



HEALTH PROTECTION OF CANADIAN FARM ANIMALS

The prosperity of the live stock farmer depends to a large extent upon the health of his animals. Lack of attention to simple rules of disease prevention may mean the spread of infection on a farm, or even throughout a whole district. Disease means not only lost profits, but waste of necessary animal food products in war-time.

Canada is more fortunate than many other countries in its freedom from the majority of serious infectious diseases of live stock. This is partly due to climatic conditions but mainly due to the foresight of those who established quarantine regulations to prevent disastrous infectious diseases entering Canada and to the vigilance and energy of officials who have carried them out.

What Causes Disease?

There are three main causes of the disease conditions which occur on Canadian farms:—

(1) *Infections due to Microbes.*—Many diseases, such as tuberculosis and contagious abortion, are caused by invisible microbes or germs which may be transmitted from animal to animal. Microbes which cause disease are said to be “pathogenic,” and the animals are “infected.”

(2) *Infections due to Animal Parasites.*—Lowly forms of animals that live on our useful domestic animals are known as parasites. The common forms in Canada are round worms, tapeworms, lice, fleas, and coccidia.

(3) *Conditions due to Deficiencies in Foods.*—Satisfactory rations for animals require a certain content of essential substances, such as minerals and vitamins, necessary for growth and normal bodily functions. When some of these substances are lacking, certain “deficiency diseases” may result, or the animal may become so poor in health that it cannot resist other types of disease.

How can Infectious Diseases be Prevented?

The most important principle in preventing infectious diseases, whether caused by microbes or parasites, is to avoid introducing into a healthy herd any animal which carries pathogenic organisms. An infected animal acts as a reservoir for germs or parasites which are capable of causing disease in healthy

animals. It is most important to remember that infected animals need not appear to be ill or be in poor condition; in fact, some of the most dangerous sources of infection are animals which appear to be healthy. *The soundest advice that can be offered to an owner of healthy animals is to allow no animal on his premises unless it is known to have come from a herd or flock which is free from disease.* It is also important to avoid indirect contact with disease by means of farm equipment or utensils that have been used around diseased animals. Transport trucks should be disinfected immediately before use.

How can Infectious Diseases be Controlled?

Agencies for the Control of Infectious Diseases

For various reasons, certain infectious diseases have been considered so important that it has been found advisable to place the responsibility for their control in official hands. Among other duties the Health of Animals Division is charged with this responsibility and operates under an Act of Parliament. The following diseases are listed under the Act: glanders, *maladie du coit*, anthrax, hog cholera, swine plague, rabies, mange and sheep scab.

When an outbreak of one of these occurs, the Health of Animals Division assumes control, supervises the movement or disposition of animals, makes certain that those which die are disposed of in a manner that will prevent the spread of infection, and finally, when the outbreak has been overcome, supervises the cleansing and proper disinfection of the premises.

In some other infectious diseases the owner may by request and agreement receive the assistance and co-operation of Dominion officials. Advantage of this is taken in the elimination of tuberculosis, contagious abortion, and pullorum disease. With other conditions, however, the owner must be guided by his private veterinarian and assume full responsibility for prevention, control and eradication. It is for such conditions that the following suggestions are offered.

Hints on the Control of Infectious Diseases

As has already been mentioned, it is highly desirable to maintain healthy herds and flocks and prevent pathogenic microbes or parasites from gaining entrance either by direct or indirect means. If through neglect or accident these have gained entrance, and infection is known to be present in the herd, then means must be taken to control its spread. The following are among the principal procedures.

(a) *Diagnosis*.—An early diagnosis is of primary importance. The services of a practising veterinarian should be secured if possible, for he can employ specific methods of examination and diagnostic tests which detect the dangerous carriers or infected animals before they show symptoms, thus making it possible to separate them from healthy stock.

(b) *Isolation*.—When evidence of infectious disease is found in a herd or flock, steps should be taken immediately to protect the animals that remain healthy. The infected animal, or animals, should be promptly removed to quarters at a distance from the remainder of the herd. Arrangements should be made to prevent any direct or indirect contact between the two groups. In isolation, the infected animal can be treated and perhaps its life saved, but more important is the fact that here it ceases to be a source of danger to the rest of the herd.

(c) *Disposal of dead animals*.—Certain factors surrounding the disposal of dead animals should be borne in mind. Many diseases of live stock are communicable to man, and because of this an owner should avoid attempting to perform post mortem examinations on animals dying from unknown causes.

Some of these animals may be highly dangerous to the person conducting the examination. In these circumstances, only a veterinarian, who will take the necessary precautions for the safety of himself and assistants, should conduct these examinations. Further, extreme precautions should be taken to prevent the spread of infection to other animals from one that has died of a disease. Thus the carcass should not be dragged along the ground, spreading manure and discharges which are dangerous to other animals. A common practice of dragging an animal to an out of the way place in the field or bush and allowing it to decompose or be ravaged by birds is one that cannot be too strongly condemned. The carcass should be burned, if possible. If not, it should be buried deeply after being covered with lime.

