

# **Meat Science and Technology**

## **1. Introduction**

- 1.1 Terminology related to meat science
- 1.2 Present situation of meat production, processing and marketing in Nepal.
- 1.3 Statistics of meat animal total sharing and per capita consumption.

## **2. Handling meat animals during transport and at lairage**

- 2.1 loading
- 2.2 Spacing
- 2.3 feeding and watering
- 2.4 resying

## **3. Inspection of slaughter animals and birds**

- 3.1 Ante-mortem
- 3.2 Postmortem

## **4. Bio-security and meat inspection Act 2055 of Nepal**

- 4.1 At farm and at slaughterhouse
- 4.2 Basis of inspection
- 4.3 Inspection of slaughterhouse and animal
- 4.4 Qualifications of meat inspectors

## **5. Slaughter procedure and methods of stunning**

- 5.1 Different common methods of slaughter
- 5.2 Bullet, Gas and hammering methods employed for stunning

## **6. Location and layout of abattoir**

- 6.1 Sight selection
- 6.2 Lay out plan for different species and number animals and birds to be slaughtered

## **7. Slaughterhouse /and slaughter slab**

**8. Essentials and importance of potable water and ventilation and Light in slaughterhouse**

- 8.1 Potable water and its contribution
- 8.2 Light and ventilation in slaughter house with their importance

**9. Facilities required for health safety and by product utilization**

- 9.1 First priority for the health safety of worker
- 9.2 Extra facilities establishment for byproduct utilization in slaughter plant

**10. Environment impact, pollution their mitigation at Slaughterhouse.**

**11. Fabrication of whole sale and retail cuts for marketing**

**12. Animal welfare and means of transport of meat animals and birds**

- 12.1 How the animals be loaded and unloaded.
- 12.2 Minimum discomfort should be provided to the animals and birds
- 12.3 Consider the weather condition and number of animals to be loaded in truck and railways

**13. Structure composition of muscle and associated tissues**

**14. The mechanism of muscle contraction and relaxation /Rigormortis and resolution of Rigormortis**

**15. Conversion of muscle into meat**

**16. Properties of fresh meat and factors affecting postmortem change**

**17. By products of meat industry**

**18. Hygiene practices**

- 18.1 Cleaning and sanitization of floor and walls
- 18.2 Cleaning and sanitization of equipments

**19. Meat preservation**

- 19.1 Cold methods
- 19.2 Hot methods drying
- 19.3 Curing
- 19.4 Spices/condiments
- 19.5 Chemicals
- 19.6 Irradiation

**20. Effects of cold storage with tendering (ageing) on collagen and muscle fibers**

**21. Effects of treatments with tendering agents on chemistry of animal tissues.**

**22. Tenderization of meat by different methods**

- 22.1 Ageing and conditioning
- 22.2 Electrical stimulation
- 22.3 Enzymes

**23. Bacterial growths in meat**

- 23.1 Factors affecting growth of bacteria in meat
- 23.2 Types of bacteria
- 23.3 Bacterial action on meat and meat product.

**24. Occurrence and significance of food poisoning in meat product.**

**25. Nutritional value of meat and meat product**

**26. Cured, frozen, dehydrated, emulsified meat products and their significance**

- 26.1 Pork sausage
- 26.2 Frankfurter
- 26.3 Bologna
- 26.4 Salami
- 26.5 Hotdog
- 26.6 Hamburger
- 26.7 Bacon
- 26.8 Luncheon
- 26.9 Meat loaf
- 26.10 Corned beef

**27. Palatability characters of meat- color, aroma, flavor, tenderness, juiciness**

**28. Method of analysis: organoleptic, Chemical and physical**

**29. Packaging materials and methods of packaging meat and meat products**

**30. Meat grading**

**31. Factors influencing quality of meat**

- 31.1 pre- slaughters
- 31.2 Physiological
- 31.3 post slaughter
- 31.4 post slaughter treatments
- 31.5 Retail and consumer handling

**33. Use of sausage ingredients their roles like nitrate, nitrite, sugar, phosphates, soy and corn flours etc.**