Calf Research at the University of Kentucky

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Study 1. Calves hand-fed colostrum had greater concentrations of antibodies in their blood.

Calves are born with little defense or immunity against disease. They acquire resistance to diseases from their dam through the timely and adequate intake of high-quality colostrum. This study compared calves allowed to nurse their dam to those hand-fed colostrum to see which group of calves acquired the best immunity from their dam.

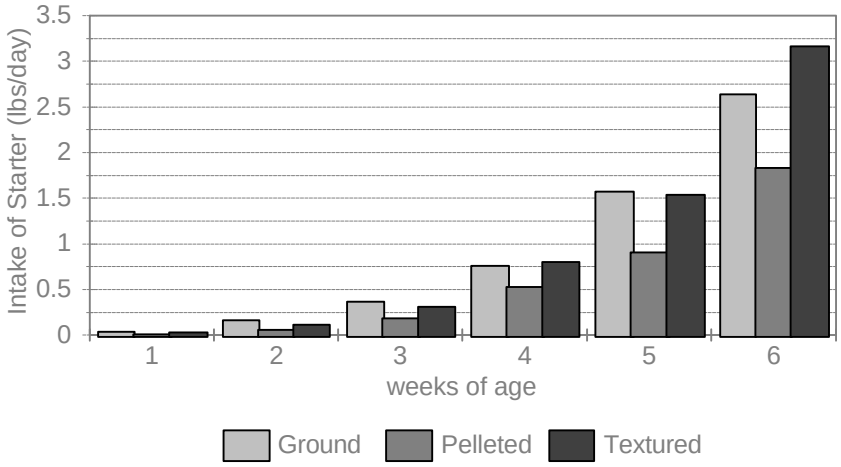
In this study, fifteen Holstein calves were allowed to nurse their dams for the first 3 days of life. Another fifteen calves were hand-fed 3 quarts of colostrum at birth and another 2 quarts of colostrum within 12 hours. Blood samples were taken at 24 hours after birth from all calves, the blood was allowed to clot, and the resulting serum was used to measure the concentration of serum protein with a refractometer. The higher the concentration of serum protein in the serum, the more immunity the calf would have received from their dam and the better the chances the calf has of fighting off disease if the calf is challenged. In this study, the calves hand-fed colostrum had a greater concentration of serum protein than those calves allowed to nurse their dams.

Study 2. Physical form of calf starter may improve starter intake and decrease days to weaning.

Feeding calf starter along with water free-choice helps develop the calf's rumen so that forages can be digested. Calves should be fed a calf starter formulated with very palatable ingredients and contain adequate amounts of protein, minerals and vitamins. Calves should be weaned not based on age but when they consume 1.5 to 2 lbs of starter for three days in a row. The more readily calves consume starter, the earlier they can be weaned which in turn can decrease feed costs and the amount of labor needed. Providing this starter in a meal form, pelleted, or textured physical form may change how readily calves consume starter.

The objective of this study was to compare the performance of calves fed a ground, home-mixed calf starter to commercial pelleted or textured starters. All starters were formulated to be fed to young calves and they contained 20% crude protein. Thirty Holstein calves (10 per treatment) were housed in hutches and fed 2 quarts of whole milk twice daily. Calf starter and water were provided free-choice beginning at d 3 of age. Once calves were consuming 1.5 lbs of starter three days in a row, milk was fed once daily for 4 days and calves were weaned the next day.

The figure to the right shows how the intake of calf starter varied with the age of the calf. No matter which physical form of calf starter the calves received, intake was very low the first couple of weeks of life. However, the small amount of starter consumed at this very early age is important in developing the calf's rumen. Intake of calf starter starts to increase by the third week of life. The largest increases in starter intake are seen after the calves were weaned at week 5 or 6.



	Ground-Home MIx	Pelleted Starter	Textured Starter	
Age calves consumed 1.5 lbs of starter	32 days	37 days	31 days	
Amount of starter consumed	39 lbs	25 lbs	42 lbs	
Total weight gain in 6 weeks	46 lbs	40 lbs	51 lbs	***
Amount of whole milk consumed	272 lbs	295 lbs	264 lbs	***

*** No statistical difference in physical form of starter

Calves fed the pelleted starter consumed less total grain over the 6 weeks of the experiment compared to the calves receiving the ground or textured starter. Calves fed pelleted starter were weaned later than calves fed ground or textured starter. Calves fed ground or textured starter consumed more starter at an earlier age and were weaned earlier than those fed pelleted starter.