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THE PREVENTION AND CONTROL OF HOG CHOLERA

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Hog cholera is the most destructive disease with which swine owners have to contend.

When hogs sicken, cholera should be the first disease suspected. An early diagnosis is very important.

Hog cholera is very infectious and every sanitary precaution should be taken to prevent its spread.

The best known preventive is vaccination with anti-hog-cholera serum.

For the permanent control and eradication of hog cholera effective sanitation, carried out in conjunction with vaccination, is absolutely essential.

EXTENSION CIRCULAR NO. 102

THE PREVENTION AND CONTROL OF HOG CHOLERA

By W. W. DIMOCK

Hog cholera is more or less prevalent at all times. It is one of the most serious diseases of hogs with which swine owners have to contend. It is an infectious and highly contagious disease, with a high death rate. Hog cholera spreads rapidly from animal to animal in the herd, and often from farm to farm in the community.

CAUSE AND HOW SPREAD

The cause of hog cholera is a filterable virus, found in the blood and tissues of infected hogs. It is present in the urine, excrement and body excretions of the sick hog, and also in the discharges from the eyes and nose. Many hogs that have apparently recovered from cholera may harbor the virus, and are therefore infection carriers, often spreading the disease.

Outside the body of the hog, the virus of hog cholera may exist in the soil, in decaying vegetable matter, water, garbage, and on all objects contaminated by the cholera hog. The virus is carried from farm to farm by infected hogs; it may be carried by streams, drainage and by any object, person or animal that has been in an infected pen. Considering the country as a whole, traffic in hogs is undoubtedly the most frequent way in which virus is spread from place to place. Some of the hogs entering into traffic are infected before they leave the farm, others contract the disease at public stockyards. Many hogs are slaughtered for food that are already infected and particularly in setablishments not under state and federal supervision. Any

part of the carcass from such a hog may carry sufficient virus to start an outbreak of the disease. Thus, fresh pork trimmings are recognized as a means by which infection may be spread.

CONTROL MEASURES

Vaccination will play an important part in any plan for the control and eradication of hog cholera, but vaccination without the application of other effective control measures will not result in permanent relief. The consistent and systematic use of anti-hog cholera serum and hog cholera virus for the immunization of swine against hog cholera will keep the disease under measurable control and must be relied upon almost altogether for the individual herd until such time as we are ready to put into effect a program that is broad enough in scope to meet every contingency.

When the swine owners of the country are ready and willing to cooperate in the enforcement of the rules and regulations necessary to make sanitary measures for the prevention of the spread of hog cholera really effective and will adjust their methods of handling hogs accordingly, then, and only then, will serious outbreaks of the disease be prevented and severe losses, such as have occurred in the past, be avoided.

To control and eradicate hog cholera on a farm and to prevent its spread in a community, the following precautions are necessary:

Any pig showing evidence of ill health should be separated from the rest of the herd and closely observed for developments. Depression, loss of appetite and a high temperature are always suggestive of hog cholera. It is, however, not always possible to make a positive diagnosis of hog cholera from simply observing the sick pig. Therefore, if a hog dies, a post-mortem should be held and the organs carefully examined for the lesions of cholera. In a large herd where no dead hogs are available for post-mortem, it is often advisable to kill a sick hog for examination. It often happens that when cholera infection occurs in a healthy herd, one individual will sicken and die some days before the herd as a whole shows evidence of sickness. There-

fore, it is important to know the cause of death of the first pig that dies. If the premises are badly infected, a number of pigs may sicken at about the same time.

Burn or bury deeply all pigs that die, regardless of the cause of death.

All pigs purchased and brought to the farm should be kept under close observation, in separate quarters, for at least three weeks.

If sick pigs recover following good care or a change of feed or the administration of a medicinal agent or a so-called hog cholera remedy, it is unwise to assume that such treatment is specific for hog cholera, but rather that the disease from which the hogs suffered was not cholera. Many infections and parasitic diseases of swine, and also various forms of malnutrition and unthriftiness clinically resemble hog cholera in some respects.

