

# Coccidiosis: A Growing Concern

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I'm glad to be here with you today and talk about cattle...and to inform you of one of the most prominent diseases affecting cattle in the U.S. and perhaps worldwide.

## Coccidiosis

I'll show you where both clinical and subclinical coccidiosis are costing cattle producers monetarily from actual mortality, as well as overall morbidity. Coccidiosis robs cattle producers of profits, downgrades herd health and kills.

I would like to present results of our studies in the U.S., which demonstrate that the failure of veterinarians and livestock owners to utilize proper coccidiosis prevention in cattle is economically costly. Both clinical and subclinical coccidiosis also contribute, to increased overall morbidity to other disease syndromes.

Coccidiosis prevention measures have long been practiced by the broiler industry for improved feed/conversion and weight/gain, as well as for a reduction of mortality. We, as cattle veterinarians, are about 20 years behind in preventative medicine, with reference to bovine coccidiosis. Perhaps we need to think of cattle in this manner.

Most textbook references to coccidiosis refer to "obvious" clinical cases. However, I submit that control of low level infection in cattle can and does contribute to great economic benefits, which result from a reduction in weight gain and feed efficiency. Our research tests have demonstrated this under a variety of management and cattle-rearing practices in different geographic locations and climates in the U.S. Well-designed trials have been conducted under feedlot and pasture conditions by university researchers and technicians in cooperation with private and commercial cattlemen.

Coccidiosis can be a primary disease entity, but also may be present as a secondary infection. The degree of coccidiosis or coccidiasis is governed by ...

*First;* the pathogenicity of species present. *E. bovis* and *E. zurnii* are considered pathogenic; depending upon; the number of sporulated oocysts present;

*Second;* the degrees of host immunity; and

*Third;* the presence of stress factors.

In many cases coccidiosis itself can serve as a stress factor, thereby increasing the resulting morbidity from other disease syndromes—especially the respiration disease complex,

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which is the most frequently occurring and most important single disease in young cattle in the U.S.

Dr. David Hutchison, of Texas A&M University, recently conducted a series of feedlot trials, placing severely-stressed calves on Deccox® brand of Decoquinatate, a coccidiostat manufactured by May & Baker, of Great Britain. They were fed a ration including Deccox at a rate of 0.5 mg. per kg. of body weight per day for the first 28 days of the 56 day trials. These were compared to similar calves from the same origin that served as negative controls. The calves in pens receiving Deccox had fewer deaths, showed reduced overall morbidity, made a more consistent rate of gain, and improved feed efficiency by 5.3 percent.

Similar observations were made with 10,000 animals in 42 separate pens in a commercial feeding establishment. After placement on feed one-half of the pens received Deccox in the ration at a rate of 0.5 mg. per kg. of body weight per head per day for approximately 20 days. In this trial, all calves in the 42 pens also received oxytetracycline in their daily feed at a rate of one gram per head per day for the 20 day period. Both treatments were then placed on Lasalocid at a rate of 250 mg. per head per day until they were slaughtered.

At the end of 60 days of feeding, the calves receiving Deccox required fewer individual treatments for sickness—880 versus 1087—or a 19 percent reduction in morbidity. The primary reason for individual treatment was for respiratory disease.

Clinically-diagnosed coccidiosis was less than 0.2 of one percent, yet treatment for non-specific scours was reduced by 31 percent (189 versus 130) in the group receiving Deccox.

These advantages during the 164 days the cattle were fed, produced a monetary return of \$7.62 at time of market for each \$1.00 invested in Deccox. I don't know of any bank that will give that kind of return—762 percent—for a 170-day investment!

Even more dramatic results from the use of Deccox has been demonstrated with pasture calves. Each year about two million head of calves are brought into Oklahoma to be placed in commercial feedlots. Prior to being fed in confinement they are placed for a period of 30 days to 90 days on limited pasture or confined in grazing areas.

In seven trials designed and conducted by Dr. Keith Lusby of Oklahoma State University utilizing calves in this type of management, the results were significant. Deccox was administered in the ration at the rate of 0.5 mg. per kg. of body weight per day for a period of about 56 days to one-half of the calves, following arrival and processing at the farm.

Every attempt was made to maintain equal conditions between the control group and those receiving the coccidiostat, Deccox. All calves were individually weighed at initiation and termination of the trial.

The criteria for evaluation between treatments was based on:

1. Sickness...the number of animals requiring individual treatment, as determined by the local veterinarian and the owner.
2. Weight gain.

### Results

The most common, clinically-diagnosed disease requiring individual treatment was the respiratory complex diseases which occurred in both groups in four trials. An occasional case of clinical coccidiosis was evident in only three trials in the control, non-medicated group. In these trials, there was a definite correlation between adverse weather, the stress factor and the total incidence of animals requiring individual treatment.

In considering all the sick calves requiring treatment, there was a highly significant reduction—18 percent in the number requiring individual treatment in the groups receiving Deccox versus the controls. In six of seven trials the calves receiving Deccox gained on an average almost one-half-pound (or 0.23 KG)-per head per day more than those that didn't receive the coccidiostat.

Similar trials have been conducted by two other state universities, Kansas State and the University of Kentucky, producing almost identical results. The reduced sickness and increased gains seen in the animals fed with Deccox, in the absence of large numbers of calves with clinical coccidiosis, highly suggests that control calves were adversely affected by subclinical coccidiosis.

Deccox is a safe drug to use, is relatively non-toxic to any species of animal, including horses. The margin of safety in cattle is in excess of 12.5 times the recommended use level, even when given continuously for 120 consecutive days. It is

very palatable; we know of no incompatibilities with other drugs or feed ingredients, which makes it an excellent candidate for various feeding regimens that fit different management practices—and there are no withdrawal requirements.

Since Decoquinat doesn't have any known activity against any bacteria or virus, and doesn't alter the volital fatty acid ratio (acetate-propionate) in the rumen, we can assume the feeding advantages are a result of controlling coccidia.

Since the reported results of morbidity reduction and improvement in weight gains occurred in many animals not demonstrating clinical symptoms, it would appear these results were achieved by controlling low level coccidiosis. Our research demonstrates that the advantages from feeding Deccox are more easily recognized under stress conditions.

Most of our field trials have been with beef production; however, we are currently of the opinion—although we have limited results in hand—that similar results can be achieved by coccidiosis prevention in dairy calf rearing.

The mere presence of oocysts and even the species differentiation are not reliable diagnostic procedures. Fecal oocyst counts by the practitioner in the field usually are "after-the-fact" and can only provide a confusion factor in arriving at a proper diagnosis. Oocyst evaluation at best is only a diagnostic aid and should not constitute an indication for treatment. With multiple samples it may be used as an assessment of the presence of infection in a herd or group of cattle.

Veterinary medicine particularly large animal medicine is very much in need of a reliable coccidiosis diagnostic procedure, other than the current post mortem—histopath examination. This particularly applies to the low level infections I have discussed.

Based upon our research to date with Deccox in cattle rearing operations, I submit that development of coccidiosis prevention programs should be considered as a standard procedure in developing a good disease management program.