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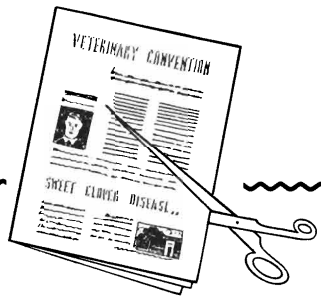
Abstracts

ABSTRACTS



A STUDY OF VITAMIN A DEFICIENCY IN CALVES. Twenty-five calves were divided into three groups, each group being fed on a different level of a sub-optimal vitamin A diet. In the course of two and one-half years autopsies on all three were made and gross and microscopic pathological changes were observed.

Degeneration and inflamation were seen in the kidneys of those animals on the lower vitamin A levels. Enteritis associated with hypertrophy of the mucosa and diarrhea often occured. The liver exhibited degeneration and necrosis to a variable extent. Evidence of degenerative changes in the tests pointed to a probable suppression of spermatogenesis. An inconsistent change was metaplasia of epithelial tissue.

There appeared to exist a direct relationship between the extent and severity of the lesions in the intestine and kidney. The calves receiving the lowest levels of vitamin A showed the most extensive pathologic changes.

(Thorpe, W. T. S., Keener, H. A., Bechdel, S. I., Guerrant, N. B. 1942. Observations on the pathology of dairy calves on low vitamin A diets. Amer. Jour. Vet. Res. 3:27.)

PROTECTION AGAINST CECAL COCCIDIOSIS IN CHICKENS. A number of nitrogen-sulfur compounds were tested against cecal coccidia in chickens. Of the compounds, two gave protection. These were tetraethylthiuram monosulfide in pure form and "Loral" thiocyanate, a commercial mixture of straight chain aliphatics obtained by hydrogenation of coconut oil. The tetraethylthiuram monosulfide was the most satsifactory as it was the least toxic to chickens. However both chemicals were found to be most effective if given several hours before the oocysts of *Eimeria tenella* were fed, but were effective in larger doses when given simultaneously with the oocysts. It was evident that young chickens required a relatively larger dose for protection.

A satisfactory means of continuous administration of these chemicals in the feed awaits further research.

Tetraethylthiuram monosulfide, when administered in suitable doses along with the feeding of coccidia oocysts, offers promise for developing resistance to coccidiosis in chickens. At the present time there is no practical method of administration of the chemical and the oocysts to produce resistance.

(Herrick, C. H., Holmes, C. E., and Degiusti, D. L. 1942. The experimental use of organic sulfur compounds for the prevention of cecal coccidiosis in chickens. Amer. Jour. of Vet. Res. 3:10-16.)

A SIMPLE TEST FOR PREGNACY IN MARES. This method is based on chemical detection of the presence of estrogens in the urine of mares. Filter 25 ml. of urine and add 3 ml. of HCl. Keep this mixture in a boiling water bath for 10 minutes. Cool the mixture under running water. Add 18 ml. of benzene and stir for two minutes. If a foam is formed, filter the mixture. Pour the mixture into a separating funnel. After a few minutes the benzene will separate out above the urine. Open the top

separator and let out the urine and discard it. Close the tap. Pour carefully into the benzene urine extract 10 ml. of H_2SO_4 and gently rotate the funnel for 2 minutes. If foam is formed again, filter the mixture. Five to 15 minutes later, after the benzene has separated out to the top, open the tap and collect the sulfuric acid in a test tube. Keep the test tube containing the H_2SO_4 for five minutes in a water bath at 80° C. and afterward cool under tap water.

The reaction is positive when the test tube containing the sulfuric acid shows a fluorescent green color in the presence of sun light or electric light. The reaction is negative if the color is brown or port-wine, without fluorescence. The reaction is doubtful if the color is brown-greenish, and the test should be repeated in two weeks. Stallion urine always gives a positive reaction. The test is not applicable for pregnancy in cows. The test is not accurate before the fourth month of gestation.

(Olbrycht, T. M. 1942. A quick and simple test for pregnancy in the mare. Vet. Rec. 54(7):81.)

ASCORBIC ACID THERAPY FOR REPRODUCTIVE DEFICIENCIES. Ascorbic acid or vitamin C has been shown to improve the reproductive abilities of slow breeding or sterile bulls, boars, horses, jacks and shy breeding cows.

Both heavily used bulls and young developing bulls just entering service responded favorably to ascorbic acid treatment. The bulls so treated showed a stimulated production of active sperm and an increased sexual activity.

Two types of sterile cows were treated: those that came into heat regularly but failed to conceive after repeated breeding, and those that apparently conceived but then came into heat on the 41-43 or 61-64 days. Fifty-one of 53 cases of the first type and 19 of 23 cases of the second type conceived after treatment.

The treatment consisted of the subcutaneous injection of 10 cc. of a 20 per cent solution of ascorbic acid crystals in sterile physiological saline solution twice weekly. For bulls the injections were continued three to six weeks or until improvement occurred. Cows received one injection the day of breeding and two injections per week for three weeks after breeding.

(Phillips, P. H. 1942. Vitamin C for sterility in farm animals. Holstein-Friesian World 39:9-10.)

VITAMIN A CONTENT OF LIVER. Estimations were made of the vitamin A content of the livers of certain domestic animals, both in health and disease. Details are recorded from 105 sheep and lambs, 134 pigs, 16 cows, 29 calves, 32 fowls as well as 72 samples of ewe's milk. The foetal lamb appears to have no vitamin A in its liver and depends upon its mother's colostrum for its early supplies, while the pig is born with a limited reserve. Evidence presented also suggests that the calf relies very largely upon colostrum for its initial supply of the vitamin. Disease conditions in which gastritis and enteritis are present and certain respiratory condition (though not tuberculosis) appears to cause a lowering of the vitamin A reserve. In other diseases there seems to be little, if any, correlation between the vitamin A reserve and the disease process. The livers of tuberculous cows contained very much greater reserves of vitamin A than did those of non-affected animals.