THE COMMON DISEASES OF HOGS

The following infectious conditions may be mentioned as occurring among swine: hog cholera, infectious necrotic enteritis (intestinal necrobacillosis, infectious colitis, infectious diarrhea), dysentery of sucking pigs, infectious stomatitis, infectious rhinitis (snuffles), thumps, measles (infectious papular dermatitis), pneumonia, influenza of swine (flu, infectious bronchial pneumonia), paraplegia (paralysis), actinomycosis, tuberculosis, abortion, tetanus, rabies, arthritis, malignant oedema, anthrax, botulism, and non-specific septicemia.

The parasitic conditions are, externally, lousiness and scabies; there are two forms of scabies or mange, sarcoptic and demodectic; internally, stomach worms, intestinal and lung worms, kidney worms, muscle trichina, or trichinosis, and the cystic stage of certain tapeworms. In addition to the infectious and parasitic diseases, there are many organic diseases often fatal to the individual, and also poisoning from various substances.

INFECTION MAY REMAIN MANY MONTHS

The virus of hog cholera may retain its vitality outside the pig's body for many months. Experimental work on pen infection, and records of infected farms show that the life of the hog cholera virus varies greatly, depending upon conditions. Destruction of the virus may be hastened by doing away with conditions that protect it. Thoro cleaning and disinfection of hog houses and lots is essential. Every corner and covered place must be cleaned, if success in destroying the virus is expected. The accumulation of cobs, leaves, straw, boards, litter, manure, waste feed, bones, cans, bottles, pieces of tin, and any rubbish that protects the underlying soil from the sun and air, all no doubt furnish a certain amount of protection to the virus and prolong its vitality and continuation on the premises.

THE PREVENTION OF HOG CHOLERA

Clean the hog house of all litter and dirt; spray with a disinfectant and apply whitewash or paint. Rake up and remove or burn every particle of waste and rubbish in and about the pens and yards. Use air-slaked lime freely in the yards adjacent to the hog house, and from time to time on the ground where the pigs are fed.

Do not go into the hog lots on other farms where there is infection, and do not permit others to enter your hog lots.

If healthy hogs have access to a stream that comes thru farms where cholera exists, there is danger that they may become infected. Either keep the hogs away from the stream or have them vaccinated. If your own hogs are sick with cholera, do not allow them access to a stream of water. Take into consideration other farmers who live further down the stream. Wallows are not primarily a source of danger, but may become so from contamination.

Proper management of a hog farm includes the construction of appropriate buildings and the suitable arrangement of pens and drainage, thoro cleanliness and sanitation, with proper feeding and plenty of clean water. Such management will ac-

complish wonders in preventing losses from infectious and parasitic diseases and other causes. In this manner half of the pigs that die under three months of age, could probably be saved.

VACCINATION AGAINST CHOLERA

The only agent which is a preventive for hog cholera is anti-hog-cholera serum. This serum is made, with certain slight modifications, by the method originally outlined by Dorset, Niles and McBride. Serum production has reached a high development in both quantity and quality. Serum produced by biological laboratories and used for interstate shipment is made and tested for potency under government supervision. Anti-hog-cholera serum may be either wholeblood serum or clear serum, and may be used alone or with virus.

Swine owners have no choice but to use serum and virus for the protection of their herds against cholera until the principal sources of dissemination of the infection are brought under control. Upon the prevention of cholera depends the success of those engaged in the swine industry. Thousands of hogs in the United States die annually from ravages of the disease and the total loss often runs into millions of dollars.

Hog cholera is a herd disease, losses in non-immune herds being as high as ninety to ninety-nine per cent.

Immunity obtained by the serum-alone method is temporary, varying from five to eight weeks, whereas the serum-virus method, often termed the simultaneous, or double method of vaccination, produces, under favorable conditions, a permanent resistance or immunity to the disease.

Healthy pigs do not, as a rule, suffer after the administration of the serum-virus. The loss from such vaccinations is not over one or two percent. If pigs infected with hog cholera virus or ill from other causes, are vaccinated, the results usually will not be satisfactory.

