Directions regarding disinfection in the case of contagious diseases of animals. Circular No. 2

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DIRECTIONS REGARDING DISINFECTION IN THE CASE OF CONTAGIOUS DISEASES OF ANIMALS.

Wisconsin Live Stock Sanitary Board

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The Live Stock Sanitary Board was organized July 1st, 1901, in pursuance with an act of the Legislature, published May 22d, 1901, and incorporated in the Laws of Wisconsin of 1901 as Chapter 440. This board is charged with the protection of the health of the stock interests of the state, with the investigation of contagious diseases of animals and all other matters relating to animal sanitation.

DIRECTIONS REGARDING DISINFECTION IN THE CARE OF CONTAGIOUS DISEASES IN ANIMALS.

The presence of most contagious diseases among stock requires that the affected premises shall be thoroughly and properly disinfected in order to destroy the seeds of the disease that are generally capable of retaining their vitality outside of the affected animal for a varying period of time.

Section 3, of Chapter 440, Laws of Wisconsin, 1901, further provides that the owner of slaughtered animals shall receive no compensation for the same until the Live Stock Sanitary Board is satisfied that the infected premises have been disinfected in such a manner as to prevent the further spread of disease.

The reason for this law is evident when the fact is known that in several instances the state has been called upon to slaughter at different times animals affected with tuberculosis that were kept on the same farm. A herd has been supposedly freed from tuberculosis only to have it break out anew at some subsequent date. If no new animals have been brought into the herd, by which the disease could have been introduced, the most probable origin of the second infection is that the barns contained the virus of the disease and if such was not thoroughly destroyed, the remaining healthy animals might easily acquire the disease.

GENERAL PRINCIPLES OF DISINFECTION.

To disinfect is to destroy infectious matter, and this can only be done by bringing the disinfecting agent in direct contact with the disease germ, under such conditions as to kill the same.

It therefore follows that one must know where such disease matter is liable to be found, if he is to concentrate his efforts most economically where they are most needed. It is not generally true that disease-breeding matter is scattered promiscuously and more or less uniformly over a relatively large area. Usually, the seeds of disease are to be found in greater numbers in the immediate neighborhood of the animal and in some cases are practically confined to the animal itself. Here it is that the most stringent treatment should be given. Stalls, feed boxes and mangers are much more likely to harbor the disease germ than portions of the stable more remote from the animal.

LIQUID AND GASEOUS DISINFECTANTS.

Germ-destroying substances are generally applied most successfully in a liquid condition where contact with the disease germ is more complete and enduring. There are, however, some excellent gaseous disinfectants that are very efficient when properly applied. A condition that is prerequisite to the successful use of these is that the space to be treated be tightly closed, so that the gas cannot escape. In barns and stables, as often constructed, there are generally so many cracks and openings that it is impossible to confine the gas sufficiently, so that it necessitates the use of liquid substances. There are a considerable number of chemicals that may be employed for this purpose; and the market is also flooded with numerous proprietary compounds, the disinfecting action of which generally depends upon the addition of some well-known substance that can usually be purchased at lower prices in the market.

DISPOSAL OF CARCASSES OF DISEASED ANIMALS.

In the case of some communicable diseases (those contracted only through bites or wounds as hydrophobia or lockjaw, or those which are slowly transmissible as tuberculosis or lumpy jaw) there is practically no danger from the carcass if it is disposed of by ordinary burial. In all these cases save lockjaw the animal may be skinned and the pelt saved.

With those diseases that affect the blood or muscular tissues, as anthrax, and black leg in cattle, hog cholera, etc., much greater care should be observed in the disposal of carcasses. Where sheep or cattle are affected, the skin should not be removed under any circumstances, as it is highly contagious and furthermore renders the satisfactory disposal of the carcass more difficult. The carcass should be buried unopened at a depth of several feet, so that it cannot be dug up by dogs or other animals. It is important that the animal be not dragged over the surface of the ground to the place of burial. The ground where carcass of animal lay should be well covered with brush and straw and then burned, or it may also be covered with quicklime. It is also possible to destroy the contagion in a carcass by burning the animal, but if this is resorted to, care should taken to consume the whole carcass.

TREATMENT OF AFFECTED PASTURES.