(Barron, N. S. 1942. Vitamin A and its relationship to some of the more common diseases of farm animals. Vet. Rec. 54(3):29-37.)

THE NERVE SUPPLY TO THE BOVINE MAMMARY GLAND. The sensory and sympathetic fibers which innervate the udder reach it by way of the inguinal, the ventral branches of the first two lumbar, and the perineal nerves. The sympathetics are vasoconstrictor to the vessels and motor to the smooth muscle of the udder. These fibers to the mammary blood vessels travel by way of the spinal nerves and not along the main vessel trunks. They reach the spinal nerves by means of the gray rami communicantes

and not by way of the posterior mesentric plexus, as was formerly believed.

No secondary nerves were found in the udder. The control is considered to be hormonal. The afferent nerves to the udder and teats are necessary, however, since those impulses cause the anterior pituitary gland to secret the lactogenic hormone.

The author has found the sensory innervation of the udder to be as follows: The ventral branches of the first and second lumbar nerves innervate the very anterior part of the udder and supply the skin mainly. The perineal nerve comes over the ischial arch to descend in the perineum to supply the skin of the posterior part of the udder as far down as the base of the posterior teat, and the inguinal nerve innervates the remainder of the udder. The inguinal nerve is formed by the ventral branches of the second, third and fourth lumbar nerves.

The udder can be anesthetized readily by the paravertebral lumbar method. For teat operations the second, third and fourth lumbar nerves must be blocked paravertebrally on the side of the involved teat. To anesthetize the whole gland for amputation, the first lumbar nerve also should be blocked, as should the perineal which can be reached by making the injection just below the vulva close to the median line. Both sides must be blocked for amputation.

(St. Clair, L. E. 1942. The nerve supply to the bovine mammary gland. Amer. Jour. of Vet. Res. 3:10-16.)

FEEDING FOR HIGH, QUALITY PRODUCTION. In order to produce milk of the highest quality, cows must receive liberal amounts of good quality feeds throughout the year. Carefully conducted investigations have shown that the proteins of simple mixtures, if containing feeds from four different plant sources, when fed with quality roughage, give as good results as complex mixtures. If high production is to be maintained, it is essential that minerals be adequately supplied. Most of the minerals are furnished by roughage such as hay, silage and pasture. Legume forages are best sources of calcium. High protein supplements offer good sources of phosphorus.

High vitamin content of milk is obtained by feeding cows on fresh green pastures whenever possible. When on dry-lot feed, silage (including grass and legume silage) having good green color should be used.

Feeds have a pronounced effect on flavor. Proper amounts of protein, minerals and vitamins from rich, green pasture crops, and well cured roughage produce desirable flavor in milk.

Wild onions, wild garlic, and ragweeds may produce flavors which in some cases render the milk unsalable. Green rye, corn, or legume silage, potatoes, buckwheat, cabbage, and sweet clover also tend to give milk a bad flavor. If fed at all, they should be given after milking rather than before milking.

(Nevens, W. B. 1942. Some special problems in dairy cattle feeding. The Jersey Bulletin. 61:34.)

A REVIEW OF PHENOTHIAZINE. Phenothiazine in 1940 was shown to be efficient in combating strongyle mematodes in horses. In September of that year the first indication of its toxicity was reported. In 1941, serious losses of valuable horses due to phenothiazine poisoning resulted.

Result of the work done by the Division of Animal Pathology of Canada in collaboration with the Institute of Parasitology, has given the following information: (1) **Anthelminitic Action:** Tiny cylicostomes pass out in large numbers between 24-36 hours after dosing. The larger strongyles begin to appear at about the same time, but the greater number pass out about 48 hours after dosing. (2) **Dosage:** One ounce per 1000 lbs. of body weight is usually an effective and safe dose. However, even in large horses it is dangerous to use as much as two ounces. (3) **Toxicity:** Toxic effects are not experienced with one ounce doses. Overdosing results in absorption of the drug in the form of phenothiazone which is conjugated in the blood. This conjugated form causes hemolysis and is evidenced by

hemolytic anemia and jaundice. Nephritis, albuminuria, Hemoglobinuria, hematuria are some of the changes observed. An enlarged spleen seems to be a constant lesion. (4) **Antidotes:** Treatment with liver extract followed by iron and copper does not appear to be very efficacious. Blood or plasma transfusions have been suggested and are believed to be of therapeutic value.

If the dosage is controlled, phenothiazine is indispensable. The suggestion has been made that phenothiazine be used for horses as a direct treatment in a spring and late summer routine in areas where strongyle infestation is prevalent.

(Swales, W. E. 1942. Phenothiazine—its role in the control of parasites in horses. Canadian Jour. Comp. Med. 6:50.)

LEPTOSPIROSIS

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be the means of transmission of leptospirosis among dogs. Cases have been seen in apartment dogs, who never come in contact with other dogs or with rats. It is fairly well established that the rat may be the carrier of the *Leptospira icterohemorrhagicae* organism and the dog a carrier of both organisms. Knowing this, one can not help wondering the part played by the garbage can, incinerator and fish pool in the transmission of these two organisms. Rats and dogs have free access to these three places and the food and water found there can easily become contaminated with urine from either of these animals.

It is interesting to review this work of Meyer, Michael and others and it will be interesting for Iowa practitioners to gather further data on the incidence of leptospirosis in this state.

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