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SUGGESTIONS RELATIVE TO THE PREVENTION OF HOG CHOLERA

BY

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Hog cholera is the greatest menace to successful hog raising in Kentucky. It is by far the most contagious and fatal of any of the diseases of swine. The disease is due to an ultra-microscopic virus (germ) which is present in the blood, the excreta and in the carcasses of all infected animals. The infection may be carried from infected to healthy herds by a number of agencies, such as running water, birds, dogs, new stock from infected sources and also on the shoes of persons who have walked over infected areas. We can hope to control, and ultimately eradicate, hog cholera only by honest, conscientious and painstaking efforts on the part of all farmers and hog raisers looking to the effective isolation of all animals having the disease, scrupulous cleanliness in the handling and care of hogs, disinfection of infected premises, the burning of all carcasses of hogs that have died of this disease, proper care in the selection of fresh stock and the careful and intelligent use of hog cholera serum. There is absolutely no question but that hog cholera can be prevented and controlled, through the careful observance of a few simple, preventive measures, together with the intelligent use of hog cholera serum. With a view of aiding all those engaged in the raising and fattening of hogs in their efforts to prevent and control this disease, the following suggestions have been formulated relative to the care and precautions to be observed in the proper handling of hogs.

General Care and Management of Hogs. Hogs should be fed a balanced ration consisting of such materials as corn and various corn products, bran, wheat middlings, oil meal,

tankage and distillers' dried grains and, whenever possible, they should be supplied with forage crops, such as green alfalfa or alfalfa hay. Excellent results have been obtained at the Experiment Station by grazing hogs fed corn meal as the chief ration, on young barley, rye, wheat and oats, so that by the use of such crops during the winter and spring months, forage for hogs can be secured in this climate practically the year round. By reason of its low protein

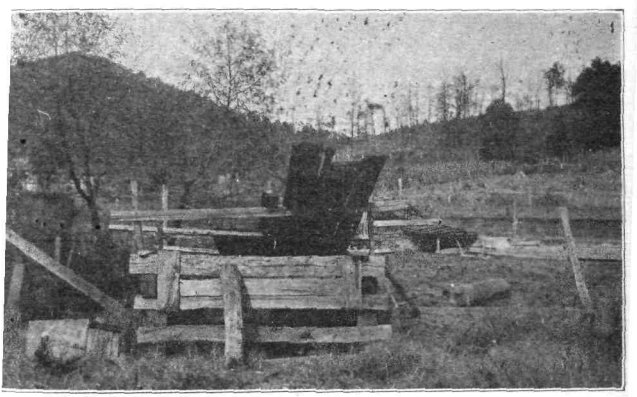

PLATE I. Unsanitary hog lot.

content, a ration of corn or corn meal alone is not suitable for the growing pig. It should always be supplemented with other feeds rich in protein, such as oil meal, tankage, distillers' dried grains, etc. For further information on the feeding of hogs, the reader is referred to Bulletin No. 175 on the growing and fattening of hogs in the dry lot and on forage crops, and to Bulletin No. 190 on the value of distillers' dried grains in swine feeding operations, and the value

of wheat as a feed for swine, both issued by the Kentucky Agricultural Experiment Station.

Hogs should be supplied with an abundance of pure, clean water, plenty of shade in hot weather, dry bedding, and airy, light, well ventilated hog houses. Filthy hog wallows should be avoided. If a wallow is desired, a shallow cement basin which may be frequently cleaned and disinfected should be constructed.

New Stock. Great care should be exercised in the purchase of new stock in order to secure healthy, vigorous animals, free from disease. In this connection, it is well to bear in mind that five to twenty days may elapse after a hog has become infected with hog cholera before any abnormal symptoms are observed. During this time the animal may appear normal to all intents and purposes. Improperly disinfected freight cars and public stock pens are constant sources of infection. Separate quarters should therefore be provided for the isolation of all newly purchased animals, where they may be kept from the rest of the herd for a period of three weeks, under observation for any symptom of the disease that may appear.

Loss of appetite, sluggishness or general weakness on the part of such isolated animals, or a tendency to carry the abdomen tucked up, the development of diarrhea or of a temperature (by rectum) of over 103 to 103.5 degrees Fahrenheit, afford good grounds for suspecting the presence of this disease.

Disinfection. Following an outbreak of hog cholera in a herd, a thorough cleaning up and disinfection of hog lots and quarters must be resorted to. Premises have been known to remain infected for four consecutive years from failure to clean up and disinfect. Fire and fresh air-slaked lime, or any of the coal tar dips, are efficient agents for the destruction of the hog cholera virus. The carcasses of all hogs that have died of hog cholera, together with the excreta and all litter, bedding and refuse contained about the hog lot, pens and houses should be raked up and burned. Fresh air-slaked lime should be abundantly scattered about the hog

lots, and the hog houses and feeding troughs thoroughly sprayed with a 3 per cent. solution of cresol compound or any of the coal tar dips. If desired a little whitewash may be added to the disinfectant to aid in determining the area covered.

