



Coccidiosis in Weanlings and Yearlings

by Heather Smith Thomas

Coccidiosis is a universal disease. Once calves reach 6 months of age they have all been exposed to the disease, though only about 2-5% will have shown actual symptoms. Ray Kaplan, DVM, University of Georgia veterinary parasitologist, says the best defense against coccidiosis is good management — preventing situations in which contamination can build up to infective levels.

The disease

Coccidiosis can cause diarrhea and weight loss, along with lowered resistance to other diseases. Calves may have anemia, emaciation and blood in their manure.

In an outbreak most animals in a group become infected, but usually only a few show actual signs of the disease. In a serious outbreak, however, up to 80% of a group may develop clinical illness. Among those showing symptoms, mortality rates can be as high as 10-15% unless calves are treated in the early stages. In calves that don't show symptoms, subclinical infection may reduce weight gains until the intestine is fully healed.

Mortality rates can be high in calves with no previous exposure if suddenly introduced to a high level of infection, as when calves are put into contaminated weaning pens or shipped to feedlots. Many outbreaks

occur during the first 30 days calves are in feedlot or weaning areas, especially if wet conditions stimulate development of the oocysts that are shed in manure.

Coccidia enter a susceptible animal with contaminated feed or water; when grazing wet, contaminated pasture; or when licking a dirty hair coat. The parasites multiply in the gut tissues, destroying the gut lining and releasing thousands of oocysts that then pass out with the manure to further contaminate soil, feed, water and bedding. Then the cycle begins again.

Kaplan says coccidiosis often shows up in calves during times of stress, such as at weaning or shipping, or when young animals are grouped in small feeding areas. The disease can also occur during the winter after prolonged weather stress or during weather changes. Infection is common wherever cattle are fed hay on the ground and there is fecal contamination of the feed. Outbreaks can occur in calves on pasture where cattle gather at water sources, hay feeding areas or mineral boxes. The source of contamination is always the manure of infected or carrier animals.

Ingestion of sporulated oocysts results in infection, but large numbers must be taken in before signs of coccidiosis appear. This can happen with continual reinfection and buildup of contamination

in the environment, as when calves are confined and crowded. Overcrowding of cattle on irrigated pasture, in feeding areas or around water sources during drought can result in serious infections. Calves brought into feedlots from range conditions may carry only a few oocysts, which build up to large numbers in the lots, especially if conditions are moist.

Symptoms and treatment

Rupture of cells in the intestinal lining during the coccidia's swift multiplication results in diarrhea — often bloody. Fever may occur in early stages, but first sign of illness is usually sudden onset of severe diarrhea, with foul-smelling, watery feces (often brown) containing blood or mucus. The calf's rear end, hind legs and tail are covered with loose feces.

The manure contains millions of oocysts, which remain on the ground to infect other calves. After the coccidia have quit multiplying and the intestinal lining heals, manure firms up again, but this may take awhile if the calf is constantly being reinfected.

"In the absence of reinfection, with only one cycle, the disease is self-limiting and runs its course, but the main problem is reinfection, and this is what usually happens since the calf is in a contaminated environment. So you have parasites at several stages of the life cycle within that calf until the process has gone on long enough that the immune system begins to build some resistance," Kaplan says.

Even though damage to the gut is already done by the time you see diarrhea, it can still be worthwhile to treat a sick calf, he says. In most cases the disease is a dynamic and ongoing process, since all the coccidia are not developed and multiplying at the same time. "You start out with a small number of coccidia in the environment, then as they build up more calves get sick and start shedding oocysts, and these are being constantly ingested. So you have coccidia in the gut in different stages of development," he says. "Some of the damage is already done, but hopefully immunity will begin developing. You should still

treat the animal because of possible secondary infection, and also to limit contamination the calf is putting into the environment."

A common sign of coccidiosis is straining excessively, due to irritation of the large intestine and rectum from the parasite damage. The calf may strain even after passing the watery feces, or without passing anything. In severe cases the rectum may prolapse; it may be necessary to apply anesthetic ointment to the rectum to reduce the pain and straining, or take stitches across the anal opening to prevent prolapse.

