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COCCIDIOSIS

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What is Coccidiosis?

No disease of poultry is more widespread or more serious than coccidiosis. It appears in two forms, the acute and the chronic. The acute, or bloody, form results from the destruction of the tissue lining the intestines or blind guts (ceca). It is most prevalent in chicks from 4 to 12 weeks of age. The chronic form results from an invasion of the lining of the small intestine. It results in a prolonged period of unthriftiness, poor growth, and low egg production, and paves the way for other diseases.

What Causes Coccidiosis?

The disease is caused by a small, one-celled animal parasite which, in order to live, spends part of its life cycle in the lining of the intestines or blind guts. To understand the disease, it is well to know a few of the facts regarding this parasite, how it lives, reproduces, and the damage which it does. A partial description follows.

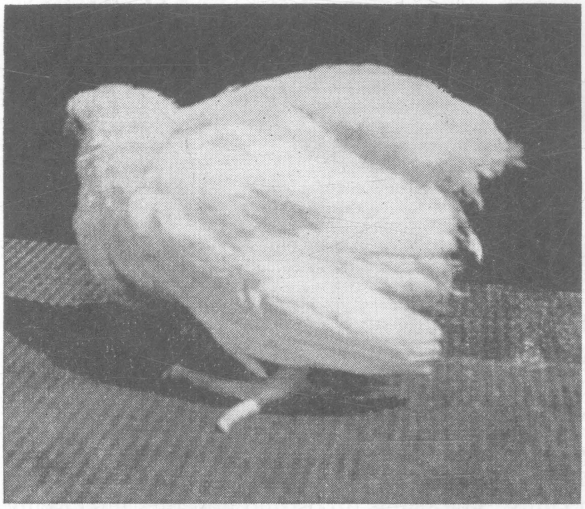

Fig. 1.—Chills, desire for more heat, pale beaks, bleached shanks, and droopiness are indications of coccidiosis.

The parasite lives in two stages; one stage in the bird, and the other stage out of the bird. Although the damage is done when the parasites are in the intestinal lining, it is more important to understand what takes place outside the bird's body, because here is the best chance to combat it.

On farms where chickens have been raised over a long period, many mature hens are carriers. That is, they may have had the disease in a mild form, but

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have recovered sufficiently to appear normal. They have enough resistance to ward off serious effects, but the organisms continue to develop in limited numbers. These pass out in the egg (oöcyst or resting) stage with the droppings. These eggs incubate in 24 hours under warm, moist conditions. Warm rainy weather is ideal for them if they are in the soil. Wet litter in the brooder house or wet spots around the drinking fountain on range are the most likely spots to find this process going on rapidly.

The young chick swallows these eggs with food or gets them from picking around infested areas. As these pass into the intestine, a new stage of reproduction starts. Each egg (oöcyst) contains eight small bodies (sporozoites). These are released and invade the cells of the intestinal lining. In about 3 days these bodies have grown and produced more parasites (merozoites). These break

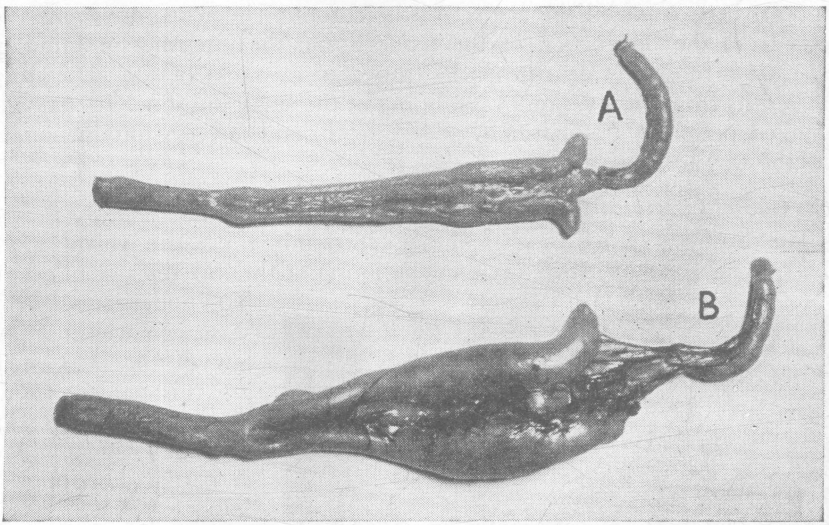

Fig. 2.—A: Normal ceca or blind guts. B: ceca swollen, filled with a bloody core from a 2-months-old bird which died of coccidiosis.

through the cell walls of the intestinal lining and penetrate more cells, continuing to grow, multiply, and spread their invasion. In about 5 days after the bird swallows the first eggs, a second generation (of merozoites) has developed.

By this time the poultryman will recognize trouble. Bleeding follows the destruction of tissue. Blood will be seen in the droppings. The birds will be pale about the beaks. The shanks begin to bleach. The chicks appear cold, stay close to the stove, and suffer from chills. The wings droop and appetites fail. Many die, others recover.

Having reached this stage, the small bodies differentiate into male and female cells. The male cells fertilize the female cells. These fertilized female cells become the egg (oöcyst) stage. These no longer invade the tissue; they pass out into the litter or the soil to infect the next bird that picks them up.

