

EFFECT OF MANAGERIAL SYSTEM, SEX AND SEASON OF BIRTH ON PERFORMANCE AND ALIMENTATION AND POSTURE BEHAVIOUR OF SUCKLING FRIESIAN CALVES

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SUMMARY

Two experiments were conducted. The first one involved 160 one week-old Friesian calves born during winter and summer seasons to study the effect of two rearing systems, two milk intake levels, season of birth and sex on preweaning feed intake, weight gain and mortality rate. Calves were raised either individually or in group pens during summer and winter seasons. They were weighed weekly and fed milk at level of either 8 or 10 % of body weight from one week old up to weaning at 90 kg body weight. Calf starter and berseem hay were available *ad-lib.* starting on the first day of the experiment. The second experiment included 20 male calves born in the next winter to study the effect of the two housing systems on alimentation and posture behaviour from birth up to weaning. Calves were fed 10% level of suckling milk. Calf starter, hay and water were offered in the same order as in experiment 1. The following results were obtained:

1. Calves raised in individual pens showed significantly higher average daily gain (900 gm/day) and younger weaning age (64.5 days) than those raised in group pens (623 gm/day and 91.5 days, respectively).
2. Pre-weaning daily gain of calves fed 10 % milk was greater than those fed 8 % milk. Rearing season had significant effect on daily gain and weaning age. Male calves scored higher value for daily gain than females.
3. The reflection of raising system on mortality rate was important, particularly in the first month after birth. Keeping calves in individual pens until one month of age increased the chances of calves survival at weaning.

Eating and ruminating activities occurred for calves when they were 15 days old. However, ruminating: eating ratio was higher during 6-12 weeks of age either with individual or group-pen rearing.

Keywords: Management system, body performance, behavioural activities, Friesian calves.

INTRODUCTION

Outdoor hutches could be used for housing dairy calves, since an outdoor housing system resulted in earlier weaning age and improved feed efficiency in comparison

with conventional calf housing (Jorgenson *et al.*, 1970, El-Badawy *et al.*, 1994). However, information on raising systems in outdoor hutches (individual or group pen) is not available for many dairy producers, especially small holders.

One of the main objectives of rearing calves in individual pens is to ensure good hygiene measures. It is particularly important to ensure that this applies to all feeding utensils. Some authorities recommend that buckets must be cleaned daily with hypochlorite or some other approved disinfectant. This is something of a counsel of perfection. It is undoubtedly important to keep buckets clean but the best aid to good hygiene is probably to ensure that each calf uses only its own bucket right through to weaning. Milk buckets should be rinsed out after each feed and then half-filled with fresh drinking water, since there is clear evidence that unlimited access to fresh water helps to encourage forage intake. It is important, however, to avoid swilling water around too generously during the cleaning-out periods, as this will make it very difficult to maintain an acceptable relative humidity in the calf house. Any calf weaned off milk replacer when eating less than 1 kg/day calf starter would be expected to suffer a set-back. Other advantages of bucket-feeding in individual pens are that it provides a good opportunity for close inspection of individuals, and early treatment of disease when necessary. Moreover, it ensures predictable and fairly even growth, weaning can be controlled and calves turned out in batches into "follow-on" yards. The obvious disadvantages of this system are the excess labour requirement and the high capital costs for pens and buildings (Webster, 1984).

The objective of the present study was to evaluate the effect of two housing systems (individual vs group pens) in outdoor hutches, two levels of milk, season of birth and sex on pre-weaning performance of calves. Daily behavioural activities of winter born male calves were also recorded during pre-weaning period.

MATERIALS AND METHODS

Experiment I.

This experiment was carried out at Toukh Tanbasha Research Station, at the Middle Delta region, Egypt, from May 1994 till April 1995.

