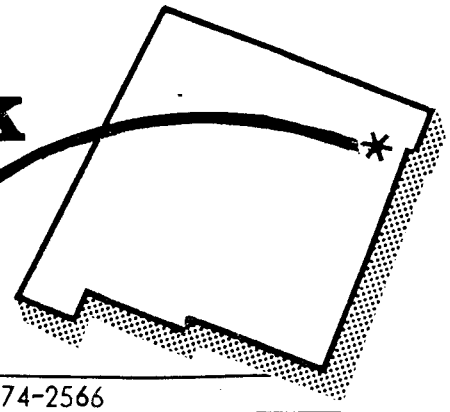
Agricultural Experiment Station U.S. Department of Agriculture

Clayton Livestock Research Center



PROGRESS REPORT

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Progress Report No. 58 (February 1989)

COMPARISON OF ERYTHROMYCIN PLUS TYLOSIN WITH NAXCEL® FOR TREATMENT OF BOVINE RESPIRATORY DISEASE IN NEWLY RECEIVED CALVES

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Naxcel is a broad spectrum antibiotic of the cephalosporin group approved recently for treatment of bovine respiratory disease (BRD). To obtain additional information on Naxcel a study was conducted comparing erythromycin plus tylosin with Naxcel for treatment of BRD in newly-received calves.

On March 21, 1988, 158 male calves (avg wt 323 lbs) were received at the Clayton Livestock Research Center. All calves were processed according to standard CLRC procedures the following day. During processing, calves were allotted randomly to six pens. Morbid calves in three pens received medication regimen A (ET/CLRC) consisting of: (1) Treat with erythromycin (2 mg/lb BW) plus tylosin (8 mg/lb BW) for two consecutive days. (2) If calf did not responded to (1) after two days, treat with terramycin (5 mg/lb BW) and sulfadimethoxine (25 mg/lb BW) for two consecutive days. (3) If calf did not respond to (2) after two days, treat with oxytetracycline (9 mg/lb BW) and sulfadimethoxine bolus (62.5 mg/lb BW) and discontinue treatment. Morbid calves in the remaining three pens received medication regimen B (Naxcel) consisting of (1) Treat with Naxcel (.5 mg/lb BW) for two consecutive days, (2) and (3) same treatment schedule as A (2) and (3). Calves that responded to a particular treatment within each medication regimen, as indicated by return to normal rectal temperature and alleviation of clinical symptoms, were treated a third day and returned to the respective pen with no further treatment.

All calves treated for BRD responded to both medication regimens as indicated by similar reductions in rectal temperature (Table 1). Calves in both medication groups were treated for an average of 3.5 days with a 97% reduction ($P < .01$) in rectal temperature achieved by the final day of treatment. Rectal temperature did not differ between treatments within a treatment day; however, a reduction ($P < .01$) in fever across days within a treatment was evident. Calves receiving the ET/CLRC regimen had a greater response (85% vs 72%; $P < .01$) to the first treatment compared with Naxcel calves. The slower response to Naxcel may have been caused by a slower absorption of the drug at the site of injection (rump, im).

Performance data from morbid calves in both medication groups suggested that Naxcel was less stressful than ET/CLRC, as indicatd by greater ($P < .01$) weight gains during the seven-day trial. An ET/CLRC treated calf was injected with approxiately 30 cc/treatment day, requiring at least two injection sites. A Naxcel treated calf received only 3 cc/treatment day, which possibly decreased the amount of stress related to treatment. Daily feed intake also was greater for Naxcel-treated and untreated calves (6.17 lbs/d)

compared with ET/CLRC treated and untreated calves (5.75 lbs/d). The cost per morbid Naxcel calf was $4.61 compared with $7.35 per morbid ET/CLRC calf. Because both medications are effective in treating BRD, Naxcel may be the more economical choice.

In this pilot study, erythromycin plus tylosin and Naxcel were both effective in treating BRD. Naxcel proved to be the most cost effective treatment because a lower dosage was required. Despite a lower response to first treatment, Naxcel was less stressful to calves as indicated by increased gains and feed intake compared with calves injected with erythromycin plus tylosin.

Comparison of Erythromycin Plus Tylosin and Naxcel for Treatment of BRD in Newly Received Stressed Calves

ITEM	ET/CLRC	Naxcel
Number of calves received	80	78
Number treated for BRD	40	32
Percentage of morbidity	50.0	41.0
Number of dead calves	2	1
Treatment days/morbid calf, d	3.5	3.5
Treatment cost/morbid calf, $	7.36	4.61
Treatment cost/calf received, $	3.68	1.89
Rectal temperatures, °F		
First day treated	105.0^{a}	105.3^{a}
Second day treated	103.0^{b}	103.3^{b}
Third day treated	101.8^{c}	101.7^{c}

	TREATED		
	Untreated	ET/CLRC	Naxcel
Number of calves	86	38	31
Initial wt. lb.	324.7^{a}	308.0^{b}	306.0^{b}
Seven-day weight, lb.	337.8^{a}	308.3^{b}	313.6^{b}
Seven-day ADG, lb.	1.87^{a}	$.04^{b}$	1.09^{c}

^{a,b,c} Means in a row with different superscripts differ ($P < .01$)

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