What Determines the Death Rate from Coccidiosis?

First.—The amount of infection picked up. If only a few eggs (oöcysts) are swallowed, the birds develop a mild case of the disease and recover. These birds

will have some resistance or immunity to later attacks. Attempts to produce this immunity artificially have not been successful.

Second.—The health of the infected birds. Strong, healthy, well fed, vigorous chicks are better able to withstand the disease than weak, poorly developed birds.

How Can the Disease be Identified?

Above is a description of a typical coccidiosis-affected chick. Droopiness, paleness, chilling, desire for heat, and bloody droppings are typical symptoms. If the disease is suspected, have your veterinarian examine some of the dead chicks or those showing symptoms. If the disease is of the acute form, blood may be found in the small intestine. If it is chronic, small gray areas may be observed on the outside of the intestine. If the disease is of the acute, cecal type, the blind guts will frequently contain cores of hard, bloody or grayish material. These cores may cause considerable swelling of the ceca (see Fig. 2).

How to Apply an Ounce of Prevention?

Prevention is the most satisfactory control. Treatments are second best. Plan prevention, keeping in mind the following facts:

1. Old hens are carriers.
2. Warm, moist soil and litter aid development of eggs (oöcysts).
3. Small doses of the parasite are not as serious as large doses.
4. Healthy, robust chicks can "take it" better than poor chicks.

The following recommendations are the result of experience in practical control of this disease:

1. Don't overcrowd the brooder house. Overcrowding means culls. Culls are more susceptible to disease.

Fig. 3.—The attendant may be the cause of spreading coccidiosis from hens to chicks. Overshoes worn only in brooder house give protection

2. Use clean range to reduce intake of organisms.
3. Give chicks a full feed before they are let out in morning.
4. Use heavy litter (4 inches deep). Stir it every day or two to work the droppings down into the litter.
5. Keep water founts on wire platforms. (Wet areas are breeding places.)
6. Use wire porches when brooding on infested ground.
7. Get chicks on clean, green succulent pasture as soon as possible.
8. Don't carry infection. Wear overshoes. Or, if possible have someone care for the chicks who does not care for the hens.
9. Keep hens confined to the house or to yards to prevent contaminating the whole farmyard.

Watch for first signs.—The early detection of trouble is of greatest importance in controlling the disease. The careful observer will first notice a falling off in appetite. This will be followed by some birds showing an unusual desire to stay close to the heater. Feathers become ruffled, blood appears in the droppings. The beak bleaches first at the base, much as the pigment leaves as a pullet lays her first dozen eggs. Unless you are thoroughly familiar with the disease, consult your veterinarian *at once, don't wait.* An early diagnosis is essential to successful control.

Many treatments appear to work well, because the disease runs a definite cycle. Birds become noticeably sick 5 days after infection. Most deaths occur on the 6th and 7th day after infection. By the 8th day, some improvement will be noticed.

Sulfaguanidine has been found to be very effective if it is fed early in an outbreak. The most common method of treatment is to add sulfaguanidine to the mash at the rate of ½ pound of the drug to 100 pounds of mash. All other feed is removed and the birds given only this mixture for a period of 2 to 3 days. The treatment may be repeated in 4 to 5 days if necessary.

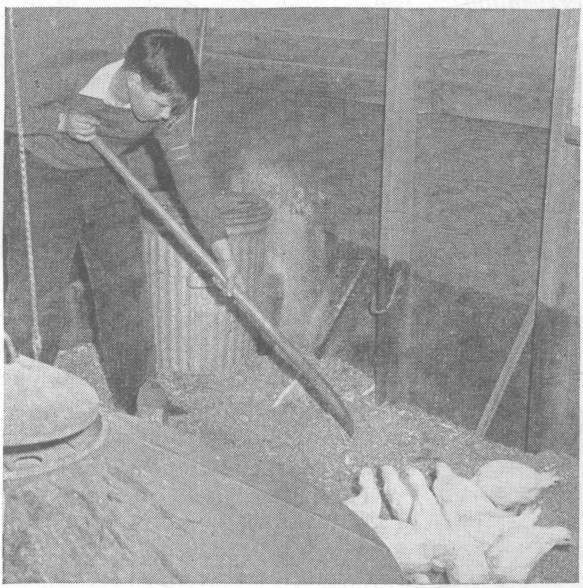

Fig. 4.—Deep, dry litter, thoroughly stirred, helps prevent coccidiosis outbreaks.

Laxatives and flushing mashes should not be used while the sulfaguanidine treatment is being given.

Flushing mashes were at one time considered very effective, but at present, they are considered inferior to the use of sulfaguanidine.

Sulfur has given good results in coccidiosis, but, when given to birds that are confined and depend on concentrates for Vitamin D, its use has brought on sulfur rickets. Birds that are to be out-of-doors should receive 5 pounds of sulfur to 100 pounds of mash for 4 days before they are turned out, and receive the same sulfur mash for 3 days after they are out. It should then be reduced to 2 pounds in 100 pounds of feed until hot dry weather comes. Then the treatment can be discontinued.

This treatment, worked out by the University of Wisconsin, is only suggested where no clean range is available. It is not satisfactory for indoor feeding. Its effectiveness depends upon its use before the disease appears. It should be considered as a preventive, not a cure.