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Introducing a computer feeding system at various lactational stages for dairy cows

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INTRODUCING A COMPUTER FEEDING SYSTEM AT VARIOUS LACTATIONAL STAGES FOR DAIRY COWS

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Summary

Lactating dairy cows were introduced to a computer feeder in early (≤ 120 days in milk or D.I.M.), mid (120-220 D.I.M.), and late (>220 D.I.M.) lactation. Cows in the mid- and late-lactation groups adjusted quicker and exhibited a smaller decrease in production, relative to the early lactation group.

Introduction

Computer-controlled feeders are increasing in popularity nationwide and are creating some interest among dairy producers in the midwest. Computer-controlled feeders allow dairy producers with small to medium-sized herds to feed their cows according to production without dividing cows into groups or dispensing feed in the parlor. Many times, a producer considers only the cost of purchasing the computer feeder, but should realize that there is an additional expense involved in adjusting the cows to the feeder. This trial was designed to establish some guidelines as to when to introduce cows to a computer feeder, while holding production as close to normal as possible.

Procedures

One-hundred and seven Holstein cows were divided into three groups according to their days in milk (D.I.M.). All cows continued to receive free choice alfalfa hay. The mid- and late-lactation cows also received 20 lb corn silage per day. All cows received the same milo and soybean meal-based concentrate, and each was allotted the same amount before and after the change. The early cows had free choice concentrate out of a self-feeder, whereas the mid and late cows received their concentrate out of the bunk, two times per day before switching to the computer feeder.

Results and Discussion

The changes in milk traits from 3 days before the feeder was turned on to 10 days after are recorded in Table 1. The only significant changes were a drop in milk yield and an increase in percentage milk fat in the early group, and a drop in percentage milk fat in the mid group. Somatic cell count (SCC) and milk cortisol were measured to indicate the level of stress on the cows during the changeover. There was a trend toward increased SCC and decreased milk cortisol. Our results fail to indicate an increased level of stress throughout the trial.

Table 1. Absolute and percentage change in milk traits for cows newly exposed to a computer feeder at three stages of lactation^a

Milk Trait	Lactation		
	Early	Mid	Late
Yield, lb	-4.3 ^b	1.6	-0.4
% change	-6.7	4.0	-1.9
Fat, %	0.16 ^b	-0.37 ^b	-0.10
% change	5.0	-9.4	-2.5
Protein, %	-0.04	-0.09	-0.06
% change	-1.3	-2.7	-1.6
Somatic cells, 10 ³	40	92	186
% change	15.5	49.2	63.9
Cortisol, ng/ml	-0.23	-0.09	-0.25
% change	-21.6	-9.8	-24.2

^aChanges in milk traits were calculated from an average of each trait for 3 days on self or bunk feeders and an average of that trait for 10 days after changing cows to the computer feeder.

^bSignificant increase or decrease in milk yield or milk fat after changing cows to the computer feeder.

The feed intake data are recorded in Table 2. These data explain why there was a drop in milk production and an increase in percentage milk fat in the early group. These cows ate less concentrate and more alfalfa hay during their adjustment period. The mid and late groups showed some drop in concentrate intake, but were able to maintain production because their needs were not as critical as those of the early group.

Table 2. Dry matter intake (lb)

Group			Day of Trial		
			-3 to 0	0 to 4	5 to 15
Early	Alfalfa Hay	F.C.	19.1	17.6	
	Concentrate	F.C.	22.2	23.0	
Mid	Alfalfa Hay	F.C.	16.1	11.0	
	Corn Silage	7.0	7.0	7.0	
	Concentrate	22.6	15.0	15.5	
Late	Alfalfa Hay	F.C.	20.7	12.8	
	Corn Silage	7.0	7.0	7.0	
	Concentrate	8.7	6.6	8.1	

F.C. = Free Choice

Conclusions

1. Cows introduced to a computer feeder in the mid- to late-lactational states will maintain production.
2. Cows introduced to a computer feeder in early lactation will exhibit a decrease in production and may not return to the pre-computer-feeder level of milk yield during the current lactation.



A view of computer feeding stations at the KSU Dairy Center