

Evaluation of Calf Growth Fed Milk Replacer in Individual Stalls or in Group Pens with Automatic Feeders

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Introduction

Calf management has traditionally been in single units, with various types of housing available. Some styles include hutches designed for outdoor rearing to minimize health problems and stalls for set up within a barn or coverall. Over the past several years, interest in group management of calves has been studied and implemented on many farms. Group housing allows for calves to be socialized earlier with freer access to milk or milk replacer through different feeding systems. Furthermore, a space within a barn allocated to groups can provide more room on a per calf basis than individual housing. The concerns that arise from this management system are the potential effects on health, which can influence growth, when calves have continuous contact and can become ill (Svensson et al, 2006). There is also the increased competition for the teat depending on group size and the number of milk meals allowed (Jensen, 2004).

Materials and Methods

Animals, Housing and Feeding

One hundred and twenty three calves sourced from 2 local farms were housed in a coverall building located in Woodstock, Ontario. All calves were female Holsteins between the ages of 2 and 10 days.

Calves housed individually (57) were kept in a pen 2.2m²(24ft²). Calves had two pails directly in front of their stall, one for milk replacer or water and one for grain. All pails were cleaned and sanitized one time daily. Calves in group pens, approximately 12 per group (2.1m²/22.5ft²/calf), were fed with an automatic feeding machine – 2 groups per feeder. Calves had access to grain via an automatic grain feeder and all calves had free access to water.

All calves on trial were fed 6L/day of milk replacer. The milk replacer used was Grober Excel (Crude Protein 26%; Crude Fat 18%) mixed as per the manufacturer's directions and fed 3x/day in the first week and 2x/day thereafter to individual calves. Milk was offered at the full level for 6 weeks, the following 2 weeks calves were weaned by offering one full milk meal per day. From 8-10 weeks calves were fed grain and hay. Group fed calves were permitted to drink a minimum of 1.5L and a maximum of 2.0L at each visit to the feeder. All calves were introduced to a pelleted grain starter immediately upon entry and dry, grass hay was offered starting at 4 weeks.

Data collection

All calves were weighed upon entry and every week thereafter for the 10 weeks on trial. Milk replacer and starter refusals were recorded daily. Meal size and visits were recorded automatically on the automatic feeder.

Results

The initial growth in calves assessed by both body weight and average daily gains was slower in group fed calves. Post weaning, group fed animals had higher average daily gains.

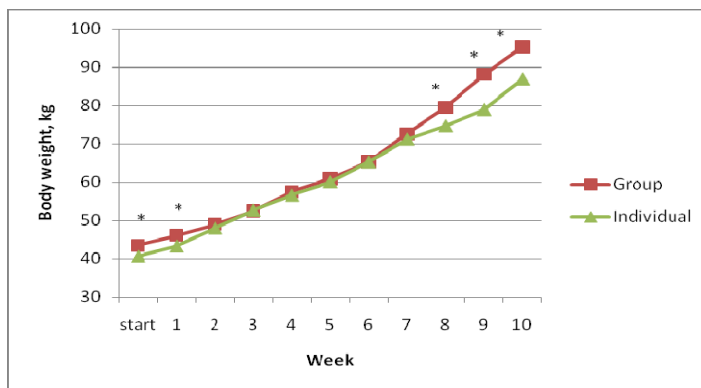


Figure 1 Body weight comparison over time for Group fed and Individual fed calves. (Points marked with a * are significantly different at $p < 0.05$.)

Conclusions

Group calves were heavier to start, while calves in individual pens caught up by week 3; this would insinuate that separate housing in the early stages of calf development might be optimal for growth. However, by week 5 group calves started to gain and continued to have higher body weights through weaning and beyond. Individual calves had slightly higher ADG from 0-6 weeks though not significant at $p < 0.05$. From 7-8 weeks, Group calves had higher gains though not significant. However from 9-10 weeks (post weaning) Group calves had significantly higher levels of ADG (1.11kg/day compared to 0.550kg/day in pens). Further research exploring whether moving calves at 4 or 5 weeks to a group setting from individual pens would allow for maximum growth or whether grouping calves early on is still optimum even with slower gain in the beginning.

References

- Jensen, M.B. 2004. Computer-Controlled Milk Feeding of Dairy Calves: The Effects of Number of Calves per Feeder and Number of Milk Portions on Use of Feeder and Social Behavior. *J.Dairy Sci.* 87:3428-3438.
- Svensson, C., J. HULTgren, and P.A. Oltenacu. 2006. Morbidity in Swedish dairy calves from 3-7 months of age, and risk factors for diarrhea and respiratory disease. *Prev. Vet. Med.* 74:162-179.