One hundred and sixty Friesian calves, one week old were divided at random into two groups (each 80 calves). In the first group the calves were kept in individual pens (2.2 x 1.1m) in a bucket feeding system. Each pen was supplied with two buckets, one for milk and water and the other for calf starter. Calves in the second group were kept in 8 group pens (10 calves each). Milk was fed at a level of 8% or 10% of calf's weight up to weaning for both housing groups. The milk was offered in two equal portions twice daily at 7:00 and 18:00 h. All calves were trained to drink from buckets. The normal procedure was followed, which allows the calf to suck from a finger, then the hand was lowered into the bucket being inclined at such an angle that the calf's mouth, but not its nose, dips into the milk. The calf starter consisted of 40% cottonseed and linseed meals, 20% yellow corn, 26% wheat bran, 4% rice bran, 7% sugarcane molasses, 2% limestone and 1% common salt. Berseem hay was first offered *ad lib.* on the first day of the experiment (7th day of age) to the end of the trial. Water and mineral blocks were also available. Calves were weaned at 90 kg. body weight. Chemical composition of feeds was determined according to A.O.A.C. (1980) and are presented in Table (1).

Table 1. Chemical composition of whole milk, berseem hay and calf starter.

Composition, %	Milk	Calf starter	Berseem hay
Dry matter	12.94	90.66	88.94
Crude protein	3.34	17.33	15.05
Ether extract	4.42	4.45	2.75
Crude fiber	0.00	6.03	26.83
N-free extract	4.45	55.16	33.74
Ash	0.73	7.16	10.57

Daily feed and water intakes were individually determined for all calves twice weekly. Birth weight was recorded within 24 hr after birth, and thereafter the calves were weighed at weekly intervals to the nearest kilogram up to weaning.

Data collected were statistically analyzed by the following model according to Harvey (1976) with rearing system, milk intake level, season of birth and sex as main factors.

Fixed effects model:-

$$Y = \mu + M_i + T_j + S_k + X_l + E_{ijkl}$$

Where:

μ = Overall mean

M_i = Effect of milk level and i^{th} represents milk level of 8% and 10% of birth weight.

T_j = Effect of raising system and j^{th} represents the individual pens and group pen

S_k = Effect of season at birth and k^{th} represents the winter and summer season

X_l = Effect of sex and l^{th} represents the male and female

E_{ijkl} = Experimental error

Experiment II.

This experiment was carried out at the Animal Behaviour Unit, Faculty of Agriculture, Menofiya University in winter 1995. Alimentation and posture behaviour were studied on 20 male Friesian calves during their suckling period, which lasted 12-13 weeks. Ten calves were raised individually, meanwhile the remaining calves were raised in group pen. Continuous close observations were done by expert personnel and a time lapse Video recorder connected with two low light intensities Television cameras on calves during the experimental period. Liberal amounts of berseem hay, starter and fresh water were available throughout the observation time (24 hr). Milk was offered twice daily using only one level (10%) for both groups. Frequency and time spent in eating, ruminating, lying and standing for calves in each group were recorded weekly on two successive days. Animals in both experiments (I & II) were under routine veterinary care.

Analysis of variance was carried out according to Snedecor and Cochran (1970).

RESULTS AND DISCUSSION

Performance of calves.

Data of feed and water intake are presented in Table (2). Raising system had clear effect on feed and water intakes. Calves fed the higher milk level consumed a similar daily amount of water as compared to those fed the lower milk level. The lowest dry matter intake and the highest water consumption were observed for calves in summer season. Sex had no effect on water intake.

