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Coccidiosis in calves and Recent Challenges

Coccidiosis is a significant illness which can have a major impact on calf performance. Some papers predict mortality at close to 25% if left untreated. Annual economic losses have been estimated at \$62 million. Coccidiosis normally affects young cattle up to 2 years of age which means that feedlot and dairy cattle are the most susceptible. Stress events have been shown to increase disease incidence which are common in our current production system in dairy calves. Weaning is usually the initial high stress event and does correspond to the highest rate of coccidiosis incidence on most farms.

We feed a significant number of calves in our consulting group. We have been having some issues with the illness breaking in calves late summer and fall even with ionophores being included at recommended levels in the ration. I have talked to other nutritionists who have reported similar animal responses. My conclusion is to ask the question if we have slowly created a coccidia organism that is becoming resistant to normal treatment?

The poultry industry deals with coccidiosis more than any other food animal industry. There is some literature that would support my theory of resistance. The grower industry routinely uses an ionophore rotation as well as 2-3 other treatments and on some occasions they even utilize a vaccination. In dairy calves, we have routinely relied on ionophore inclusion in the feed and/or the use of treated drinking water when calves break.

Coccidiosis is caused by a protozoa of the genus *Eimeria*. When animals are infected with the organism, we normally recognize reduced feed intake, loss of body weight with loose watery stool which often contains blood streaking. It is difficult to catch the infestation early because clinical symptoms do not normally appear until the life cycle is near completion. At this point, the protozoa has likely caused severe damage to the gut. Most of our treatment options are only effective during the early stages of the life cycle. We still should treat as soon as possible in order to reduce the severity of the disease and hopefully decrease mortality rates.

The clinical course of the disease ranges from 4 to 14 days. Death is usually due to the severe dehydration which causes dehydration. Other causes of mortality can be from hemorrhaging or from opportunistic secondary infection. Dehydrated animals do not eat and cannot replenish fluids fast enough slow the downward health trend. Most dairy farms currently have implemented transition barns for freshly weaned calves. These calves are housed in small groups where health can be easily observed, and intakes can be monitored closely. Personnel training is essential to enable the early detection of the disease. When the disease is identified, treatment should be implemented immediately. Early treatment/intervention is essential. The normal course of action for prevention has been the inclusion of an ionophore in the ration of these young calves. The most commonly used ionophores are monensin and lasalocid. There is the opportunity to have variable rates of consumption based on intakes which is why it is vital to monitor intake and adjust ionophore inclusion rates accordingly. In the past this method has been effective in the prevention of an outbreak of coccidiosis in calves during the transition process. I have been hearing that calves are breaking with the disease around 20 days after weaning. This corresponds to the life cycle

of the organism. As stated earlier, weaning is the first high stress event and increases the susceptibility of the animal to the organism.

If animals break with the disease with an ionophore in the diet, then the next common course of treatment is the use of amprolium either in granular form or as a liquid mixed in the water. The water treatment can be difficult due to most farms have now implemented individual small volume water receptacles in each pen. These watering systems are not conducive to including products for animal consumption due to the low volume. Therefore, most farms will bring in large water receptacles with a known volume and they are able to mix the amprolium in the larger container for the animals to consume. Often, the change in the pen dynamic now with the large container in the pen actually causes another stress event. Amprolium is the only treatment that will actually kill the organism at any stage of development. The ionophores only kill the animal during the early stages which is why we normally keep these compounds in the diet all times.

The poultry industry has documented the development of ionophore resistant coccidia organisms. I am afraid the dairy industry is now encountering the same response. Unfortunately, there have not been any development of new treatment compounds in many years. We may be forced to look to new avenues of treatment as well as enhanced environmental controls to prevent coccidiosis in dairy calves.

