Treatment for Cattle Parasites

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Twenty years ago the idea of talking to the cattle industry about treatments for parasitic infections would have been ridiculous. First, because no really true broad spectrum anthelmintic was available and secondly, because the cattle industry seemed not interested.

With the advent of the anthelmintics Phenothiazine and Thiabendazole and the intense promotional campaign sponsored by Merck Sharp and Dohme, cattlemen were finally given the opportunity to discover the type of damage parasitic infections can manifest.

Historically, the original idea of therapeutic treatment was to alleviate the symptoms of a disease situation. As methods for testing drugs became more sophisticated and the drugs more active, the concept of treating against the causative agent of a disease or infection was established.

Using this concept in treating parasitic infections, one can easily see an economic gain in that those animals with clinical signs of parasitism can be successfully treated and possible mortality prevented. The one basic fault in this type of program was the frequent misdiagnosis of verminous pneumonia or gastrointestinal parasites as bacterial or viral pneumonia or gastroenteritis.

The subject of gross pathology and symptomatology of acute parasitemias could be discussed, but the number of times this is observed in the field is rare.

Parasites are one of the most insidious pests we know of today. Ordinarily on a herd basis a parasite problem is first recognized in only one or a few animals at most. The remainder of the animals although infected will go unnoticed. These animals are probably harboring subclinical infections or undiagnosed immature stages. As a result an economic drain is established, not in mortality but decreased weight gains and feed utilization.

As an example, light weight calves were fed for 183 days following deworming with either TRAMISOL Oblets and Soluble Drench or Thiabenzole boluses. The carcass weights showed a 50-53 lb. advantage over the controls for those dewormed with TRAMISOL. TBZ treated calves hung up carcasses weighing 37 lbs. more than the controls.

In five other feeding studies, calves which were dewormed with TRAMISOL had a 7% weight gain advantage over the controls. Calves treated with TBZ had a 5% advantage. At the same time a 4-5% improved feed efficiency was also noted.

Based on this type of performance data the use of anthelmintics in deworming clinically parasitized calves will return $18 for each dollar invested. Routine deworming of mild infections will return $5.50.

Now, let's switch the subject slightly and consider the dynamics of parasite infections. Three factors must be discussed, resistance of cattle to reinfection, resistance of the parasite to treatment and finally the importance of parasites in stressed versus healthy cattle. The idea of cattle becoming completely resistant to reinfection either by age or acquired immunity is unfortunately not true. There is a resistance but it manifests itself only in a decreased percentage of ingested infective larvae which become established. As a result animals of all ages can harbor subclinical or subchronic infections.

The ideas of healthy, well fed animals being more resistant or less susceptible to the effects of parasites are also untrue. In fact, the statement could be made that healthy stock breed healthy parasites and as a result harbor more parasites than stressed cattle. As a result, the parasite burdens, whether in stressed or healthy animals, will potentiate the same economic drain.

A new problem which has come to the forefront in recent years is the drug resistant strains of various parasites. It has already been found that certain populations of the large stomach worm *Haemonchus* are resistant to treatment with phenothiazine and thiabenzole. As a result the majority of veterinarians, extension personnel and veterinary parasitologists have jumped at the concept of alternating the use of different anthelmintics to prevent the evolution of parasite populations which may become resistant to all drugs currently being marketed. Obviously in areas where resistance has been observed such a program precludes the use of drugs to which the parasites are resistant. At the present time, whether such resistance will continue to spread and incorporate new drugs as well as additional parasite populations is unknown. Nor is it known whether the problem will be prevented by the alternating use of anthelmintics. As a result, the types of parasite problems being encountered in a herd situation may continue to influence which anthelmintics will be employed.

A question which has recently become popular is "How many eggs per gram of feces constitutes a legitimate reason for deworming a group or herd of cattle?" Because of the widely varied egg producing capacity for each individual species of parasite, the sporadic way eggs are laid, and the time it takes for parasitic populations to mature, the only thing an egg count will do if positive is tell you parasites are present. If the count is negative it definitely does not preclude a parasitic infection. Therefore, when talking about deworming programs let's forget about egg counts and move onto a more strategic treatment program. The herd or population eradication concept must be employed.

Programs should be instituted to treat animals on a production schedule or in other words when the animal itself will reap maximum benefit from the deworming program and thereby increase the cattlemen's own economic potential. The following program is recommended: (1) Treat brood cows and bulls prior to breeding; (2) Treat cows prior to calving; (3) Treat calves at weaning; (4) Treat cattle as placed in feedlots; and (5) Repeat treatment of cattle (lots, rangeland or pastures) whenever pastures are rotated, when reinfection may occur or whenever cattle are under a stress situation.

Such a program would have to be adapted to each individual cattleman's situation. Obviously a program designed for one person may not be practical to another. This is where your skill as a veterinarian and personal knowledge of your clients is a vital asset in planning a comprehensive program practical for the cattleman's need, to his client's need, to recommend the drug or drugs to be used, and to make sure the program is carried out not on an individual basis but on a herd basis.

The major anthelmintics now sold are Phenothiazine, Thiabendazole, Haloxon Cu SO_4 drenches and TRAMISOL.

Most of these anthelmintics are available as boluses, drenches, and feed formulations. In the near future TRAMISOL, because of its solubility will also be introduced as a drinking water formulation and as an injectable.

I would like to take just a few additional minutes now and discuss another type of gastrointestinal parasite. The parasite is an intracellular protozoan. The disease, bovine coccidiosis. This infection commonly thought of as unimportant can create tremendous stress situations whenever animals are put in a confined environment. This happens primarily in feedlot cattle or when dairy replacement calves are brought off pasture in the fall. The disease is sudden and acute often exhibiting itself in an explosive bloody diarrhea. Such animals are extremely susceptible to secondary bacterial or viral infections. If the calves survive this infection, more than a month of growth may be lost. Once the infection is present, no treatments are available to get rid of the parasite. Dr. Todd at the University of Wisconsin using experimental coccidia infections has recently observed that if animals are placed on a ration containing AUREO S 700 in advance of a coccidiosis buildup, the infection can be prevented.

His recommendations are, if a buildup is suspected, feed AUREO S 700 for the first 6 weeks after you pen up the calves, or during the late winter months in feeder cattle operations. AUREO S 700 is a combination of 350 mg. AUREOMYCIN and 350 mg. Sulfamethazine which currently is cleared for use in cattle when incorporated in a 28-day feeding period. This combination product does not boast a coccidiosis claim. However, according to Todd the compound is both safe and effective.

If the problems caused by parasitic infections, either worm or

protozoan, are to be controlled, intensive eradication programs must be employed. As stated by Dr. Aurel Foster in the 1965 Year Book of Agriculture, "Eradication is the only rational goal however remote that prospect or possibility may be."

The arguments used to promote the use of treatment programs and the majority of what I said this afternoon probably comes as strictly a review for most of you. However, the problem now remains to convince the cattle and dairy men that such programs are both necessary and beneficial.