Table 2. Effect of raising system, feeding level, season of birth and sex on daily feed intake and water consumption of calves during suckling period

Classification	No. of calves	Av. dry matter intake, kg / day				Water consumption L/head/day
		Milk	Starter	Hay	Total	
Raising system:						
Individual pen	80	0.677	0.275	0.468	1.420	3.10
Group pen	80	0.813	0.225	0.228	1.266	3.90
Feeding level:						
8% milk level	80	0.585	0.290	0.375	1.250	3.85
10% milk level	80	0.846	0.210	0.380	1.436	3.75
Season of birth:						
Winter	90	0.646	0.220	0.584	1.450	2.75
Summer	70	0.798	0.280	0.158	1.236	4.75
Sex:						
Male	85	0.755	0.240	0.385	1.400	3.50
Female	75	0.675	0.240	0.371	1.286	3.50

Individual pen raising system was associated with more hay intake (Table 3). Calves raised in group pens consumed more water than those kept in individual pens, which might be due to more physical activity of calves in group pens. However, comparable high water intake was observed in calves fed either high or low milk level (Table 2). Data in Table (3) show that individual pen raising system was associated with lower weaning age of calves by 27 days than those raised in group pens (64.5 vs. 91.5 days). Also weaning age was earlier for high milk level group (75.8 days), in winter season (67.0 days) and male calves (71.0 days) as compared to that of low milk level, summer season and female calves (88.2, 88.0, 85.1, days), respectively.

Table 3. Effect of raising system, feeding level, season of birth and sex on preweaning daily gain and weaning age of Friesian calves

Classification	No. of calves	Initial weight, kg	Age at weaning, day	Daily gain	
				gm /day	improvement %
Raising system:					
Individual pen	80	32.0 ± 0.5	64.5	900.0 ± 6.2	44.5
Group pen	80	33.0 ± 0.1	91.5	623.0 ± 5.5	-
Feeding level:					
8% milk level	80	32.6 ± 0.2	88.2	650.5 ± 6.5	-
10% milk level	80	32.4 ± 0.2	75.8	759.9 ± 8.2	16.8
Season of birth:					
Winter	90	33.0 ± 0.5	67.0	850.0 ± 9.1	29.0
Summer	70	32.0 ± 0.3	88.0	659.1 ± 6.5	-
Sex:					
Male	85	34.6 ± 0.5	71.0	780.1 ± 7.2	11.3
Female	75	30.4 ± 0.1	85.1	700.4 ± 8.5	-

* P < 0.05

** P < 0.01

From these results, calves raised in individual pens and fed on high milk level tended to gain more weight than those raised in group pens. Season of birth also

affected the average daily gain. Table (3) further shows that daily gain of calves was improved by 44.5 % when raised in individual pens, 16.4 % when fed on the higher milk level (10 %), 29.0% in winter raised calves and 11.3% in male calves. Lower gain in summer may be due to adverse environmental condition, mainly climatic. Economides and Georghiades (1984) reported that the pre-weaning daily gain of Friesian calves decreased with low milk level, which agrees with the present findings.

The feed conversion was calculated as kg dry matter intake for one kg gain (Table 4). It was better for calves raised in individual pens, fed on high milk level, raised in winter season and for males. However, the values of the present study are slightly higher than those obtained by Webster and Saville (1981), who found a 1.46 feed conversion level in Friesian calves during the suckling period. The foregoing results, suggest that the economic efficiency was significantly greater for calves raised in individual pens, for those reared in winter season and for males. Webster and Saville (1981) demonstrated that, individual pens for rearing calves from birth to weaning are often rather high in accommodation costs. This shorter period to weaning means fewer pens are required. There were fairly widespread cases of diarrhoea (scours) recorded in pen group. Webster (1984) reported that dams of summer-born calves had low circulating levels of the fat-soluble vitamins A, D and E, and so little gets through to the calf by way of the colostrum. Moreover, the immunoglobulin may also be low, which may explain the superiority of the winter born calves observed in the present study.