Only in the case of diseases affecting more or less the entire blood system, as anthrax, black leg, hog cholera or swine plague, is it necessary to regard the pastures used as likely to transmit contagion. The germs of such diseases as hydrophobia, lockjaw, lumpy jaw and probably glanders are either unable to live in a dried condition, or else are so unlikely to be spread over fields and pastures as to render the danger from this source practically negligible. Where pastures are affected with organisms belonging to the first class, it is exceedingly difficult to satisfactorily handle them. With such diseases as anthrax and black leg, stock should be excluded from affected fields, which may however be tilled.

DISINFECTION OF INFECTED BUILDINGS (BARNS, STABLES, PENS, ETC.).

The proper way to thoroughly disinfect animal quarters will depend upon the disease, and the condition of the buildings to be treated. Inasmuch as some disinfectants are highly poisonous, it is impossible to use them in places like mangers, stalls,

etc., that are accessible to stock, unless the poisonous chemical is subsequently removed. As a preliminary step to any disinfecting process, it is necessary to remove all litter, bedding and manure so that the disinfectant can come in direct contact with the surfaces to be treated. All loose, broken or decayed lumber, such as floor planking, mangers, feed boxes, etc., should be removed.

The most efficient disinfectants for general purposes are corrosive sublimate, carbolic acid, chloride of lime, formaldehyde.

Corrosive Sublimate.—This is highly poisonous to man and beast, and hence especial care must be taken in its use. It will kill bacteria in dilute solutions, one part to five hundred (one ounce to four gallons of water) being strong enough for ordinary purposes. The chemical corrodes metals quickly; hence it must be mixed in wooden pails, tubs, or barrels. It can best be applied to surfaces with a brush or broom, or with spraying machines that have no metallic parts. This agent is especially applicable to the treatment of barn and stable interiors, but on account of its poisonous properties, mangers, feed boxes, and the like must be thoroughly scrubbed after being disinfected with the sublimate solution.

Carbolic Acid.—This substance may be used either in the form of crude carbolic acid or the purified product. Its action is less intense than corrosive sublimate and there is much less danger with stock from its use, because of its penetrating odor. Pure carbolic acid dissolves readily in water, and should be used for barn disinfection in proportions of about one part to fifty parts of water. This can be applied with brush, broom or spray. The crude acid is much cheaper, but is much more difficult to use because it does not dissolve readily in water. In using the crude acid, it should be treated first with equal parts of sulphuric acid to thoroughly dissolve the same, after which it can be diluted in the proper proportion. It is necessary to use caution in mixing the sulphuric and carbolic acid as much heat is evolved. The full disinfecting strength of the solution will be retained if the sulphuric acid is added slowly, stirring

in the meantime the solution. If the pail or vessel in which the acids are mixed is placed in a tub of water, the heat will be readily absorbed.

Chloride of Lime.—This disinfectant is also applied in liquid form, one pound of the fresh material being used to three gallons of water. Its efficiency depends upon the liberation of chlorine gas. It is relatively cheap, and at the same time an efficient germicide.

Formaldehyde.—This comparatively new disinfectant has proven to be very efficient. It is sold generally as a colorless liquid under the name formalin, or formalose, which is really water saturated with about 40% of the gas. It can be applied either as a liquid or a gaseous disinfectant. A very effective and simple way of using it in the gaseous form is to spray it on to suspended sheets, using about six ounces to every 1,000 cubic feet of space.

Sulphate of Iron (copperas) is a good deodorizant, and when applied in strong solutions is a disinfectant. It should be applied as a saturated solution. This substance is non-poisonous and on this account is of value in the treatment of mangers, stalls, gutters, drains, etc.

Whitewash is frequently used with success in combatting disease bacteria, not so much on account of its disinfecting action as by reason of its other advantages. If prepared from freshly slaked lime, it possesses considerable disinfecting value, but none if the lime is air slaked. If chloride of lime is added to whitewash in the proportion of one pound to three gallons it increases the germ-destroying property. The disinfecting action is more intense if the whitewash is applied hot than cold.

Whitewash should be used in stables at frequent intervals. It is a remarkably good purifier, absorbing foul odors. It reflects light perfectly, thereby improving the illumination in barns, particularly basement structures. By virtue of its incrusting effect it holds bacterial life in place and under conditions where their action is minimized.

Quicklime is of especial value in the treatment of hog pens where hog cholera has obtained a foothold.

DUTIES OF LOCAL HEALTH OFFICER.

In accordance with the regulations of this Board, it shall be the duty of the Local Health Officer or the Town Chairman, to see that the disinfection of any affected premises is carried out in a thorough and efficient manner and that a report of such disinfection be made to the secretary of this Board.