Disposition of Hog Cholera Carcasses. The disposition of the carcasses of hogs that have died of hog cholera, in out-of-the-way places, on the surface of the ground where the infection may be carried for miles by running water, or where it may be widely disseminated by dogs and birds, is in reality little short of criminal, and is in violation of the live stock sanitary laws of the State. It is required by law to burn all such carcasses, and not to do so lays the offender liable to arrest and prosecution.

The Sale and Transportation of Sick Hogs. Sick hogs, or hogs from a herd in which hog cholera is known to exist, or hogs suspected of incubating this disease, should not be sold; neither should they be driven along public highways or transported in cars from place to place, or placed in public stock yards or pens. In other words, the only way to properly control this disease is to isolate it and though it may work a temporary hardship on the invidual owner to do this, it is certainly, ultimately, to his interest and to the interest of the great body of hog raisers within the bounds of the State, to do all in his power to establish and maintain a rigid and effective quarantine with respect to this disease.

Prevention of Hog Cholera by Means of Hog Cholera Serum. The only means of protecting the hog against hog cholera is by inoculation with hog cholera serum, or with hog cholera serum and virus. Inoculation with serum alone confers an immunity lasting from six to eight weeks, during which time the animal is not susceptible to the disease. Inoculation with serum alone is known as the *serum-alone* method. The double treatment, or the *serum-simultaneous* method consists in the simultaneous inoculation of the animal on one side of the body with serum and on the other side with virus. Animals thus treated show a lasting or permanent immunity to hog cholera. While the serum-simultaneous method con-

fers upon the animal a more permanent immunity than serum alone, it is borne by the animal with greater difficulty and is attended by a greater number of fatalities, and furthermore, unless it is properly controlled is liable to result in the establishment of centers of infection in non-infected territory. The Experiment Station discourages the use of the double treatment and will not supply virus to any one but recognized veterinarians.

PLATE 2. Inoculating small pig in hind flank.

In administering serum, the hogs to be treated should be penned up the night before and handled as quietly and expeditiously as possible, and all instruments used in the inoculation should be thoroughly sterilized by boiling in water immediately before the injection or administration.

Hog cholera serum is administered with a hypodermic syringe and needle into the muscle of the hog. A convenient site is the muscles of the inside of the ham. Hogs too large to throw are snubbed to a post with a rope around the upper jaw, and serum injected into the muscles of the neck just behind the ear or back of the jaw. It is not convenient to draw the serum from the bottle into the syringe, and a sterile container must be used. A covered porcelain cup or a tumbler with a saucer for a cover will suffice. The container as well as the syringe must be thoroughly boiled or washed in a strong disinfectant before using. Before making the injection the skin at the site of injection must be washed with disinfectant. A 3 per cent. compound solution of cresol or any of the reliable coal tar dips may be used. Body temperatures are taken to detect animals infected at time of inoculation. Such animals may sometimes be saved by administering double the usual quantity of serum, but uniform results must not be expected in infected herds. Serum is preventive and not curative. Hogs may be given the single treatment at any age, the dose of serum depending on the weight of the animal.

Dose Table.

10	c. c.	up to 10 lbs. in weight.
15	"	for all sizes between 10 and 20 lbs.
20	"	for all sizes between 20 and 50 lbs.
30	"	for 75 lbs. or more than 50 lbs.
40	"	for 100 lbs. or more than 75 lbs.
50	"	for 150 lbs. or more than 100 lbs.
60	"	for 200 lbs. or more than 150 lbs.
70	"	for 250 lbs. or more than 200 lbs.
80	"	for 300 lbs. or more than 250 lbs.
90	"	for 400 lbs. or more than 300 lbs.
100	"	for more than 400 lbs.

(C. C. stands for cubic centimeter. Serum syringes are graduated in cubic centimeters.)

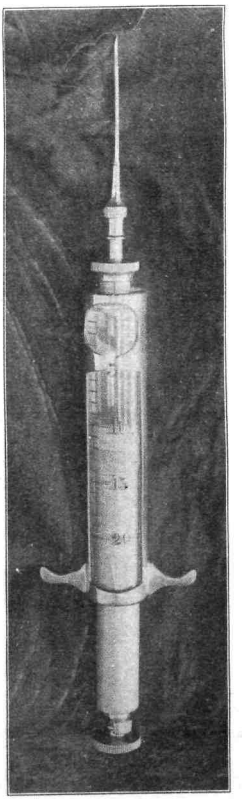

PLATE 3. Serum syringe.

For a few days following treatment hogs should be fed sparingly on a simple laxative diet. They should be turned out in a clean grass pasture, free from mud holes, or if the weather is severe they can be placed in freshly bedded, clean hog houses.

