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Accelerated growth programs for dairy calves

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Abstract
Accelerated-growth feeding programs are the newest buzz word in calf rearing. Accelerated programs require a milk replacer containing more crude protein and less fat content than traditional milk replacers. These programs are generally phase-feeding programs that increase the amount of milk replacer as the calf advances in age. In addition, changes in the calf starter are necessary to achieve optimal performance. These programs increase weight gain during the liquid-feeding period and may positively impact calf health. Changes in the composition and amount of milk replacer used increase the cost of the accelerated program, compared with that of conventional programs. Gains achieved from an accelerated-growth program during the first few weeks of life are quickly lost if aggressive feeding and management programs are not followed through after weaning. Acceleratedgrowth calf programs are part of the total heifer rearing program to improve overall lactation efficiency by reaching optimal growth and age-at-first-breeding targets for dairy operations.; Dairy Day, 2004, Kansas State University, Manhattan, KS, 2004;

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ACCELERATED GROWTH PROGRAMS FOR DAIRY CALVES

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Summary

Accelerated-growth feeding programs are the newest buzz word in calf rearing. Accelerated programs require a milk replacer containing more crude protein and less fat content than traditional milk replacers. These programs are generally phase-feeding programs that increase the amount of milk replacer as the calf advances in age. In addition, changes in the calf starter are necessary to achieve optimal performance. These programs increase weight gain during the liquid-feeding period and may positively impact calf health. Changes in the composition and amount of milk replacer used increase the cost of the accelerated program, compared with that of conventional programs. Gains achieved from an accelerated-growth program during the first few weeks of life are quickly lost if aggressive feeding and management programs are not followed through after weaning. Accelerated-growth calf programs are part of the total heifer rearing program to improve overall lactation efficiency by reaching optimal growth and age-at-first-breeding targets for dairy operations.

(Key Words: Heifers, Calves, Accelerated Growth.)

Introduction

Traditional liquid-feeding programs for dairy calves used milk replacers that contained enough energy and crude protein for maintenance and a minimal amount of growth. Most growth was the result of increased starter intake as the calf advanced in age. These programs generally resulted in 0.5 to 1.0 lb of gain per day from birth through weaning. Typical traditional milk replacers contained 20% crude protein and 20% fat on a solids basis. Whole milk (Holstein) generally contains about 25% crude protein and 29% fat on a dry matter basis. Estimated gain resulting from typical milk-replacer intake is generally about half that of whole milk. It has been recognized for many years that, although milk replacer programs may achieve adequate growth rates, calves allowed to consume more whole milk had greater rates of growth. This improved growth and the goal of achieving faster and more efficient gain led to the development of new, and more aggressive, liquid-feeding programs for young calves. These programs are designed to more closely match the early calf nutrition program with the advanced genetic potential of modern dairy heifers. Using an accelerated calf-growth program, followed by aggressive feeding and management, may result in heifers having greater height, lean tissue, and body weights at younger ages than result from conventional programs, increasing the potential for larger heifers at calving.

Changes in Liquid Feeding

Feeding colostrum for the first 1 to 3 feedings does not change with accelerated programs. Calves must obtain adequate amounts of immunogloblins early in life to develop adequate disease resistance. Traditional milk replacers contain 20% fat and 20% crude protein, and were generally fed at 1 lb of powder per day from birth until weaning. Milk replacers for accelerated programs contain 25 to 28% crude protein and 15 to 16% fat. These are fed in a phase program using about 1.25 lb of powder per day for the first week of life, followed by increasing amounts, reaching 1.8 pounds of powder per day near the end of the

liquid-feeding period. The solids concentration of accelerated programs (14 to 17%) is greater than that of whole milk or traditional milk replacers (13%). Simply increasing the amount of traditional milk replacer powder in a mix will not result in the same concentration of crude protein and fat as that in the accelerated milk replacers.

Changes in Calf Starter

Traditional calf starters may only contain about 18% crude protein (as fed). With accelerated programs, a special starter containing 20 to 22% crude protein (as fed) is required, in combination with the accelerated liquid feeding, to achieve optimal growth. Calves should be consuming 2 lb of a starter diet per day for a minimum of 3 consecutive days before weaning. Reducing liquid feeding by half for the final week before weaning will stimulate intake of the starter diet.

Changes in Post-Weaning Nutrition

If an aggressive post-weaning nutrition program is not adapted, the potential for reduced growth after weaning increases with accelerated growth programs. It is critical that a starter diet with greater nutrient content is fed for 4 to 5 wk after weaning. If growth rate of calves stalls out after weaning, the benefits of the accelerated liquid-feeding programs are soon lost. Good-quality dry forage should be introduced to limit starter diet intake to 5 to 6 lb per calf per day. Maintaining small groups (6 to 10 calves per group) after weaning is another critical factor for the success of these programs. When calves reach 10 to 12 wk of age, switch to a balanced nutrition program to achieve 1.8 to 2.0 lb of gain per day.

Changes in Management

Accelerated calf-feeding programs are not a silver bullet. They require excellent management to realize their maximum full benefit. To maximize genetic potential of calves, increased management is required. Calves need to be provided more milk replacer as age increases. This requires more management and communication with personnel feeding calves. Mistakes in feeding can lead to digestive upsets and increased scouring. Calf stools are generally looser with accelerated programs, and correct identification of scouring and sickness is more difficult. Unnecessary treatment or failure to treat sick calves will significantly reduce the benefits of accelerated calf programs. Because of the increased moisture content of the stool, more bedding is generally required to maintain a comfortable environment for the calf.

Changes in Calf Growth

Increasing lean tissue and bone growth are the most important benefits of accelerated calf programs. According to several studies, heifers should be 2 to 3 inches taller by 3 months of age and contain more lean tissue. In addition, calves should weigh 20 to 30 lb more at weaning than those raised on conventional programs.

Changes in Cost

Accelerated-growth programs generally cost between $35 and $50 more per calf than conventional programs do. Calves grow faster, increase in frame size, and may be healthier than calves raised on conventional programs, but the returns are much more difficult to define. Results from one study indicated that heifers managed for accelerated growth produced more than 900 lb more milk during their first lactation than did conventionally raised heifers. But whole milk fed was obtained by suckling, and the results may not be similar when feeding milk replacers. Further studies to fully explain the benefits of accelerated growth in calves are needed to define the economic benefits of accelerated calf-feeding programs.