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CHEMICAL CORPS BIOLOGICAL LABORATORIES
Fort Detrick, Maryland

Anthrax of Animals and Its Control

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Translated from monograph of the same title, published in Moscow, 1946, pp 25-32, by SFC E. E. Ewing, Technical Library, Technical Information Division.

Carcass Disposal

The bodies of animals that have died from anthrax are extremely dangerous sources of infection. Therefore, the removal and disposal of a body should be given the most serious attention. The bodies are destroyed together with the hides.

The best method for destroying the body is burning. In the cases where the animal has died on pasture or away from any buildings, the body may be burned where it lies. Where the animal has died in the barnyard or near buildings, and the body cannot be burned in situ because of fire considerations, then it is hauled to a cattle grave or to some other place and destroyed. The transportation and destruction of the body must be done under the direct supervision of veterinary personnel.

A special wagon must be set aside for each farm and settlement for the transportation of carcasses. The bottom of this wagon must be lined with steel so that not a single droplet of body fluid escapes to the ground. The wagon must stay in a special shed near the cattle grave or in some other isolated building. After use, it must be carefully disinfected. It is forbidden to use the wagon for purposes other than the transportation of carcasses.

The personnel assigned to collect and destroy a carcass must be provided special clothing (coveralls, rubber aprons, leather or rubber gloves, boots or galoshes) and also towels, disinfectants and soap for washing the hands. The protective clothing is disinfected after the disposal of a body. Persons with cuts, lesions or scratches on the hands should not be permitted to collect bodies. The body should be profusely wetted with odoriferous disinfectants (creolin, creosote, carbolic acid) to repel biting flies, which may carry the infectious matter and infect a human with its bites.

Before loading the carcass on the wagon, the anus and nostrils should be packed with fiber packing, and it is best to wrap the head with an old sack profusely wetted with a disinfectant solution. If the wagon has no box, then the body should be covered with old sacking or something similar.

Burning the Carcasses. The burning must be done in such a manner that the entire carcass is incinerated and turned to ashes. The following methods for incineration are recommended.

The first method, the so-called Russian method (fig 3). A pit is dug, 2.5 meters long, 1.5 meters wide and 0.70 meter deep. The excavated soil is piled along the longitudinal edges of the pit in a sort of bank. The pit is filled with dry firewood that is piled up to ground level. Then, 3-4 rails or green logs are laid across the excavation for the body to be placed on. After this, the wood is lit. Additional wood is added to the hole as required by the degree of the body's incineration. After complete incineration of the body, the hole is filled with dirt.

The second method, in which the pit is dug 2 meters long, 2 meters wide and 0.75 meter deep; at the bottom of this, a second pit is dug 2 meters long, 1 meter wide and 0.75 meter deep. Straw or dry brush is laid in the bottom of the lower pit and the pit is filled with wood, leaving an air space of 10-20 centimeters on both ends for a better draw for the air. The wood laid in the bottom is covered with kerosene or other fuel. Cross beams, made of green logs, are laid crosswise over the wood in the lower pit and the carcass is placed on them. The carcass is covered top and sides with firewood or with a layer of peat, after which the fuel in the lower pit is ignited. More wood or peat is added as required, according to the degree of incineration. After complete incineration of the body, the hole is filled with dirt.

The third method (the American trench). Two transverse ditches are dug - 2.6 meters long, 0.6 meter wide and 0.5 meter deep (fig 5). A layer of straw is laid in the bottom of the trench and the holes are then filled with firewood. Cross beams, made of green logs, are placed in the middle at the intersection of the trenches (the cross). The carcass is loaded upon these and covered top and sides with firewood, which is thencovered with old sheets of iron, or other uninflammable material. After this, the straw at the bottom of the trench is lit. When the carcass is completely burned, the hole is filled with dirt.

The fourth method (American method). The incineration is done without a pit, right where the animal dies. The carcass is covered with kerosene, oil, or other fuel and then covered with a thick layer of straw. A layer of horse manure or peat is laid over the straw (fig 6) and the straw is ignited. If the Carcass is incompletely incinerated, it is again covered with fuel, straw and horse manure or peat. Dry dung may be used instead of manure or peat.

This method of incinerating the body on the surface is useful in regions with rocky soil, and where ground waters are close to the earth's surface.

Disposal of the carcasses by the Czech method, or in the so-called Bakery pits (fig 7). This method is permissible in regions where the subterranean

water levels are deep and create no danger for the water supply of settlements and animal husbandry farms. A well-like pit is dug to a depth of 9-10 meters, and with a diameter of 3 meters. The bottom and walls of the pit must be constructed of waterproof material - cement or log crib (the wood impregnated with tar); in addition, a clay seal should be laid around the walls of the crib and beneath the bottom. In places where the earth is hard and the underground water levels are deep, the Czech pits may be constructed without waterproof walls and bottom. There must be two tightly-fitting covers over the pit that are lockable.

The pit must have a ventilator pipe with cover. At least 200 square meters of land are allotted for the pit area. The pit area must be enclosed by a durable enclosure or earthen embankment, with a ditch, 1.5 meters deep, dug around the inside of the fence. The enclosure is made to keep animals out of the pit area.

In the Czech pits, the carcasses decompose and are greatly reduced in volume, so that a single pit will suffice for burial of a large number of carcasses. The pit may be filled with carcasses to a level 1.5 meters below ground level and, after this, filled with dirt.

The Czech pits are very convenient for the disposal of carcasses. Their construction, in each individual case, is permitted only upon the approval of the Veterinary Administration of the oblast (kray, republic) and the State Sanitary Inspection.

Cattlegraves. If it is impossible to dispose of the carcasses by the above methods, then it is permissible to bury them in the ground in a properly equipped cattle grave. Burial of the carcasses in a cattle grave is a less ideal method of disposal than the incineration or the destruction of them in the Czech pits. The infectious matter is not destroyed by this and is preserved in the soil for decades. Therefore, there is always the danger of a scattering of the infectious matter, as the graves may be dug up by carnivorous animals, and rainworms may carry the spores in the soil to the surface of the earth where they may be carried outside the cattle grave by spring rains.

The allotment of the plot of ground for the cattle grave is made by a special commission with the mandatory participation of veterinary-sanitary supervision and the State Sanitary Inspection.

The site of the cattle grave must be dry, elevated and situated at least one kilometer from residences, barns, industrial installations, apiaries, rivers, ponds, wells, springs and other water sources. The cattle graves should be fenced with a durable enclosure or earthen wall so that animals cannot enter them. The enclosure or wall should be at least 2 meters high. A ditch, 1.5 meters deep, is dug on the inside of the fence or wall. There should be tightly-locking gates in the fence for access to the cattle grave.

Illustrations

Fig 3. Arrangement of pit for incineration of carcasses by the Russian method.

Fig 4. Arrangement of pit for incineration of carcasses by the second method.

Fig 5. Arrangement of pit for incineration of carcasses by the American method.

Fig 6. The American method for incineration of the carcass at the site of the animal's death.

Fig 7. Czech pits for disposal of carcasses.
A - Brick version
B - Wooden version
B - Wooden cover made of boards 5 cm thick.

Sub-figure A (*reading from top to bottom*)
Cobblestone surface.
Layer of sand.
Brickwork, 38 cm thick, on a cement mixture of 1:4.
Steel reinforcing ring, 12 x 15 cm.
Cement, R_{28} = 65 kg/cm^2.
Tamped brick rubble.

Sub-figure B (reading from top to bottom)
Logs d = 16 cm.
Layer of clay, 40 cm thick.
Log d= 20 cm.