

WHAT'S AHEAD FOR CALF DIARRHEA RESEARCH (WHERE DO WE GO FROM HERE?)

I. A. Schipper and Wallace Eide

When the calf diarrhea project was initiated, none of the participants anticipated a major breakthrough within a year. Following the completion of the first year's investigation, we were alerted to many inadequate procedures and goals in our program. As we progress and other investigators provide new information on calf diarrhea, the chances are we will alter our approaches and goals extensively.

It always appears so logical to seek for infectious agents that are the cause of disease problems and livestock. Our research approach is no different than research approaches made by others in this sense. As our information increases, one begins to wonder why a rancher with excellent management has so many enteric problems with neonatal animals and yet when pregnant animals from this ranch are sold to other ranchers, they have minimum to no diarrhea problems. If the entire problem were due to infectious agents, surely these agents would be transmitted with the purchased animals to the new premises.

Possibly we are blinded by overemphasis on the involvement of infectious agents, rather than what stimulates them to produce the clinical signs of diarrhea.

Surely nutrition, provided a calf through the colostrum, must be a contributing factor. One can presently only guess at what may be caused by overfeeding of colostrum, effects of ration on deficiencies or the presence of inhibitors in the ration and their effects on colostral content. One of the colostral deficiencies that appears appealing is the deficiency of the amino acid, alanine.

It has been established that the corticosteroids in the blood increase at parturition in the dam and her neonate offspring. The relationship of corticosteroid levels in the dam and the neonate to the incidence of calf scours has not, up to the present, been studied.

Dr. Schipper is professor, Department of Veterinary Science; Eide is Extension Livestock Specialist.

It is also known that all species of animals have varying amounts of trypsin inhibitor in their colostrum. At present, no one has elaborated upon the possible relationship of this colostral constituent and the incidence of diarrhea.

Also, recent studies have demonstrated that nearly all colostrum of cows with calves having diarrhea will not coagulate when mixed with rennin. The possible relationship of this phenomenon, the presence of trypsin inhibitor factor in colostrum and corticosteroid content in the blood make for intriguing future studies.

Phage is a virus that lives on bacteria. The electron microscopic studies completed thus far have indicated the presence of large numbers of phages in the feces of some of the calves with diarrhea. The possibility that phage may be directly associated with calf diarrhea needs to be evaluated.

Some work has been done on the effects of management on colostral levels and immunoglobulin content of the colostrum. Additional studies relating to these aspects are definitely needed and we hope we will be able to do them in the very near future.

Many of our cooperators constantly remind us that feeding corn silage will increase the incidence of diarrhea in calves. At least two possibilities exist to account for these observations. One, that corn silage increases milk production and that diarrhea is related to an enterotoxemia-like problem. The second possibility is that silage contains a toxic substance that passes into the milk and initiates the diarrhea problem. Fortunately, the North Dakota Beef Commission has made it possible for us to investigate this aspect, and we are hoping that within the next two years we will have a satisfactory answer.

These are but a few of the thoughts relating to unanswered questions and future research to control calf diarrhea. It would appear that for every question we will be answering, we will discover two more unanswered questions relating to our objectives. This is what makes this project such an interesting and stimulating piece of work.

