Lecture 4

INTRODUCTION TO ANIMAL HEALTH AND DISEASES

Health is generally considered as the state of body and mind in which disease is/are absent in the animal i.e. freedom from signs and effects of disease. It refers to a situation when an animal is in **a state of maximum economic production**. Physiologically it refers to a condition when the body functions properly. Health is also a matter of degree. Absolute health is virtually unknown both in man and animal. But when the body is functioning optimally and animals are growing at a rate optimum for the species and there is no sign of pain or deformity, we say that the animal is in good health.

Disease: is a departure from a state of good health by an alteration of the internal organs or external conditions of the body. It is a disruption of the normal function and performance. It is also the inability to perform physiological functions at normal levels provided nutrition and other environmental requirements are supplied at the adequate levels.

Signs of disease

- Loss of appetite and stoppage of rumination in ruminants
- Dull posture e.g. head downward, undue weariness
- Coarse and dry skin with unusual patches
- Variation from normal temperature e.g. normal body temperature of cattle is 38^{o}C, Pig is 39.2^{o}C - 40^{o}C
- Variation in pulse rate. Normal pulse rate in cattle is 50-60 beats/minute
- Variation in rate and depth of breathing (e.g. 10-20/minute is normal for pig)
- Sunken eyes with starry look
- Watery dung with gas bubbles and blood spots
- Urine normally has straw colour but dark or bloody colour and abnormal odour indicate disease.
- Low yield and low quality production from animal e.g. blood and clot in milk indicate mastitis i.e. inflammation of the udder.

Causes of diseases

1. Infection agents or pathogens e.g. bacteria, virus
2. Parasites, external e.g. ticks, lice, flea, internal e.g. worms
3. Hereditary – caused by defective genes e.g. in humans, sickle cell anaemia
4. Congenital – defects caused by developmental accident during the embryonic stage or from toxic or infection agent during the prenatal development e.g. Pullorum disease in chicken, brucellosis in pigs, goat, sheep and cattle.
5. Nutritional deficiencies e.g. Vitamin B deficiency in chicks
6. Traumatism – disorders that are as a result of an injury e.g. wounds, burns
7. Environmental stress e.g. thermal stress, heat stroke, frost bite etc
8. Overcrowding – animals over-crowding, poor housing, ventilation and sanitation facilities.

Immunity

This is the degree of resistance to any specific disease organism. It can be complete immunity or partial immunity. It is also the power to resist infection or the action of certain poisons. This immunity is either

(a) Inherited or natural
(b) Acquired naturally
(c) Acquired artificially

Inherited or natural immunity – is transferred from mother to offspring. This is done via the colostrum.

It is important that newly born animals receive colostrum as soon as possible after birth even if by hand

feeding. There are some species of animals that are not affected by diseases or poisons that are dangerous to others e.g. fowls are resistant to tetanus, the horse is not affected by foot – and – mouth

disease, rats are not attacked by tuberculosis.

Keratin – prevents the entry of disease organism into the skin when it is damaged i.e. when scratched, punctured, or wounded or bleached.

Skin Secretion – largely from sebaceous glands secret certain fatty acid (oily) which have bacteriostatic effect i.e. prevent the bacteria from multiplying. The tear from the eyes has bacteriocidal effect because it contains lysozyme which is a bacteriolytic enzyme. In the mouth there is saliva which has a secretion that stops bacteria from growing i.e. bacteriostatic.

In the lining of blood vessels there are endolia cells, which are phagocytic. This is done by engulfing the bacterium that intends to attack the lining.

Acquired Immunity – results from an attack of some disease from which the animal has recovered. The recovery from a disease involves a process of natural immunization against that disease; the toxins or other antigens present in the body being destroyed by antibodies elaborated by the body tissues e.g. recovery from Newcastle disease confers immunity on the fowl.

Artificially Acquired Immunity - This is of two types:

- Active immunity may be artificially produced by inoculating an animal with a vaccine
- Passive immunity is that form of artificial immunity obtained by injecting into the body of one animal blood serum drawn from the body of another animal which has previously been rendered actively immuned by injecting particular antigen. The serum contains antibodies or "antitoxins" which enable an in-contact animal to resist an infection, or enable an already infected animal to overcome the infection, so that an attack of illness – if it occurs at all – is milder than it would otherwise have been. A young animal may acquire passive immunity through the colostrum of its dam, which had been immunized with this purpose in mind.

General control methods of Diseases

- Prevention of exposure to infection
- Vaccination programmes
- Immunization
- Separation of animals of different species and ages
- High level of hygiene

- Avoid stressful condition
- Avoid grazing animals in an infected environment
- Provide good ventilation
- Sufficient good feed/proper nourishment