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ABSTRACTS



HOG CHOLERA VACCINES. Two types of vaccine are now being prepared; crystal violet vaccine and Boynton's tissue vaccine.

Crystal violet vaccine is derived from blood of hogs acutely sick with hog cholera. It is defibrinated and diluted with one part of 3 per cent disodium phosphate solution and one part of 0.5 per cent crystal violet dye solution to eight parts of blood, and incubated at 37° C. for two weeks, at which time it is sufficiently attenuated for use.

Boynton's tissue vaccine is also made from pigs acutely ill with hog cholera. Tissues with the highest virus content are ground and diluted and 1 per cent eucalyptol is added. It is then milled to a fine tissue suspension in a colloid mill and incubated at 37° C. for a time sufficient to modify the virus.

Both products are relatively stable, and the BAI allows a year's expiration date.

To test the vaccine, 12 pigs are used; three being controls, seven getting 5 cc. of vaccine, and two receiving 3 cc. of vaccine. Temperatures are taken daily for 21 days. Each pig is then given 2 cc. of virulent hog cholera virus which is administered by the BAI inspector. The controls must show symptoms of hog cholera and the animals vaccinated with 5 cc. must be well in 14 days. Those injected with 3 cc. need not withstand the disease but almost invariably do. The vaccine thus does not cause hog cholera, and will protect pigs in 21 days after vaccination. It is also tested for purity

by guinea pig and pigeon inoculation, and cultural tests.

A single 5 cc. dose is given to each pig, though many practitioners feel that larger hogs should be given more to satisfy farmers accustomed to the serum and virus method. It is recommended that pigs be vaccinated at 10-12 weeks of age. Control tests show that pigs will withstand a 2 cc. subcutaneous injection eight months after vaccination. Pigs should reach market age by this time. Practitioners feel it will immunize successfully for one year, though gilts used for breeding should be vaccinated again at eight months.

Although the vaccines were intended for use only on healthy herds, practitioners have used them widely on apparently healthy herds that previously had severe reactions following the use of serum and virus. In a herd suffering "yard infections" it is advisable to use two doses of vaccine 2-3 weeks apart. In herds that have been exposed to hog cholera, serum and vaccine may be given together. If it is impossible to market them in 4-5 weeks a second injection of vaccine alone should be given.

Using vaccine all pigs need not be vaccinated at the same time, as there is no potent virus shed. They can be vaccinated as they reach the proper age. An added advantage is the fact that there is no reaction, pigs make normal gains and reach market 2-6 weeks earlier.

The vaccine may be given subcutaneously, intraperitoneally, or intramuscu-

larly, with the subcutaneous method preferred.

Some trouble has been experienced from vaccinating pigs that were too young or in no condition to be vaccinated, injection into fat where it was not absorbed, or where exposure to cholera occurred before immunity developed.

(Sippel, W. L., and Casselberry, N. H., 1945. *Hog Cholera Vaccines*. *Cornell Vet.* 35:152-157).

BOVINE INFECTIOUS KERATITIS. Bovine infectious keratitis, also called pinkeye, is common to all ages and breeds of cattle. The symptoms and significance of this disease have been known for sometime, but there is still uncertainty as to what causes it, or how it is transmitted. It is due to this latter fact that these studies were undertaken.

Previous to culturing material from the eyes of clinically infected animals, cultures were made of material from the eyes of twenty apparently normal cattle. From these eyes a variety of organisms was demonstrated. Among them were non-hemolytic and hemolytic streptococci, corynebacteria, saprophytic actinomyces, *Escherichia coli*, unidentified gram-positive and gram-negative rods, and unidentified gram-negative cocci. It should be noted that *Hemophilus bovis* was not isolated from any of this material.

Samples of infected material were obtained from 62 animals in 13 infected herds near Columbus, Ohio, and from 22 out-of-state samples.

Of the 90 infected eyes examined *H. bovis* was identified by the direct microscopic smear method in 66, by the cultural method in 69, and by the combined method in 74. Of the 22 out-of-state samples *H. bovis* was demonstrated in 19 by the direct microscopic method.

Mice, guinea pigs, and rabbits failed to develop any ocular reactions when given parenteral injections of the organism. Rabbits irregularly succumbed to intravenous injections. Sheep were also in-susceptible to infection.

Two trials were conducted using calves of various breeds ranging from four to eight months of age. In one experi-

ment five of six calves inoculated developed symptoms and lesions in a short time. The sixth calf failed to develop lesions even after a second injection. It was learned that the calf came from a herd where the disease had been prevalent previously, so it was assumed that this may have rendered the calf immune.

Experiment 2 was conducted using 11 calves. Symptoms developed in seven of these animals in 5 to 16 days. Two of the animals that failed to develop symptoms had recovered from infection as a result of inoculation during the first experiment, but which were inoculated a second time to see if any immunity resulted from infection. They failed to develop symptoms after the second inoculation, and no bacteriolytic or precipitin bodies could be demonstrated 10 days before or 60 days after inoculation in Experiment 2.

