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## EVALUATION OF A CALF STARTER SUPPLEMENT

J.L. Morrill and P.G. Reddy

### Summary

An experimental calf starter made from a pelleted commercial type supplement and feeds readily available on the farm was compared to a conventional pelleted calf starter in an attempt to demonstrate an economical alternative to commercial calf starter. Calves fed the experimental starter consumed as much starter and gained as much weight as calves fed the conventional starter, thus demonstrating a potential for savings on feed cost. The project is continuing in an attempt to improve the starter composition.

### Introduction

A dairy calf starter usually contains several ingredients, including grains, protein supplements, molasses, and vitamin and mineral supplements. It may also contain hay, a buffer, an ionophore, some types of medication, and other ingredients. Because of the many ingredients involved, most of which are used in very small amounts, dairymen often purchase complete calf starters, even though the grains, which make up a major part of the starter, may be readily available on the farm. If they could purchase in one mixture all of the needed supplements and mix this on the farm with their own grains, a reduction in feed cost should be possible. To facilitate proper mixing and to avoid fine particle size in the finished feed (which calves do not like), the supplement mixture should be pelleted. The purpose of this study was to formulate and test such a pelleted supplement mixture.

### Procedure

Twenty eight Holstein or beef crossbred calves were assigned to one of two groups at 1 day of age. Assignments were made so that the groups were balanced with respect to breed and sex. All calves were fed colostrum during the first day of life, than transition milk for 2 days, each at 8% of birth weight. They were then fed milk at 8% of birth weight daily in two equal feedings until daily dry feed consumption was 1.3% of birth weight, then milk was fed at 4% of birth weight once daily, then the calves were weaned. The calves were fed an all-milk prestarter until consumption was 0.5 lb daily, then a mixture of 0.5 lb prestarter daily and all the starter they would consume until they were 5 weeks of age. From then until the calves were 8 weeks of age, when the experiment ended, they could consume calf starter ad libitum.

Calves in one group were assigned to a control calf starter (Table 1). This starter has been used in several experiments and has given good results, thus, it

was used for comparison. Calves in the other group were fed the experimental starter. General appearance and fecal consistency scores were recorded for all calves twice daily, and the calves were weighed weekly. Amount of dry feed consumed was recorded daily.

### Results and Discussion

Starter consumption and weight gains are shown in Table 2. Fecal consistency and general appearance scores did not differ between groups. Although Holstein bulls fed experimental starter consumed more starter and gained more weight than control calves, little significance can be attributed to these differences because of the small numbers involved. An appropriate conclusion is that the calves fed the experimental starter performed at least as well as calves fed the control starter. This demonstrated that the supplement mixture can be used successfully when mixed with home-grown grains, molasses, and hay pellets, all of which the dairyman may have or can easily obtain in bulk quantities.

Some calves separated and left alfalfa pellets. Smaller sized alfalfa pellets were not readily available but an experiment is underway to determine the effect of using 1/4 inch pellets that have been rolled to make the particle size of the entire starter more uniform and eliminate sorting. For those desiring to do so, the alfalfa pellets could be left out of the mixture. Expecially if that is done, the calves should have access to hay.

Table 1. Ingredient composition of calf starters

Ingredients	Conventional <sup>1</sup> (%)	Experimental (%)
Corn, rolled	30.00	34.00
Oats, rolled	20.00	15.00
Sorghum grain, rolled	7.50	
Alfalfa hay, ground	25.00	
Alfalfa hay, pelleted		25.00
Soybean meal	10.00	
Molasses, dry	5.00	
Molasses, liquid		8.00
Dicalcium phosphate	.70	
Limestone, ground	.30	
Salt	.25	
Salt, trace mineral	.25	
Vitamin premix <sup>2</sup>	1.00	
Supplement mixture <sup>3</sup>		18.00

<sup>1</sup> Pelleted, 3/16 inch.

<sup>2</sup> Supplied 100,000 IU of vitamin A, 15,000 IU vitamin D/pound premix in ground corn carrier.

<sup>3</sup> Contained (%): Soybean meal, 92.8; sodium bicarbonate, 2.5; dicalcium phosphate, 1.64; trace mineral salt, 1.48; limestone, 0.62; micronutrient premix, 0.96. Micronutrient premix supplied (per pound of supplement mixture): Vitamin A, 5,680 IU; vitamin D, 810 IU; vitamin E, 142 IU; lasalocid, 62 mg. Pelleted, 3.16 inch.

Table 2. Total starter consumption and body weight gains of calves

Calves	Number of Animals	Starter consumption (lbs)		Weight gain (lbs)	
		Control	Experimental	Control	Experimental
Holstein bulls <sup>1</sup>	8	75.9	106.8	55.1	82.5
Holstein heifers	14	91.5	91.6	54.6	56.5
Beef crossbred	6	51.8	58.3	45.3	43.2

<sup>1</sup> Starter consumption and weight gains were greater ( $P < .05$ ) with Holstein bulls fed experimental starter than Holstein bulls fed control starter.

