Ostertagiosis in Missouri Beef Cattle—The Scenario from Calving to Feedlot

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In 1979 we began a series of field studies throughout Missouri to ascertain the epidemiology of gastrointestinal nematodiasis in cow/calf herds. Specifically we needed to know the seasonality of parasite transmission, the species involved and ecomonic impact based upon growth performance of calves, weight maintenance of cows and even milk production. Because spring calf production is a major industry in Missouri, we initially concentrated our efforts with this age group. But as part of our herd makeup, we also used weanling to yearling calves as monitors (tracers or sentinels) of pasture contamination. These calves also presented us with very interesting data which really represented parasitism in stocker calves being backgrounded. This then led to an independent study of this age group in 1984 in 2 separate herds and is continuing now with another herd of weanling steers which are being overwintered. And finally we had the opportunity to follow up on a herd of calves sent to a feedlot in western Kansas which had been backgrounded previously in Missouri and subsequently had an outbreak of ostertagiosis in the feedlot.

Our studies with spring calf-cow herds were conducted from 1979 through 1983 on 6 separate farms. Results were presented to AABP in 1983 by Dr. Mike Brauer and will only be summarized here. Breeds for the most part were Angus or Hereford cross or purebred, with some Charolais and Simmental. Study herds were usually 15 to 20 pairs per group which were grazed on summer pastures of orchard grass, fescue, timothy and clover. (Pasture type seemed to have little effect on parasite survivability or transmission). Fecal egg counts, body weights, and grass collection were made biweekly or monthly, and fecal egg samples were cultured for third-stage larva (L3) identification. The predominant species found was *Ostertagia ostertagi* with *Trichostrongylus axei* and *Cooperia spp* also well-represented but less numerous. These findings were further corroborated by pairs of tracer or sentinel calves necropsied each month. But most important was the observation that arrest-prone larvae (pre Type II ostertagiasis) were present in the abomasa of tracers in April to August with adults of Type II appearing in late July and into August, a situation which closely approximates that of southern states, representing a departure from the traditional or northern seasonality. (Our winter observations have shown no pre Type II). With summer grazing, spring calves, non-arrest prone larvae are apparently picked up and establish a Type I condition.

During the summer grazing seasons of 1982 and 1983, we also performed separate anthelmintic trials using fenbendazole (Panacur, Safeguard) as a drench in 1982 and as a paste formulation in 1983 and the morantel sustained release device (Paratect). These trials were not conducted to compare these two compounds, but were studied for their own merits. Fecal egg counts in treated animals were of course reduced to absent and most importantly weight gains in calves treated with fenbendazole were increased by 49 pounds in 1982, a moderate or mild summer, by weaning time, and by 25 pounds in 1983, a summer drought and extremely high temperatures from July through August. In using fenbendazole, we found that a program which includes deworming of cows prior to summer pasture turnout, and then midsummer (late June-early July) deworming of calves and cows (or calves only) was best. We also observed in our 1983 study that milk production was significantly increased in cows dewormed with fenbendazole. In the morantel studies, we also learned that treatment of cows and calves is more advantageous for calves than treatment of calves only.

In 1984, our attention focused on yearling calves and their performance when dewormed. Twenty-four 500 pound Angus calves were purchased for a Safeguard paste study, and 12 were dewormed in April and again in early July. Tracer calves were introduced and removed monthly from each 20 A pasture. A similar study using thirty 400 pound Angus calves was conducted with Paratect at a separate study site. Both treated groups showed significant weight increases by trial termination. The fenbendazole-treated calves weighed 67 pounds more per head than the nontreated and of course egg counts were reduced with each treatment. A weight gain advantage was also seen for the morantel treatment, although not as great, but this can be related to the larvicidal effect of fenbendazole on arrest-prone larvae, to the size difference at study initiation, and to pasture site location. Tracer calves again showed pre Type II or arrest-prone larvae present from May through July. Further, we again experienced a very wet spring and early summer, and a drought in July and August.

Our feedlot experience is a retrospective study. Calves which had been moved from Missouri to Kansas in this case study were dewormed at the lot but apparently not previously. They became depressed, were in poor condition and those examined at post-mortem showed abomasa with a typical Type II infection. In retrospect and from discussion

with the producer in Missouri, these calves had been collected from several sites, and grazed together from April until shipment. Arrest-prone larvae must have been ingested and then established a pre Type II infection.

This experience further illustrates the necessity for a good strategic deworming program for stocker calves being backgrounded, resulting in increased weights, better overall condition and better performance in the feedlot. I would also emphasize the need to know the source of cattle which includes knowledge of the epidemiology of gastro-intestional nematodes in a given geographical area.