Table 4. Effect of raising system, feeding level, season of birth and sex on feed efficiency and economic efficiency of Friesian calves during suckling period

Classification	No. of calves	Feed efficiency		Economic efficiency	
		kg DM/kg gain	Improvement %	Cost/unit* gain L.E.	Improvement, %
Raising system:					
Individual pen	80	1.58	28.5	8.0	25.0
Group pen	80	2.03	-	10.0	-
Feeding level:					
8% milk level	80	1.92	-	9.2	-
10% milk level	80	1.89	1.59	8.8	4.5
Season of birth:					
Winter	90	1.70	10.59	8.5	11.8
Summer	70	1.88	-	9.5	-
Sex:					
Male	85	1.79	2.79	8.7	6.7
Female	75	1.84	-	9.3	-

* L.E /kg gain = Changing cost (feedstuffs price & worker's wages & medical costs) / total gain

The main problem likely to face the summer raised calf is scours (infectious diarrhoea), probably microbial in origin. This may be aggravated by (1) over consumption of mother's milk, (2) poor immune status and/or (3) weather-related stresses out of doors.

Mortality rate.

Data in Table (5) show that most of calf mortality occurred during the first month of age, especially in the first week. Mortality rate tended to be significantly higher in calves raised in group pen than in individual pen. This could be due to the fact that the individual pen may provide a better environment for the calf than the group pen. Feeding system had no significant effect on mortality rate (Table 5). However, it was significantly higher in summer than that in winter. This could be attributed to heat stress in summer. The results also indicated that the mortality rate was higher in females than in males, however the difference was not significant. Therefore, it could be concluded that raising pre-weaning calves in individual pens seems to provide a better chance for survival.

Table 5. Effect of raising system, feeding level, season of birth and sex on mortality rate of calves during suckling period

Classification	No. of calves at birth	No. of calves died at different ages							
		1st month		2nd month		3rd month		Total at weaning	
		No.	%	No.	%	No.	%	No.	%
Raising system:			*		**				*
Individual pen	80	2	2.50	-	-	-	-	2	2.50
Group pen	80	4	5.00	1	1.25	-	-	5	6.25
Feeding level:					**				*
8% milk level	80	3	3.75	1	1.25	-	-	4	5.00
10% milk level	80	3	3.75	-	-	-	-	3	3.75
Season of birth:			*		**				*
Winter	90	2	2.32	-	-	-	-	2	2.50
Summer	70	4	5.71	1	1.43	-	-	5	6.25
Sex:					**				*
Male	85	3	3.52	-	-	-	-	3	3.52
Female	75	3	4.00	1	1.33	-	-	4	5.33

* $P < 0.05$, ** $P < 0.01$

One of the main reasons advocated for rearing calves in individual pens with solid sides stretching forward to the front of the pens has been to stop calves licking one another and spreading *S.typhimurium* or any other enterobacteria by direct contact. If calves are reared in groups and drink from a communal teat, spread of infection by direct contact becomes inevitable. If each calf that was infected with *S.typhimurium* or other pathogenic enterobacterium showed clinical signs of septicemia, eg., high temperature, dullness, scouring, etc. then one would expect to see a far higher incidence of scours and septicemia in calves reared in groups than those reared in isolation. In fact this does not seem to be the case. Webster (1984) compared bucket reared calves in individual pens with calves reared in groups and fed either warm milk from an automatic dispenser or acidified cold milk, in terms of death rates and numbers of calves treated for diarrhoea to 12 week of age. He found that the incidence of death and enteric disease in group-rearing systems was acceptably low.

Alimentation behaviour.

Data in Table (6) show that at 2 weeks old, some calves began their first trial to eat hay. Eating frequency showed a gradual increase from the 2nd week of age for calves raised in group pens and from 3rd week in individual pens. A similar trend was

noticed for eating time. This may suggest that during the first two weeks of life, calves depend completely on the milk supply. However, it was observed that eating time was quite similar for individual and group-pen calves. The opposite was true for eating frequency, which increased in group compared with individually penned calves. The ruminating rate followed the same trend as eating activity.

