Coccidiosis in First Lactation Dairy Cattle

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Thank you Dr. Hanson for inviting me to speak at the 1987 Dairy Herd Health Conference. Previous speakers at this year's conference have discussed production medicine, heifer growth and parasite control as they relate to dairy herd health. My subject is a specific parasite, coccidia, and its disease, coccidiosis, and its effect on first lactation heifers. Coccidiosis is seen often by our clinic in nonlactating dairy cattle. Less often two-year-olds recently fresh break with coccidiosis. We see it, treat it and try for prevention in subsequent heifer lactations.

First, some history of our practice and its experience with coccidiosis. We have a six veterinarian clinic in Lewiston, Minnesota. It is located 12 miles west of Winona and 36 miles east of Rochester in the hills of southeast Minnesota. Our practice is about 85% dairy by practice income. The dairy herd sizes range from about 35 cows to 175 cows. Most herds raise their own replacement heifers. The calves most often are raised in individual pens or hutches until weaned. From this age they are grouped and raised in total confinement until 2 months prior to calving or with super calf hutches, dirt lots and permanent pasture for 2 grazing seasons prior to their first parturition. We see coccidiosis as a common problem in dairy replacements from age 2 weeks old to 1 year old. Many of the cases we see are related to that age-old nemesis, i.e. stress. Weaning, changing weather conditions (especially wet weather), most often in spring and fall, can preclude an acute onset of coccidiosis diarrhea. Other cases can show up simply as unthrifty calves. They may or may not be overcrowded, and will show fevers of 102-103° F with some respiratory infections. They often have a gray, slightly loose stool. This is an excellent sign for diagnosis of calf coccidiosis. If I see this, I will institute a treatment and control program even if fecal exam is negative. The species we are able to identify most often by fecal exam are *Eimeria bovis* and *Eimeria zurnia.* This is the usual picture of coccidiosis in our clients' cattle. As references indicate it can happen where animals are confined or housed in small areas and not cleaned up or rotated often enough. I believe most farms in our practice area have persistent coccidia exposure and it is mostly high levels of oocyst exposure at critical times with stress, immunity, fecal contamination of food and water, and perhaps other unknown *inciting factors that make the disease manifest itself.*

Less often we see coccidiosis show up in first lactation heifers. It usually happens when a group of heifers are freshened close together. Their appearance, appetites, and/or production are below normal for their respective farms.

anorexia, and slight fevers of 102-103° F. Fecal exams usually show moderate to high numbers of *E. zurnii* and/or *E. bovis.*

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We do not do quantitative fecals. I acknowledge this can limit the usefulness of oocyst numbers in our fecal exams for deciding whether these animals have coccidiosis or not. We do try to be consistent in amount of feces used for each test. do try to be consistent in the amount of feces used for each test. This along with above clinical signs and response to individ-ual animal treatment have shaped our diagnostic plan where we feel we can decide to treat and which animals. We will do white blood cell counts in early cases to help rule out BVD or salmonella.

I will give two case histories to illustrate some of the problems with differential diagnosis, treatment and control plans:

Case #1—A first calf heifer showed late lactation onset of diarrhea and unthrifty appearance as well as a dramatic drop in production. This happened in about 10% of the fall freshening heifers. It did not seem to be related to a particular stress. Some fecals showed a few oocysts for *E. zurnii* and *E. bovis.* Bovocox did not alter the course of the diarrhea nor did their production improve. This herd had had Johne's disease diagnosed in a year old heifer two years earlier. The herd was vaccinated annually for BVD with a killed vaccine. Heifers were done also. AGID for Johne's was tested positive on some at the onset of diarrhea. The herd had adult cows also break with diarrhea. Johne's disease was the diagnosis. Fecal exam and diarrhea alone could have pointed to coccidia infestation. However adult cows and of course, AGID and fecal cultures positively confirmed a diagnosis for Johne's.

Case #2—A herd of 35 registered cows freshened five to seven heifers in groups in the fall and in the spring. In the fall of 1985 five heifers calved in late September, early October. They were fed permanent pasture and ground feed up till freshening. The feed was fed in a feed bunk. Due to poor rainfall and poor pasture they also got hay on the ground. Two heifers broke one week apart with diarrhea, anorexia, decreased milk. They were about 30 days fresh and each milking over 70 pounds when they got sick. WBC was normal and fecal exam results were positive for *E. zurnii* and *E. bovis.* Bovo-cox treatment improved appetites, and stopped diarrhea by the third day of treatment. One animal relapsed 10 days later and was given Corid liquid for 5 days.

Case #1

1. Had occasional coccidiosis in calves.
2. Dry lot with free stalls except in summer and fall when permanent pasture available for dry cows and heifers.
3. Clinical signs happened year around, not just fall and spring.
4. Disease happened later in lactation.
5. Johne's AGID and fecal culture positive.

6. WBC normal, fecal exam showed some *E. bovis* and *zurnii.*
7. All chopped feed, bunk fed to yearling ages on up.

Case #2

1. Never had coccidiosis before.
2. Well managed dairy farm.
3. Prepartum heifers on short pasture, fed hay on ground.
4. Permanent pasture with steep hills and valleys.
5. Appearance of cattle was very good.
6. Lactating cattle cleaned and bedded daily in loose housing.
7. Heifers are home raised though some E. T. raised in Iowa came to home farm that year.

For treatment of clinical coccidiosis as well as an aid to long term control and prevention our clinic uses any one of several products. Corid® (amprolium) MERCK, Bovo-Cox® (sulfaquinoxaline) OSBORN, Coccigard 10X® (decoquinate) IOWA VET, and Rumensin® (monensin) ELANCO, have been used on nonbred, nonlactating cattle. I like amprolium in acute outbreaks and decoquinate or monensin for long term control. First lactation heifers with coccidiosis are treated with amprolium or sulfaquinoxaline. I advise the farmers to check the milk with their milk plant for any growth inhibitors. I feel most comfortable using amprolium because it has a 24 hour slaughter withdrawal.

Remember products have no label clearance for lactating cattle. So all treatment is an extra-label usage of the previous products.

Coccidiosis in first lactation animals happens. We have seen it break in whole herds but most often it is seen in first lactation females. Disgnosis is based on clinical signs, fecal exams positive for *E. bovis* or *zurnii,* Johne's AGID test and fecal exam negative, WBC normal, and response of individual animal to treatment with amprolium or sulfaquinoxaline. Herd or group treatment is based on the number of animals affected, their condition, composite fecal results, and production loss. Two other factors that must be considered are is there a reasonable chance of getting a return for treatment cost from milk, and of course extra-label use of the products. Dosage of the products is as per label directions.

Coccidiosis is a significant problem in our clients' herds. It can show up in first lactation animals. I urge you to consider it as one of the differential diagnoses in diarrhea problems of the first lactation heifer.

References

1. *Bovine Coccidiosis,* MSDAGVET, Merck & Co., Inc. 2. *Current Veterinary Therapy, Food Animal Practice,* 1981, Howard; pp. 780-784 (Guterbock, Todd). 3. *Veterinary Medicine,* Sixth ed., 1983, Blood, Radostits, Henderson; pp. 176, 759, 879-885.