

GROUP FEEDING DAIRY CALVES

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Dairy replacement feeding and management systems have undergone major evolution in the last 25-30 years. As herd sizes increased elevated calf crates replaced pens to save time and space, then individual hutches were introduced to protect calves from contaminated and overcrowded environments. Recently higher levels of milk feeding is recommended to promote early growth, and now some farmers are adopting extended suckling until calves are weaned. Group calf rearing offers opportunities to reduce labor and to aid in socializing calves, but performance of group managed calves in enlarged hutches is not well documented. Heifer calves born at WCROC during the 2005-2007 calving seasons were used to evaluate the effect of early life nutritional level in a group management system on growth, feed costs and health of calves. Preliminary work indicated that calves demonstrated similar performance from similar diets in managed groups and in hutches. Calves were assigned to groups of 10 by birth order, with paired group formation order randomly determined. Super hutches with an outdoor exercise area were the primary housing site, but some groups were housed in other naturally ventilated facilities. 237 calves were allocated to 25 groups. Calves were born in concentrated spring and autumn calving seasons, with time for group formation ranging from 4 days to >2 weeks, depending on calving rates. Cows calved unattended on pasture in late March-June and October-early December, but in an open shed during extreme weather. Accelerated (AG) groups were fed 2.2% of birth weight as milk replacer powder reconstituted over 2 equal feedings daily until the youngest calf in the group was 5 weeks old, reduced to once daily feeding for at least one week, then weaned when the group consumption averaged 2 lb of starter/calf/day. Conventional (CG) groups were fed 1.1% of birth weight in milk replacer once daily, then weaned when the group consumes 2 lb of starter/head/day and the youngest calf in the group was >27 days old. Groups were retained in original housing until 14 days post-weaning, then transferred to group pens in a scrape alley, naturally ventilated building. Starter consumption (S) was restricted to 5 lb/day maximum per calf, by group. Milk replacer (MR) was 22% protein, 20% fat. Calf starter was a premium 18% protein, highly palatable, low-molasses starter, but a home ground 18% crude protein mix was utilized after per calf group consumption reached 4 lb. TMR was fed to groups weighing >91kg. Feed cost to weaning per calf was AG, \$116.19 and CG, \$54.52. Body weight and hip height was recorded at birth (BW), weaning, 90 days, and 180 days. The oldest heifers calved in the spring of 2007. Analysis was by Proc GLM /SAS with independent variables group and year, and birth weight as a covariate for individuals.

Table 1 Pen performance

Group	N	weaned(days)	MR(kg)	S(kg)	Gain 0-35(kg)	Gain 0-42(kg)
AG	11	55.1±2.0	37.2±1.0	14.2±1.5	10.9±1.0	15.1±1.2
CG	14	46.3±1.7	16.8±0.9	17.7±1.3	7.5±0.9	10.9±1.3
P (type III)		.002	.0001	.100	.012	.027

AG gained more than CG to 35 or 42 days of age were weaned when 9 days older and consumed 2.2 times as much milk replacer. CG trended to consume more starter during 9 fewer days to weaning.

Table 2 Individual calf Growth (weight = WT, kg; hip height = HT, cm)

Calf	N	Wean WT	90 WT	180 WT	wean HT	90 HT	180 HT
AG	105	67.4±0.8	97.1±1.5	168.6±2.4	87.6±0.3	92.8±0.4	106.4±1.7
CG	132	54.2±0.8	94.5±1.3	169.9±2.1	83.1±0.3	92.5±0.4	107.7±1.5
P (type III)		.0001	.014	.428	.0001	.564	.553

Individual weaning weights and heights of AG were higher than CG at weaning and 90 days of age, but growth differences had dissipated by 180 days of age. **Take Home Message:** Calves fed AG grew faster than CG until weaning, but body size was similar by 6 months old. Cost of an AG was more than twice that of CG through weaning. Successful group feeding with limited feeding of milk replacer is feasible with rigorous training to eat aggressively during infancy and early consumption of a high quality starter.