To obtain the best results from vaccination, pigs should have good care, and half the normal ration for the following three weeks.

If pigs are sick with hog cholera, the only possible way to save any of them is to use anti-hog-cholera serum. Where hog cholera exists on an adjoining farm or in the community, it is always advisable to vaccinate all the pigs on the farms around the infected center. The cost of immunizing pigs against hog cholera buys the best insurance against loss that swine owners can have.

The best time to vaccinate pigs is when they are from eight to sixteen weeks of age, or ten days after weaning. However, on infected premises, it is often necessary to vaccinate the pigs at from a few days to a few weeks of age. Experience has shown that sucking pigs vaccinated with serum and virus will not in every instance remain immune to cholera as they approach market age. In those cases where it is necessary to vaccinate sucking pigs it is recommended that they be given serum alone and that they be revaccinated by the serum-virus method six to seven weeks later, or after weaning. Sucking pigs, even from immune sows, if on badly infected premises, frequently will contract the disease. The best advice which can be given to swine owners, when their hogs are in any way exposed to hog cholera infection, is to vaccinate their animals at once.

The duration of immunity in sucking pigs vaccinated by the serum-virus method is a question that all swine owners are interested in. This method of vaccination has been carried out experimentally by the federal government and some State Experiment Stations and the published reports indicate that with few exceptions the pigs so vaccinated remained immune up to market age. Some were no doubt exposed to virus infection during life. All those injected with virulent virus at maturity were found immune. The results of these tests have been given wide publicity. A few swine owners in Kentucky have been following this method of vaccination for some time and report good results with no losses from cholera; the pigs were not, however, later injected with virus to definitely determine the degree of immunity. Vaccination of sucking pigs, by the serum-virus method, if found reliable, would have the advantages of ease

and low cost, but inasmuch as our observations and experiments, tho too limited to be conclusive, seem to show that the resulting immunity is not always lasting, we do not now recommend the method for general adoption. We have observed outbreaks of cholera in shoats weighing 100-125 pounds, that had been vaccinated as sucking pigs by the serum-virus method. This was under good farm conditions.

IMPORTANCE OF DIAGNOSIS

The following paragraphs are taken from the report of the committee of the United States Live Stock Sanitary Association, on the differential diagnosis of the infectious diseases of swine.

"The committee wishes to emphasize the fact that hog cholera still is, and no doubt will continue to be, the most important infectious disease of swine with which we have to contend. More effective control of hog cholera will come from an early diagnosis and a more general and consistent use of anti-hog-cholera serum.

"History, symptoms and lesions of this disease are so well known that there is no excuse for veterinarians being unfamiliar with them.

"In many herds where cholera infection exists, other infections, either specific or non-specific, and parasites may be present to the degree of modifying the clinical picture and lesions of cholera and, therefore, the one making the examination may be misled as to the primary cause of the existing trouble.

"In diseases resembling hog cholera, the presence of hog cholera infection must be positively excluded before other agents can be accepted as primary or important causes."

In case of sweeping infection, followed by severe losses, either before or subsequent to serum-virus treatment, the possibility of the presence of the filterable virus always should be taken into consideration.

From time to time, we encounter herds that do not develop a lasting resistance to hog cholera infection, after vaccination with serum and virus. These so-called breaks are apparently due to different causes, some of which are little understood, and present difficult problems in physiology, physiological chemistry, immunity, nutrition and the relation of one diseased condition to another when coexistent in the same individual.

The successful immunization of swine against hog cholera is first of all dependent upon the potency of the serum and virus used and its proper administration. A study of a large number of herds in which post-vaccination trouble developed has brought out the fact that in many instances losses following vaccination are due to causes and conditions that existed before vaccination, that were initiated at time of vaccination or that occurred or developed following vaccination. The routine vaccination of hogs at public stockyards offers rather limited opportunity to the operator to do more than properly administer the serum and virus. In the vaccination of swine raised or maintained on the farm, with a few exceptions, every existing condition that might tend to modify unfavorably the results of vaccination may be known and taken into consideration.