(Baldwin, Earl M., 1945. *A study of bovine infectious keratitis*. *Am. J. Vet. Res.* 6(20):180-187).

CONTROLLING PARASITISM IN LAMBS. Montana ranch sheepmen had been advised to treat ewes in the fall against parasitisms in an attempt to prevent a source of infestation of the lambs of the following year. To determine the effectiveness of this treatment tests were conducted using phenothiazine as an anthelmintic in ewes during the winter.

One hundred and ten breeding ewes were divided into two lots of 55 sheep each for use in the trials. Lot 1 was treated with phenothiazine, while lot 2 was given no treatment. After lambing both lots were removed to summer pastures, both pastures being freely supplied with phenothiazine salt.

At the onset of the experiment on January 18, 1944, fecal counts showed an average of 120 eggs per gram for lot 1, and counts of 115 eggs per gram for lot 2. On January 22, the ewes of lot 1 were treated with 25 grams of phenothiazine each. Fecal examinations on January 27 revealed an average count of 12 for lot 1 and 80 for lot 2. On February 23, the

count for lot 1 was 20 while that for lot 2 was 75. On March 23, the count for lot 1 was 125 while the count for lot 2 was 230, a marked increase in both cases. Lot 1 was again treated on March 31. Five days later the count for this group was 70.

The extent of lambing season was March 31 to June 14, and the ewes were moved to summer pastures between May 3 and June 19. Fecal examination just prior to moving indicated a sharp increase in the counts of both groups, which at this time were very nearly the same. Lot 1 was given another treatment, and five days later the count was reduced to 10 eggs per gram of feces. On August 7, the fecal count for lot 1 was 47 and for lot 2, 55.

In trials with *Nematodirus* the average fecal egg count was 9 for lot 1 on January 18, and 4 for lot 2. Treatment showed little effect by January 22. Lot 1 received another treatment on March 31. Just before entering summer pasture the average count for lot 1 was 35, and for lot 2 it was 13 eggs per gram. After treatment lot 1 averaged 18. On August 7, the count for lot 2 was still lower than lot 1.

Fecal counts on the lambs on July 5, August 7, September 11, and October 9 revealed no substantial difference in the number of eggs passed by the two groups. The *Nematodirus* counts were relatively high in all of the lambs. None of the lambs, however, showed symptoms of parasitisms. The lambs of both groups were, on the average, heavier than the average of 39 lambs born during the corresponding season in the previous year.

The results indicate that the winter treatment of ewes carrying subclinical numbers of *Trichostrongyles*, *Ostertagia*, and *Nematodirus* will not pay on a range where sheep will take salt freely during the summer and spring. It also appears that 10 per cent phenothiazine in salt eaten at the rate of 1.5 Gm. of phenothiazine per sheep per day will not only prevent clinical nematode parasitisms in lambs, but will reduce worm numbers to a minimum in ewes.

(Seghetti, Lee, and Marsh, Hadleigh, 1945. *Control of intestinal parasitism in*

lambs by winter treatment of ewes, as compared with the use of phenothiazine in salt in summer. *Am. J. Vet. Res.* 6(20):159-164).

SODIUM FLOURIDE AN ANTHELMINTIC FOR SWINE. Tests with sodium fluoride and phenothiazine mixture, aluminum silicofluoride, barium fluoride, aluminum fluoride, and sodium silicofluoride were conducted to investigate the possibilities of finding a new and more effective anthelmintic of swine than phenothiazine and oil of chenopodium.

In all, 124 pigs were used in 48 trials with sodium fluoride. Seven pigs were given a 1:0 per cent concentration of the chemical in the feed for three consecutive days. This treatment removed 65 of 67 ascarids, 189 of 410 whipworms, and 54 of 225 nodule worms from 5 pigs, and 21 of 149 stomach worms from 4 pigs. In one trial 2 pigs were given a 1.0 per cent concentration of the drug for one day. This treatment removed 204 of 211 ascarids, 230 of 255 stomach worms, 15 of 1227 nodule worms, and none of 146 whipworms. A group of 19 pigs was given 1.0 per cent of sodium fluoride in the feed for one day. This treatment removed 28 of 29 ascarids from the group. Eight pigs were given the drug as 2.0 per cent of the feed mixture for one day. The mixture was eaten less readily than the 1.0 per cent mixture. It removed all of 137 ascarids from 8 pigs, 552 of 1476 nodule worms from 7 pigs, 2492 of 2513 stomach worms from 6 pigs, and 1 of 24 whipworms from 5 pigs.

During these trials 4 pigs died. Necropsy revealed that only one of these deaths could have resulted from sodium fluoride toxicity.

Sodium fluoride-phenothiazine ratios of 3:1, 2:1, 7:5, and 1:1 were given to swine at the rate of 1.5 to 2.0 per cent of the feed. These mixtures were quite effective in removing ascarids and nodule worms, but they were less palatable than the sodium fluoride at a 1.0 per cent concentration.