(d) *Cleanliness and Disinfection.*—Stables should be maintained in a clean condition. Dust, dirt and caked manure should not be allowed to accumulate. This is most important where infection has gained entrance to a herd or a flock, since accumulated dirt may assist in harbouring the microbes or other causative agent of disease. Nor is average cleanliness sufficient; even after a thorough washing, millions of invisible disease-producing microbes may remain. The washing, however, is very necessary, as it exposes to the destroying effects of a disinfectant, germs which otherwise might be protected by the filth. A suitable disinfectant of known efficiency should be employed.

Disinfectants and their Use

Disinfectants or agencies which kill bacteria are of many kinds, and their value depends to a large extent on surrounding circumstances. Direct sunlight is an important disinfectant, but becomes valueless as such after passage through ordinary window glass. Certain conditions, however, are required for its effectiveness. Thus direct sunlight on a pile of filth kills only the surface organisms. It cannot penetrate further, and on this account it is generally necessary to supplement sunlight with a chemical disinfectant.

The value of such a disinfectant depends upon the actual amount of specific chemical which it contains. A standard has been adopted for evaluating the strength of these substances by comparing them with carbolic acid. This expression of strength is known as its phenol coefficient. The strength or phenol coefficient of commercial disinfectants may vary from approximately 2 to 15, which indicates that a disinfectant with a coefficient of 2 is only twice the strength of carbolic acid while one with a coefficient of 15 is fifteen times as strong as carbolic acid. For the information and protection of the purchaser the phenol coefficient must be shown on the label of commercial disinfectants. These disinfectants should be used in strict accordance with the dilutions recommended.

Nutritional Deficiencies

By careful selection, farm animals have been developed into highly specialized creatures for the conversion of food into such products as meat, milk, eggs, and wool. It is necessary therefore that rations should contain the essential food requirements in proper balance and in palatable form. Departmental bulletins and farm papers contain many formulae for compounding balanced rations for farm animals.

A lack of vitamins or minerals in the ration results in what is termed vitamin- or mineral-deficiency disease. All species of farm animals do not react in the same manner to a deficiency. For example, lack of iodine in a diet often results in foals, lambs and calves being born with swollen thyroid glands, commonly known as "big neck," while pigs may be born hairless. A deficiency in iron causes what is known as "anaemia of suckling pigs." Other important deficiencies are those of calcium and phosphorus, which may occur in domesticated animals as well as in wild animals kept in captivity.

General Health Precautions

Water Supply

An ample supply of wholesome water is essential to the maintenance of health of live stock. Live stock owners will be well repaid if they make available a water supply either within or adjacent to the stable, thus ensuring an ample amount under all weather conditions. If animals are turned out to a drinking trough or creek under unfavourable weather conditions, particularly at low temperatures, only sufficient water will be taken to provide for minimum requirements. This is undesirable.

Air and Ventilation

In the act of breathing, when air is drawn into the lungs, part of it is taken up by the blood and carried to all parts of the body. There it enters into combination with food for the manufacture of body tissues and the generation of energy. Careful calculations have shown that, irrespective of the animal species, the weight of air taken into the lungs in 24 hours is greater than the combined weight of food and water consumed in the same length of time. The blood carried to the lungs gives up impurities and waste products, which are given off when the animal "breathes out." In an unventilated building the air becomes saturated with these waste products. This is detected by the presence of odours, dampness, and the sensation caused by a "stuffy atmosphere."

The purpose of an efficient ventilating system is to replace the used air with pure air from the outside, and in such a way that sufficient fresh air is provided without causing draughts and excessive chilling of the building. Information on the construction of ventilating systems may be secured from your nearest Experimental Farm or Agricultural College.

Buildings

Buildings should be erected on well-drained sites. Care should be taken to drain stagnant pools in stable yards so that the sun and wind may dry damp places. Foundations should be solid to prevent under-floor draughts, and water-proof to prevent dampness. Floors may be of wood or concrete; the latter is generally considered more satisfactory. With the exception of poultry houses, the floors should be allowed to slope to a drain. Walls and ceilings should be well constructed and insulated to prevent heat loss and the condensation of water vapours on their surfaces. The inner wall should be free of cracks, and have a smooth finish. When possible, windows should have a southern exposure and be large enough and numerous enough to provide abundance of light. Provision should be made for sufficient floor area for each species of animal. Little overcrowding can take place in horse or cow stables where tie-up stalls are used, but in pig, sheep, and poultry houses, overcrowding is frequently found. This cannot be too strongly condemned as it predisposes to respiratory diseases in particular and makes difficult the control of other infections.

Summary

1. Suitable buildings, good ventilation, and sanitary surroundings are important means to health.
2. If an infectious disease occurs, the suggested methods of control should be followed to limit and guard against the spread of infection through the herd or flock.
3. In districts where mineral or vitamin deficiencies are known to exist, special rations should be provided to avoid or overcome nutritional disease.
4. The cardinal rule in disease prevention is to avoid the introduction on healthy premises of animals from infected sources or from herds or flocks whose health is unknown or uncertain.

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