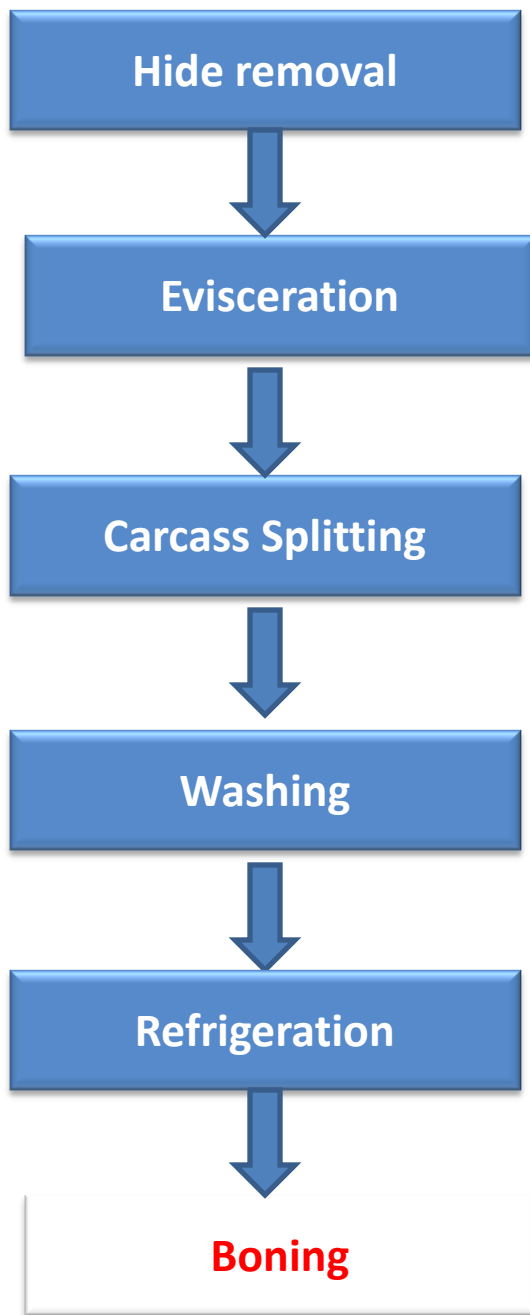


<i>Type of meat</i>	<i>Expected storage life at - 1 °C</i>
Beef	up to 3 weeks (4-5 with strict hygiene)
Veal	1-3 weeks
Lamb	10-15 days
Pork	1-2 weeks
Edible offal	7 days
Rabbit	5 days
Bacon	4 weeks (at - 3°C)

Slaughtering Process

Boning: Separation of bone

- Hot boning or
- Cold boning


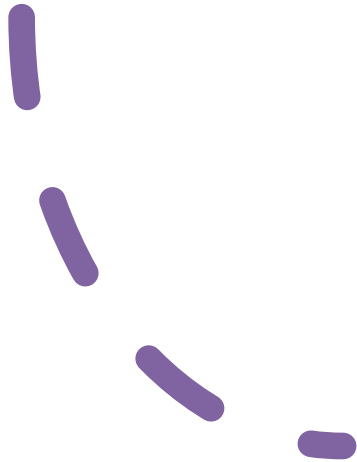


CARCASS CHILLING

Air temperature must be in the region of 0°C, with no decrease below -1°C, which could freeze the meat surface and impair its appearance.

Air speed can range from 0.75 to 1.5 m/s.

The relative humidity is between 90 and 95 percent.

- 
- Primary chilling is completed when the warmest point of the carcass has reached a temperature of **about 7°C**. With current technology these temperatures can be arrived at in **16–24 hours** in small carcasses and in less than 48 hours in large carcasses.
- 



CHILLED STORAGE

- Aging (maturation) of meat also occurs during storage.
- For chilled meat, normally 0 ° C is a reasonable choice.
- The relative humidity is between 80 and 90 percent, and this is a compromise between weight loss and microbial growth.