

# Effect of Adding Yeast Culture to the Receiving Ration of Stressed Stocker Calves

W. A. Phillips<sup>1</sup> and D. VonTungeln<sup>2</sup>

## Story in Brief

Yeast culture was added at the rate of 1 or 2 percent to the poststress diet of feeder calves. Calves receiving yeast diets tended to have increased feed intake and weight gain and have better feed conversion than calves not receiving yeast. Increasing the yeast level from 1 to 2 percent did not affect the responses.

## Introduction

Bovine Respiratory Disease (BRD) complex is a major problem in the stocker and feeder industry. The stresses of weaning, marketing and shipping result in lowering the natural resistance of the calf to the ever present viral and bacterial agents which ultimately lead to the contraction of BRD. Calves subjected to stresses also have lowered feed intakes during the first two weeks after arrival at the feedyard or stocker operation. If feed intake could be increased, the ability of the calf to maintain its resistance to infection and to recover losses in body weight experienced during marketing could be increased. Yeast culture is a natural feed additive which has been shown to improve feed intake in unstressed animals. The objective of this experiment was to evaluate the effect of adding a yeast culture to the receiving diet of stressed feeder calves and to observe the effect of the addition on feed intake and performance.

## Materials and Methods

Twenty-four crossbred steers (average weight 176 kg), which had been born and raised at the Livestock and Forage Research Laboratory, El Reno, Oklahoma were weaned on October 17, 1983 at which time they were subjected to the following sequence of events which simulated the stresses of marketing and shipping; weaned and fasted for 24 hr (auction barn phase), refed medium quality hay for 72 hr (order buyer barn phase), and fasted again for 36 hr (transportation phase).

Following the marketing and shipping phase, steers were randomly assigned to one of three dietary treatments (Table 1). Diet A was the control diet. Commercial yeast culture was added to diets B (1 percent) and C (2 percent) at the expense of the corn and soybean meal. All diets were calculated to contain 11.9 percent crude protein and have an energy value of 1.95 Mcal of net energy for maintenance and 1.09 Mcal of net energy for gain per kg of dry matter.

<sup>1</sup>Research Scientist, USDA, ARS    <sup>2</sup>Vet Med. Officer, USDA, ARS

**Table 1. Ration ingredients**

Ingredient <sup>a</sup>	Ration		
	A	B	C
Corn	53.73	53.23	52.73
Cottonseed hulls	35.12	34.62	34.12
Soybean meal	7.92	7.92	7.92
Molasses	0.93	0.93	0.93
Urea	0.30	0.30	0.30
Calcium sulfate	0.61	0.61	0.61
Calcium carbonate	0.11	0.11	0.11
Potassium chloride	1.26	1.26	1.26
Yeast culture	0	1.00	2.00

<sup>a</sup>Composition on an as fed basis.

These diets were fed ad libitum for 28 days. Feed intake of each steer was measured daily and body weight changes were measured weekly. A shrunk weight (18 hr) was taken at the end of the trial to eliminate the affect of gut fill and to calculate net gain during the 28-day period.

### Results and Discussion

Feed consumption increased with time and nearly doubled by week 4 (Table 2). Calves fed diets B and C tended to eat more feed than than calves fed the control diet (diet A). The most rapid increases in weight occurred during week 1 (Table 3) and were probably due to the reestablishment of gastro-intestinal fill. The total weight gains presented in Table 3 are the difference between the initial and final shrunk weights which reflects changes in body mass over the 28-day period. Although no significant differences were noted between treatments, the calves fed diets containing yeast gained at least 8.4 kg more than the control calves.

Total feed consumed during the 28-day period was 174, 199 and 207 kg per head for diets A, B and C, respectively. These values together with the total gains represented in Table 3 will yield the efficiency of gain for each diet. The control diet had a feed:gain ratio of 8.1. Adding yeast at 1 or 2 percent of the diet reduced the feed:gain ratio to 6.4 and 7.0.

**Table 2. Feed intake**

Ration	Week				Total
	1	2	3	4	
A	3.0 <sup>a</sup>	6.3	7.3	7.2	6.2
B	4.1	7.4	7.2	7.6	7.1
C	3.7	7.8	9.3	8.4	7.4

<sup>a</sup>Kg of 90% dry matter feed per head per day.

**Table 3. Weight gains**

Ration	Week				Total
	1	2	3	4	
A	13.1 <sup>a</sup>	9.5	7.7	11.9	21.4 <sup>b</sup>
B	16.7	15.9	3.5	15.9	30.9
C	14.7	13.3	12.1	10.1	29.8

<sup>a</sup>The average change in body weight (kg) during that week.

<sup>b</sup>Net gain (kg) during 28-d period.

The addition of yeast culture at 1 percent of the diet appeared to be advantageous. Feed consumption was increased, weight change was greater and feed:gain ratio was better than the control diet which contained no yeast.