Concomitant Anthelmintic Therapy

Concomitant anthelmintic therapy, sometimes referred to as concurrent therapy, is the practice of administering more than one dewormer to an animal **at the same time**. This type of therapy has most commonly involved the use of a benzimidazole oral dewormer along with an injectable, or topical, endectocide. It has been most commonly used in feedlots and backgrounding lots; however, there are many factors that should be considered before implementing this anthelmintic strategy in grazing cattle.

The goals of this technigram are to discuss the rationale behind concomitant therapy in dry-lot cattle and to discuss our concerns of adopting this internal parasite control practice in a grazing system.

A published feedlot field trial evaluating animal performance when concomitant anthelmintic therapy was compared to single dewormer therapy demonstrated that the concomitant therapy treatment group out performed the ivermectin-based endectocide only treatment group.[1] A conclusion that could be drawn from that study is that the ivermectin-based endectocide product did not remove performance robbing parasites from the animal's system that the oral dewormer did control.

It has been suggested that *Cooperia spp*., a family of small intestine parasites of cattle, are not well controlled by macrocyclic lactone endectocides (avermectins, moxidectin).[2,3] Those same intestinal parasite species appear to be well controlled by the oral, purge dewormer benzimidazoles.[2,3,4]

Inclusion of generic ivermectin products in concomitant anthelmintic therapy further clouds the issue since trial work suggests that generic products are less effective than pioneer products against multiple species of parasites.[5,6] Therefore, cost savings alone is not justification for exposing parasite populations to sub-lethal formulations of anthelmintic compounds.

Proponents of concomitant anthelmintic therapy in cattle cite added performance, expressed as increased weight gain, improved feed efficiency, and sometimes improved health parameters, as legitimate reasons to utilize more than one anthelmintic. When feed costs are high, those performance advantages can be compelling.

Opponents of concomitant anthelmintic therapy are primarily concerned with the creation of so called 'super worms'. It is logical to conclude that if parasites are not eliminated from the animal when exposed to two anthelmintic compounds administered at the same time, the surviving parasites have developed resistance to both of those products. Surviving parasites may pass resistance genes to their offspring. Those offspring may populate the environment and pose a potentially serious threat to other animals.

The greatest potential threat of resistant 'super worms' is in the non-confined cattle segment due to the risk of parasite transmission and the propagation of anthelmintic resistant parasites in cattle on pasture or other grazing facilities. Feedlot environments with bare dirt floors are not conducive to parasite transmission, therefore terminal feedlot animals are not a source for spreading resistant parasites. As a result, concomitant therapy in feedlot cattle poses virtually no harm or risk of development of 'super worms'.

Anthelmintic selection and timing varies across geographic regions of the US due to a variety of host, parasite and environmental interactions. Predominant species of parasite to control may differ depending on the location and season of the year. *Ostertagia* is a good example of how arrested, or inhibited, developmental stages of a parasite alter the time that treatment should be administered for optimal control and product effectiveness. An additional factor is age of the host animal. Significant burdens are restricted to animals 3 years of age or younger.[7] A further complication is the huge differences in egg production among important parasite species.

New deworming compounds for use in cattle do not appear to be on the horizon. Judicious use of the anthelmintics available today is crucial to insuring those products will continue to be efficacious for as long as possible. Strategically timing the administration of a potent anthelmintic targeting the parasite species present should be an important consideration. Evaluating internal parasite infestations with fecal egg count tests is a good starting point. Coproculture provides added value to the diagnosis with identification of parasite species involved. Fecal egg count reduction tests are also needed to assess the effectiveness of products being used. Livestock producers and their veterinary consultants may need to utilize one or more of these diagnostic tools to effectively control cattle internal parasites.

The Professional Service Veterinarians at Boehringer Ingelheim Vetmedica, Inc. are concerned with recommending concomitant anthelmintic therapy in a grazing system based on the concerns of developing multi-resistant gastro-intestinal parasites. Until research provides supporting evidence, it is our recommendation that concomitant therapy not be used in grazing cattle. If diagnostics have shown that anthelmintic resistance does exist in a specific operation, knowledge of the parasite species involved will aid in the judicious and strategic use of anthelmintic products.

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