Aluminum silicofluoride was used as a

2.0 per cent mixture, barium fluoride as a 3.0 per cent mixture, aluminum fluoride as a 1.5 per cent mixture, and sodium aluminum fluoride as a 2.5 per cent mixture with no untoward reactions, but with little if any anthelmintic value. Sodium silicofluoride was given in the feed at rates of 5.0, 2.0, and 1.0 per cent. With doses of 5.0 and 2.0 per cent profuse vomition followed ingestion of the feed, and the pigs refused to eat the 1.0 per cent mixture. The drug was effective against 1 mature ascarid, removed all of 4 stomach worms, and 9 of 10 nodule worms in one pig that ate the mixture but vomited shortly afterwards.

In toxicity trials on sodium fluoride the compound was given at the rate of 4.0 or 5.0 per cent of the feed. One pig weighing 30 pounds was given 13.2 Gm. of sodium fluoride at 4.0 per cent of the feed. In the morning the pig was dead with post mortem lesions of pneumonia. A 130 pound pig was given 78 Gm. of the compound in a similar concentration, but vomited and refused to eat any more of the feed after ingesting about 20 Gm. of the sodium fluoride. In cases in which the animal's ration had been reduced to one-half of the normal on the day preceding treatment, death followed treatment. The post mortem lesions observed included marked hemorrhagic gastroenteritis, and congestion of the liver and kidneys. Previous to death the animals showed depression, trembling, and soft feces.

These experiments uphold the value of sodium fluoride as a promising agent for the removal of large roundworms from swine and suggest that the optimum rate of administration is about 1.0 per cent of a dry feed for a period of one day.

(*Haberman, R. T., Enzie, F. D., and Foster, A. Tests with fluorides, especially sodium fluoride, as anthelmintics for swine. Am. J. Vet. Res. 6(20):131-144.*)

Several factors may influence the volume of urine formation. First, the rate of glomerular filtration and second, the rate of tubular reabsorption, or a combination of the two.

Ornithosis, a disease of pigeons quite similar to psittacosis, is widely prevalent in the United States and it is thought that it may be responsible for many sporadic cases of primary, atypical pneumonia in man.

A positive test for examining meats is using a solution made up of ether, alcohol and hydrochloric acid. If the solution when applied to the meat gives off white vapor the meat is bad. Another test is the application of heat to a sample of meat. If the resulting odor is sour and pungent, the meat cannot be used.

Eggs are weighed and each should be at least two ounces. They are then candled for color and air space. The air space is plainly visible during the candling process and should not extend more than one-fourth inch from the larger end.

Both the hospital veterinarian and his assistant have extensive backgrounds for their work. Lt. Thompson is a graduate veterinarian of Iowa State College. Before coming to Northington in November he was Station Veterinarian at Camp Gordon Johnson, Florida. Tec. 5 Pinder majored in dairy manufacturing and animal husbandry at the State School of Agriculture in New York. His first Army stop was at Walter Reed Hospital in Washington, D. C., where he took the veterinary course. Since then he has been stationed at Northington and as Lt. Thompson states, "giving valuable service."

Penicillin used intravenously is not an effective treatment for mastitis, because the lactating bovine udder does not serve as a major systemic exit for penicillin in the blood.

Enteritis due to *Erysipelothrix rhusiopathiae* occurs probably more frequently than it is recognized. However, no way of differentiating this from other infectious types has been found, except by cultures.

Though sheep production is not a large enterprise in New Jersey, it can be made a profitable side line on general farms because the eastern market will pay a premium for locally grown lambs of the right weight and finish. Since one lamb per year is not profitable to the farmers the possibility of inducing estrum in ewes during the spring and to determine whether the ewes would conceive following this artificially induced estrum. In the first trial, ten ewes, 3 and 4 years old, were injected with 5 cc. of gonadin. Six of the ten lambed the following fall. Twenty-five yearling ewes were also injected, and 5 of these lambed in the fall. The 11 ewes which had lambed in the fall bred normally the same fall and lambed again in the spring. These ewes after weaning their lambs were bred again in the fall of the second year, giving three crops of lambs in 2 years. This project has been enlarged this year in cooperation with the owner of a large commercial farm so that 100 ewes are available for study.

Duck and turkey embryos are reported to be superior to chicken embryos for the growth of rickettsias for the preparation of typhus vaccine. The yield from eggs of either species being approximately five times that obtained from chicken eggs.

Demerol hydrochloride has definite possibilities as a safe, effective sedative and basal anesthetic in cats. Dosage must be carefully calculated on the basis of weight, and the drug must be used with caution in animals that are not vigorous.

One transport ship may carry 6,000 barrels of dried whole milk, a year's production of about 500 average farms.

Sodium bicarbonate is the most reliable preventive of renal damage induced by sulfa drugs.

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