

DEPARTMENT OF VETERINARY PUBLIC HEALTH AND EPIDEMIOLOGY

SEMESTER- V

MILK AND MEAT HYGIENE, FOOD SAFETY AND PUBLIC HEALTH

VPE-311

Credit Hours 2+1=3

THEORY

Milk hygiene in relation to public health. Microbial flora of milk and milk products. Sources of milk contamination during collection and transport of milk and processing of dairy products. Control of milk and milk product contamination. Hygienic handling/ management of dairy equipment Quality control of milk and milk products. Milk hygiene practices in India and other countries. Legislation and standards for milk and milk products. Milk as a source of disease transmission.

Pathological conditions associated with the transport of food animals. Elements of meat inspection. Hygiene in abattoirs. Ante-mortem inspection of meat animals. Humane slaughter of animals. Postmortem inspection of meat animals. Methods of inspection of meat. Rigor mortis and examination of lymph nodes. Speciation of meat. Health implications of emergency and causality slaughter. Hygienic disposal of unsound meat. Inspection of poultry and aquatic foods (fish) for human consumption. Occupational health hazards in meat processing plants. Meat as a source of disease transmission. Food safety, definition, hazard analysis and critical control point (HACCP) system and chemical and microbial toxicities associated with milk, meat and aquatic foods. Risk analysis: assessment and management and food safety measures. Toxic residues (pesticides, antibiotics, metals and hormones) and microbial toxins in food and their health hazards. Types of bio-hazards. Sanitary and phytosanitary measures in relation to foods of animal origin and aquatic foods. International and national food safety standards {Office International des Epizootics (OIE), World Trade Organisation (WTO), Sanitary and Phytosanitary (SPS) and Codex Alimentarius}.

PRACTICAL

Sanitary collection of samples for chemical and bacteriological examination. Grading of milk by MBR test Test for pasteurization and plant sanitation. Microbiological examination of raw and pasteurized milk, milk products and water. Standard plate, coliform, faecal streptococcal, psychrophilic, mesophilic and thermophilic counts. Detection of adulterants and preservatives in milk and milk products. Isolation and identification of organisms of public health significance from milk.

Visit to abattoirs, meat processing plants, marketing centers and food service establishments. Ante-mortem and post mortem inspection of food animals. Methods of slaughter (demonstration at the slaughter houses). Demonstration of speciation of meat. Physical and bacteriological quality of meat and aquatic foods (fish). Demonstration of toxic chemical and microbiological residues in milk and meat

SEMESTER -VI

VETERINARY EPIDEMIOLOGY AND ZOOSES

VPE- 321

Credit Hours 2+1 =3

THEORY

Definitions and aims of epidemiology. Factors influencing occurrence of livestock diseases and production. Ecological basis and natural history of diseases. Sources, Storage, retrieval and representation of disease information/data. Epidemiological hypothesis. Epidemiological methods: descriptive, analytical (observational), experimental, theoretical (modeling), serological and molecular. Survey of animal diseases. Surveillance and monitoring of livestock diseases. Animal disease forecasting. Strategies of disease management: prevention, control and eradication. Economics of animal diseases. National and International regulations on livestock diseases. Role of OIE and laws on international trade on animals and animal products.

Definition, history and socio-economic impact of zoonotic diseases. Classification of zoonoses and approaches to their management. New, emerging, re-emerging and occupational zoonoses. . Role of domestic, wild, pet and laboratory animals and birds in transmission of zoonoses. Zoonotic pathogens as agents of bio-terrorism. Reservoirs, clinical manifestations

in animals and humans, and the management of the following zoonoses: rabies, Japanese encephalitis, Kyasanur forest disease, influenza, anthrax, brucellosis, tuberculosis, leptospirosis, listeriosis, plague, rickettsiosis, chlamydiosis and dermatophytosis. Food borne zoonoses: salmonellosis, staphylococcosis, clostridial food poisoning, campylobacteriosis, helmintriosis, toxoplasmosis and sarcocystosis. Veterinary Public Health Administration.

PRACTICAL

Collection of epidemiological samples. Measurement of disease: determination of morbidity and mortality rates/ratios. Generation of epidemiological protocols and reports. Demonstration of selected software programmes/models e.g. EPIZOO, HandiSTATUS and India-Admas-EPITRAK. Evaluation of vaccines and diagnostic tests. Determination of Associations and risks: relative risk, Odd's ratio and attributable risk. Survey of an animal disease on a farm.

Field survey of zoonotic diseases. Concurrent isolation and identification of important pathogens of zoonotic importance from animal and human sources including foods of animal origin and their interpretation. Study of rural environment and health status of rural community. Visit to primary health centre/human hospital and study of the common diseases affecting rural/urban population, and probable relationships of these human disease conditions with animal diseases present in the area.

SEMESTER- IX

ENVIRONMENT AND ENVIRONMENTAL HYGIENE

VPE-511

Credit Hours 2+1=3

THEORY

Definition, scope and importance. Ecosystem: types, structure and functions. Food chains. Bio-diversity uses, threats and conservation. Natural resources: forest, mineral, soil and water-their uses and abuses. Environmental pollution-causes, and effects. Control measures of air, water, soil, marine, thermal and noise pollution. Nuclear hazards. Bio-safety and risk assessment Environment Protection Acts and related issues. Disaster management

Sources of water supply and water quality, Sources of water contamination. Bacteriology of water. Physical, chemical, microbiological and biological evaluation of water. Water purification. Disposal of sewage and farm wastes. Health implications of farm wastes. Sanitation and disinfection of animal houses. Recycling of farm wastes. Sources of air pollution within animal houses and its effect on animal health and production Ventilation and ventilation systems within animal houses and specialized laboratories. Prevention and control of air and water-borne diseases. Problems of atmospheric pollution (acid rain, depletion of ozone layer, methane production, green house effect and global warming). Tannery, wool, bone and blood meal industry pollution and its control. Stray and fallen animal management Pollution due to industrial wastes.