Failure to exercise the proper precautions of cleanliness in injecting the serum or turning the hogs in a filthy place after treatment, may result in abscesses.

Hog cholera serum should be regarded as an agent to be used only in emergency when hogs are infected or exposed to the disease. In an outbreak of cholera, vaccination of the surrounding herds, supplemented by quarantine and disinfection, will prevent spread of the disease.

Hog cholera serum is manufactured by the Experiment Station at Lexington and by several commercial firms. In ordering serum the number and weights of the hogs to be treated should be stated. Serum is distributed at one cent per cubic centimeter and is shipped by express c. o. d. In order to avoid delay in shipment, serum depots are maintained by the Experiment Station in a number of localities in the State.

Serum Depots.

COUNTY.	IN CHARGE OF
Hardin,	County Agent, E. E. Pittman, Elizabethtown.
Henderson,	C. G. Baxter, Henderson.
Hopkins,	County Agent, G. S. Hollingsworth, Madisonville.
Jefferson,	" " F. E. Merriman, Louisville.
Knox,	" " Wm. Tye, Barbourville.
Laurel,	" " Sam Morgan, London.
Logan,	" " W. H. Rogers, Russellville.
Madison,	" " Robert Spence, Berea.
Madison,	" " B. F. Boggs, Richmond.
Mercer,	" " *J. C. Gentry, Harrodsburg.*
Simpson,	" " Farmer Kelly, Franklin.
Trigg,	" " K. L. Varney, Cadiz.
Todd,	" " G. T. Wyatt, Elkton.
Union,	F. H. Beggs, Morganfield.
Whitley,	County Agent, E. H. Faulkner, Williamsburg.
Woodford,	" " O. F. Floyd, Versailles.

It should be borne in mind that even under the best possi-

PLATE 4. Method of inoculating pregnant sow.

ble conditions, certain losses of hogs, following the inoculation, are unavoidable. The following report of the hogs inoculated in Kentucky during the year July 1, 1914, to July 1, 1915, will serve to give a correct idea of the saving accomplished through the careful and intelligent use of serum.

No. Hogs treated	46,918	
No. Herds treated	1,278	
No. Hogs reported	40,998	
No. Hogs lived	37,497	91.5%
No. Hogs died	3,501	8.5%

Construction of Hog Houses. Hog houses properly constructed so that they may be frequently cleaned and disinfected are essential for successful hog raising. Unsanitary hog houses are often responsible for premises remaining infected with cholera. A permanent hog house should be constructed with either a cement or solid wood floor. Small colony houses built on skids to facilitate moving from place to place are desirable. When built without a floor plenty of bedding should be used. Moving frequently insures clean, dry quarters. Following an outbreak of cholera such houses are readily cleaned and disinfected and may be moved to uninfected premises.

Internal Parasites. The hog is found to harbor a number of internal parasites which are detrimental to the health and general well-being of the animal. The following preparation has been found to be of value in the correction of conditions resulting from the presence of internal parasites in hogs:

Santonin	2½ grains
Areca nut	1 drachm
Calomel	2 grains
Sodium bicarbonate	2 drachms

The above constitutes the dose for a 100 pound hog and should be given in slop. Starve all hogs twenty-four hours before giving the vermifuge.

Lice. Under certain conditions hogs are also frequently infested with lice, the removal of which can be accomplished by the use of any of the coal tar dips, or the hogs may be sprayed with an emulsion of crude oil or kerosene. Frequent

cleaning and disinfecting of hog houses will aid in suppressing lice and internal parasites.

Patent Medicines. Patent medicines and all so-called *hog cholera cures*, should be avoided. At best, these preparations are only conditioners and under no circumstances do any of them possess any real curative properties for hog cholera. Many of them are also very expensive, considering the actual value of their ingredients, and their continued use in the attempt to counteract hog cholera is often a source of great expense to hog raisers and accomplishes nothing in the cure and prevention of this disease.

SOME HOG REMEDIES.

It should be clearly understood that the following remedies are in no way a cure for hog cholera or have any relation to hog cholera, except as they may aid in keeping hogs in a healthier condition.

MIXTURE TO PREVENT WORMS.

Sal soda	3 pounds
Epsom salts	3 "
Common salt	3 "
Sulfur	1 "
Charcoal	4 "
Copperas	3 "

These ingredients should be thoroughly mixed and the mixture kept before hogs at all times. A self-feeder makes an excellent container.

TONIC FOR HOGS.

Government Remedy.

Wood charcoal	1 pound
Sulfur	1 "
Common salt	2 "
Sodium bicarbonate	2 "
Sodium hyposulphite	2 "
Sodium sulfate	1 "
Antimony sulfide	1 "

The above ingredients should be pulverized and thoroughly mixed. Mix with feed in proportion of one large tablespoonful to each 200 pounds live weight of hogs to be treated, and give once a day.