

EFFECTS OF DOSAGE OF CEFTIOFUR ON HEALTH AND PERFORMANCE OF SHIPPING STRESSED STOCKER CATTLE

M.T. Van Koevering¹, D.R. Gill², F.N. Owens², R.A. Smith³ and R.L. Ball⁴

Story in Brief

One hundred ninety nine head of cattle weighing an average of 433 lb, and demonstrating clinical signs of bovine respiratory disease were selected from 957 head of shipping stressed heifer, steer and bull calves over a two year period. These cattle were used to determine the relative efficacy of using the label dose of Ceftiofur (Upjohn Co., Kalamazoo, MI) for three consecutive days or using a single 3X dose of Ceftiofur for the treatment of bovine respiratory disease. There were no differences between treatments in animals performance as measured by average daily gain. Health parameters were also unchanged with the exception of the number of days treatments were administered (3.72 vs 1.42) for single vs 3X dose respectively. The primary benefit from using a single 3X dose as compared to the normal label dosage for three consecutive days would be the reduced labor necessary in working the animals. This labor savings may be an economic advantage to cattlemen receiving shipping stressed calves.

(Key Words: Shipping Fever, Ceftiofur, Stressed Calves.)

Introduction

Transported stocker cattle, being under stress, are extremely susceptible to shipping fever, also known as the bovine respiratory disease complex (BRD). Drugs which decrease the incidence or severity of BRD of newly received stocker cattle are of great interest because mortality rates typically range from 2 to 5%. Ceftiofur sodium is a drug commonly used to improve the health of cattle suffering from BRD. Normally, Ceftiofur sodium is administered intramuscularly at a rate of 0.50 mg/lb for three consecutive days. The objective of the present study was to examine the effects of giving a single injection of Ceftiofur at 3X the normal dose in order to reduce the

¹Graduate Assistant ²Regents Professor ³Associate Professor, Veterinary Medicine ⁴Herd Manager, Pawhuska

amount of labor and animal handling required and to improve the health and performance of shipping stressed stocker calves.

Materials and Methods

Over a two year period 957 calves weighing an average of 433 lb were received at the Pawhuska Research Station. Upon arrival calves were individually weighed and identified with an ear tag and allotted randomly to pens for nutritional studies. On arrival, cattle had free choice access to water and long stem grass hay. The following morning, all calves were processed as follows: vaccinated with IBR/PI3 (modified live virus; i.m.) and 7 way clostridial bacterin and injected with ivermectin. The first year, calves were adapted to a 72% concentrate ration which was limit fed to allow gains up to 2 lb/day, while the second year, calves were fed long stem hay and fed 2 lbs/head/day of a protein supplement with daily gains projected at .75 lb. Any calves showing signs of illness upon arrival were placed on a medication program and were not included in the comparative treatment study.

Starting on day 1, alternating calves showing visual signs of respiratory disease that had a rectal temperature of 104^o F or higher were treated with Ceftiofur (Upjohn Co., Kalamazoo, MI) sodium at the label dose (0.50 mg/lb) for three consecutive days or given a single injection at 3X the normal dose. All cattle were classified either as responders (not requiring further treatment), or retreats which required additional treatment beyond the initial three days. Cattle that were treated for illness after they had been considered to be recovered from their first illness were classified as repulls.

At the end of 28 day study, cattle were held overnight without feed or water and weighed, bulls were castrated, horns were tipped, and cattle were branded.

All data were analyzed using the general linear model of SAS with the main effect of drug tested by the experiment*drug interaction. F tests were used to identify significant effects of drug treatments.

Results and Discussion

Over the two year, period morbidity rates were approximately 21 percent, resulting in 199 calves classified as sick. Table 1 illustrates the effects of different doses of Ceftiofur on animal performance and health. There were no differences in animal performance due to drug treatment as measured by average daily gain (1.46 vs 1.59 lb; 1X vs 3X). Health parameters were also unchanged. There were no differences in the number

Table 1. Effect of different doses of Ceftiofur on animal health^a.

	Ceftiofur		Probability (P<)
	1X	3X	
Animals, Number	106	93	
Weight			
Arrival	390	394	
Final	432	438	
Ave. Daily Gain, lb	1.46	1.59	
Response, %	75.41	78.34	
Retreat, % ^b	5.23	4.10	
Repull, % ^c	17.97	16.71	
Mortality, %	3.89	3.50	
Treatment days	3.72	1.42	.01
Adj. Treat. days ^d	3.72	3.42	.16

^aLeast squares means.

^bAnimals treated more than one drug per illness.

^cAnimals found sick more than once.

^dAdjusted for the difference between Ceftiofur being normally a 1X injection treatment with a minimum of 3 treatment days required and a 3X dose with only 1 treatment day required.

of animals that responded to first drug treatment, or in the number of retreats and repulls after animals had been treated with their respective dose of Ceftiofur. Mortality rates were unaffected by drug treatment. Fewer ($P<.01$) treatment days were required for the 3X dose as compared to the 1X; however, this was due to the design of the study. If treatment days are adjusted so that they are compared on a equal basis, there still is a tendency for the 3X treatment to decrease the number of days drug treatments were administered. This study has demonstrated that there are no adverse effects to giving a single 3X dose of Ceftiofur rather than the normal dose for three consecutive days. This may be of economic importance for cattlemen receiving shipping stressed calves when labor is limited.