PRACTICAL

Sampling of water for sanitary examination. Physical examination of water estimation of colour, turbidity, total hardness, solids, alkalinity and acidity of water. Chemical and Microbiological evaluation of water quality. Disinfection of animal houses. Determination of the efficacy of disinfectants. Demonstration of water purification system. Disposal of

carcasses, Pathogenic microbes in air. Demonstration of various ventilation systems in animal houses. Demonstration of toxic residues in water and air. Visit to local polluted sites and documentation of local environmental problems.

REFERENCE BOOKS

1. Text book of Preventive and Social Medicine* - K.Park
2. Dairy Microbiology* - Anandakrishnan C.P., Singh R.B and Padmanabhan P.N
3. Fundamentals of Dairy Microbiology* - Prajapathy, J B
4. The technology of food preservation- Norman W. D., and James N.D
5. Environmental Pollution: Impact of technology on Quality of life- Ray,M.
6. Environmental Hazards and Human Health- Richard B.Philp
7. Wilsons' Practical Meat Inspection- Wilson W.G
8. Food Microbiology* - Frazier V. and Westhoff D.C.,
9. Food safety and Quality Assurance-Foods of Animal Origin- Hubbert W.T
10. Food safety-Contaminants and Toxins- D'Mello J.P.F
11. Methods of Analysis and Analysis- James P.L. and Je.
12. Review of Parasitic Zoonosis- Parija S.C
13. Industrial Hygiene Evaluation Methods- Bisese S and James P.K.
14. Health and health care in Third world- Phillips D.R
15. Infectious Waste Management-A practical guide.-Garvin M. L.
16. Hand book of Biomedical Instrumentation- Khandpur
17. Veterinary Preventive Medicine- White E.C. and Jordan FTW
18. A textbook of Preventive Medicine- Chakrabarti.A
19. Meat Hygiene* - Gracy, Collins and Huey
20. Meat Hygiene* - Joshi.B.P
21. A colour Atlas of Meat Inspection- Durao.G
22. Manual on simple methods of Meat preservation- FAO Manual No. 79
23. Poultry Meat Hygiene and Inspection - Bremner.A and Jhonston M
24. Diseases of Animals Transmissible to Man- Thapliyal D.C.
25. Zoonoses* - Mahendra Pal
26. Fundamentals of Parasitic Zoonoses- Pathak K.M.L
27. Zoonoses: Recognition Control and Prevention- Martin.E., Jones.E.H., Hubbart,W.T and Hagstard H.V
28. Zoonoses: Infectious diseases Transmitted from Animals to Human Being
Krauss H
29. Dogs Zoonoses and Public Health- Calum N.L., Macpharson, Fracois,X., Moslin and Wandeler,A.
30. CRC handbook series in Zoonoses- Steele J.L.
31. Zoonoses* - Palmer, Soulsby and Simpson
32. Applied Dairy Microbiology- Marth.E.H. and Steele J.L.
33. Modern Food Microbiology- Jay. M.J
34. Handbook of milk Microbiology- Srivatava.M.L.
35. Basic Food Microbiology- Banwart.G.J.
36. Industrial Microbiology- Prescott and Ponn
37. Urban Health Research in Developing Countries- Atkigson.S., Sangsore,J and Werns,E.
38. Safety Evaluation of Environmental Chemicals- Dikshith, T.S.S.
39. Influence and Removal of Organics in Drinking Water- Mallevilla,Suffet and Chan

40. Manual of Aquatic Sediment Sampling.- Murdoch,A Asane J.M.
 41. Text book of Medical Parasitology- Parija S.C.
 42. Worms and Human Disease- Muller
 43. Food Borne Pathogens* - Varnem and Evans
 44. Gradwohls' Clinical Lab Methods and Diagnosis- Sonnenwirth and Jarett
 45. Fish Disease and Disorders – Viral Bacterial and Fungal Infections.
Wro and Bruno
 - 46.Epidemiology, Diagnosis and Management of Zoonoses* - Narayan K.G.
 - 47 Outline of Dairy Technology- Sukumar De
 48. Textbook of Human Nutrition- Bamji.M.S., Rao,N.P and Reddy V
 49. Principles and Practice of Animal Health and Hygiene- Prasad. J., and Neeraj
 50. Veterinary Epidemiology- Thrushfield. M.
 51. Fundamentals of Animal Hygiene and Epidemiology* - Thapliyal D.C.
 52. Communicable disease Epidemiology and Control- Webber,R.
 53. Veterinary Epidemiology-Principles and Methods* - Willeberg,M.
 - 54.Medical Parasitology- Parija S.C.
 55. Veterinary Medicine- Radostits,O.M, Gay C.C, Douglas,C, Blood.C and Kenneth W.H.
 56. Practical Medical Microbiology* - Mackie and Mc.Cartney
 57. Helminthes, Arthropods and Protozoa of Domesticated Animals- Soulsby.J.L.
- (* indicates books which can be used for under graduate reference)