If a calf prolapses, the rectum should be washed with warm water and mild disinfectant and pushed back in, and the opening stitched. A calf will continue to prolapse unless the opening is stitched.

If the calf has lost a lot of blood he'll be anemic. Mucous membranes will be pale and he may be weak and stagger. Supportive treatment with fluids by stomach tube or IV may be needed to combat dehydration and prevent death of the calf.

Most calves go off feed for a while or eat poorly. Some take a long time to fully recover, with low feed consumption and stunted growth. In mild cases there may be some diarrhea and reduced weight gain, but no blood in the manure.

Diarrhea may persist for as long as it takes for the intestinal lining to heal. During this time the calf is unable to absorb fluids and nutrients, and it loses weight. The hair coat may become rough, the calf may be dull, and without good care and supportive treatment it may become susceptible to diseases such as pneumonia.

Some cases of acute coccidiosis affect the brain; the calves develop nervous signs (muscle tremor, incoordination, convulsions) and have a high mortality rate in spite of good treatment. Affected calves may die within 24 hours after onset of bloody scours and nervous signs, or linger several days in a coma.

Preventative management

Calves often stay healthier at weaning if ranchers treat them for coccidiosis. The first 30 days after weaning can be very stressful, as evidenced by lower feed consumption. Dave Hutcheson, Texas A&M, did feed consumption studies at Amarillo a few years ago

and showed that calves coming into feedlots only consume about .5-1.5% of their body weight (dry-matter intake) the first week, 1.5-2.5% the second week and 2.5-3.5% during the next two weeks, taking almost four weeks to come up to full feed. This is the time they need maximum protection from coccidiosis with some type of drug treatment in their feed or water.

Most people don't use a coccidiostatic drug unless they have a problem they can see, or just use it for a couple of months at weaning. Yet all calves are affected to some degree by coccidia.

Joe Diedrickson, who works for the company that makes Deccox, helped with a study three years ago in New Mexico, in which 1,300 weaned calves were put in a feeding trial at weaning. The two ranches involved were in the Texas Ranch to Rail program, which follows calves through to slaughter and provides carcass information. They used the Vac-45 program — the calves were given two series of vaccinations and held 45 days after weaning for a preconditioning period before being put into the feedlot. The vaccinations were given either two weeks before weaning with a booster at weaning time or at weaning with a booster two weeks later. The two ranches had never before given the calves any medication in their supplemental feed at weaning time.

Diedrickson says half of the 1,300 calves got Deccox in their supplement — fed daily as cubes — while the other half did not. They were held in large grass pastures for 45 days

(Nov. 1-Dec. 15) before being shipped to the feedlot. He said the weather was ideal for weaning that year, "with day and night temperatures never varying much from 50-60 degrees, perfectly dry, with no rain. The pastures were large, with 20-30 acres per animal. Under these conditions you wouldn't think to see any coccidiosis."

There was very little sickness in any of the calves. "The 650 that got no medication in their supplement had no clinical signs of coccidiosis, and only three had to be treated for respiratory problems," he says. "But at the end of the test, when the calves were weighed, there was an 8 lb. average difference in the two groups. It only cost \$1 per calf for the Deccox for those 45 days, and even though that fall the calves only brought 54 cents, this was still a good return — a 3.5 to 1 return on that investment. And this was a year you wouldn't have expected to need any medication. The two ranchers had originally agreed to run the trial for five years, but they said this one year was a good enough convincer for them. They said if it worked so well in a year like this, with no stress problems or signs of sickness, on a bad year it would have really made a big difference."

The most effective coccidiosis program is preventative treatment, before clinical signs appear. Most of the drugs used in control of the disease (coccidiostats) have a depressant effect on the early first stages of the protozoa and keep them from multiplying. **HW**

How to manage an outbreak

1. Isolate sick animals for intensive care and to prevent massive contamination of the area.
2. Reduce stocking rate in affected pen or pasture.
3. Put feed and water high enough off the ground to avoid fecal contamination.
4. Start all calves in the group on coccidiostats to protect them; a good coccidiostat can break the life cycle of the parasite so it can't reproduce and spread infection, stopping it before it multiplies and creates massive gut damage. **HW**



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