

CALF COLLEGE™ COURSE NOTES

— FEEDING DAIRY CALVES THREE TIMES A DAY DELIVERS BENEFITS —

Historically, young dairy calves have been fed twice a day, often after the morning milking and before the evening milking. But now, research has shown several advantages to feeding milk replacers three times daily. When compared, calves fed a milk replacer three times daily, versus a control group fed the same milk replacer twice daily, were more feed efficient and showed improved average daily gain. Calves fed three times daily grew taller and longer, with added pounds of lean growth. This growth is optimal for dairy calves to help prepare them for desirable breeding weights and freshening at a younger age, leading to greater lifetime performance.

Research Trial Summary

Trials conducted at the USDA Forage Research Center by Don Sockett DVM, PhD with the Wisconsin Veterinary Diagnostic Laboratory explored the benefits of feeding three times versus traditional feedings of two times daily. Calves were housed outside in individual calf hutches until they were weaned and moved to group pens at 50–55 days of age. Seventy Holstein heifer calves were enrolled in the trial designed to evaluate both the short and long-term effects of feeding a full potential milk replacer diet (28 percent protein, 20 percent fat) either three times or twice a day. Calves were randomly assigned to feeding groups—two or three feedings per day.

Calves were fed the same amount of milk replacer during a 24 hour period. The only difference was the number of meals, two vs. three, offered to the calves each day. All the calves were fed at 8:00 am and 9:00 pm. Calves fed three times a day received an additional meal at 2:30 in the afternoon. Both groups of calves were fed milk replacer once a day for seven days when they reached six weeks of age. All calves in the study were offered free choice calf starter beginning at three days of age.

Calves fed three times per day showed improved growth, measuring 0.67 inches taller at hip height than calves fed two times per day (4.05" vs. 3.38"), weighed 10.36 pounds more at weaning (65.7 lbs. vs. 55.34 lbs.) and had better feed efficiency. They also consumed 26 percent more calf starter (8.36 vs. 10.56 lbs.) during the pre-weaning period when the calves were fed milk replacer once a day. Calves fed three times per day were already taller, weighed more and had better feed efficiency as early as 10 days of age ($p < .01$).

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Research has confirmed calves fed three daily feedings:

- Showed improved growth (hip height and weight) and better feed efficiency
- Consumed more calf starter during the pre-weaning process
- Were more likely to enter lactation than calves fed twice daily.

The researcher noted that three times per day fed calves were noticeably friskier than calves fed twice a day. He also observed that they could tell the difference between the calves just by their attitude as early as five to 10 days of age.

These results are summarized in Figure 1:

ITEM	2X FEEDING	3X FEEDING
Birth Weight Gain (1–42 days), lbs.	55.34	65.70
Hip Height Gain (1–42 days), in.	3.38	4.05
Feed Efficiency Gain/Dry Matter Intake (1–42 days)	0.52	0.61

When it came time for the calves to enter the lactating herd, 97.1 percent (34 of 35) of the calves in the three times a day feeding group entered the milking string. In comparison 80.0 percent (28 of 35) of calves fed two times per day entered the milking herd. This means for **every six calves fed three times a day**, one additional heifer entered lactation. Calves fed three times per day also averaged 1,136 pounds more of milk and calved 16 days earlier.

These results are summarized in Figure 2:

ITEM	2X FEEDING	3X FEEDING
Number weaned	32	34
Number lactating	28	34
Age at first calving, days	734	718
Milk production, ME305 lbs.	28,776	29,912

Applicable Considerations for 3x Feeding

— Improved feed efficiency.

Research indicates conversion of feed to gain was better for calves fed three times daily.

— Healthy rumen development

Calves fed at more frequent intervals have demonstrated more calf starter intake, a critical factor in early, healthy rumen development.

— Increased profit potential

With heifers reaching breeding weights earlier and calving earlier, three times per day feeding can increase milk production per cow, improve herd longevity, and increase the number of replacement heifers raised and available for herd improvement.

— Labor costs may be offset

The labor costs associated with an extra feeding per day may be offset by reduced treatment costs and labor associated with sick calves. Automatic calf feeders can further aid in reducing labor costs.

Three time a day feeding is an excellent management protocol to help deliver a full potential plane of nutrition to calves. Full potential diets have been proven to increase first lactation and lifetime production levels in dairy cows.

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