Table 6. Average of frequency and time spent in eating, ruminating, lying and standing in calves as affected by raising system at successive ages during suckling period (12-13 weeks)

Age (week)	Eating				Ruminating				
	F		T		F		T		
	IP	GP	IP	GP	IP	GP	IP	GP	
1	-	-	-	-	-	-	-	-	-
2	6.5	9.6*	166.2	196.6*	3.6	3.6	55.5	65.2*	
3	8.8	11.5*	241.6	230.2	4.8	7.1*	95.1	100.1	
4	9.5	12.2*	252.0	240.3	6.9	7.5	106.2	115.2	
5	10.8	12.9	261.0	255.1	7.5	9.1	125.2	120.1	
6	13.5	16.0*	276.0	270.1	8.0	9.0	150.2	153.5	
7	16.8	18.0	280.1	275.2	8.5	10.5	150.5	155.2	
8	18.5	19.2	286.2	278.3	9.0	10.2	160.1	160.2	
9	19.0	20.5	300.5	290.5	9.5	10.8	180.2	169.1	
10	19.8	20.9	306.3	298.2	10.1	11.5	180.5	180.5	
11	20.5	21.0	315.8	305.6	10.5	11.8	186.3	185.2	
12	20.8	21.5	330.0	318.2	10.5	11.5	192.5	185.8	
13	20.5	21.9	335.0	320.1	10.8	12.0	193.3	186.2	

Table 6. Cont...

Age (week)	R:E		Lying				Standing			
	F		T		F		T			
	IP	GP	IP	GP	IP	GP	IP	GP		
1										
2	0.33	0.33	3.0	5.0	1008.0	990.0	7.8	10.5	432.0	450.0
3	0.39	0.43*	4.5	6.5	986.0	920.5	9.8	12.3	454.0	519.5
4	0.42	0.48	5.8	5.6	864.0	850.0	10.2	13.8	576.0	590.0
5	0.48	0.47	6.1	7.0	792.0	750.5	11.9	13.9	648.0	689.5
6	0.54	0.57	6.5	7.5	756.0	706.3	14.2	18.1	684.0	733.7
7	0.55	0.56	6.8	8.1	747.6	730.2	17.8	19.5	692.0	709.8
8	0.56	0.58	7.1	8.5	740.5	725.5	19.2	20.2	700.0	714.5
9	0.60	0.58	7.8	9.5	710.3	710.6	20.3	22.5	729.7	729.4
10	0.59	0.60	8.2	9.8	650.2	622.5	20.5	22.9	789.8	817.5
11	0.59	0.61	8.5	10.2	613.5	590.5	21.5	23.1	826.5	849.5
12	0.58	0.58	8.0	10.1	610.5	585.6	22.5	23.0	829.5	854.4
13	0.58	0.58	9.5	11.5	605.3	536.3	22.0	23.5	834.7	903.7

* P < 0.05

F: Frequency, T : Time (minute), IP: Individual Pen GP: Group Pen, R:E Ruminating : Eating ratio

In general, it could be concluded that, frequency of eating and ruminating gradually increased from the second to the eighth week and thereafter tended to be stable until weaning. Eating period showed a similar trend. However, ruminating period increased gradually and became in the fifth week double that of the second week. In the ninth week it became three times, then decreased later on to be stable in the last four weeks.

The relationship between ruminating and eating time ratio (R:E) was 0.39 for individually penned calves, being relatively greater (0.43) for group pen calves at 3 weeks. Thereafter, the R:E ratio was almost similar for individual and group penned calves when they were aged 5 weeks or more.

The R/E ratio increased up to the ninth week and stayed as such to the end of the experiment. Ruminating period was 33% of eating period during the second week. It increased later on to reach 60% of eating period in the tenth week and stayed as such to the end of the experiment. Ruminating was noticed for the first time in calves raised under the two systems of housing, when they aged 15 days; after that the ruminating activity increased gradually until they reached 6-12 weeks of age. Rumination in calves that were encouraged to eat dry food early, started in the second week of life and by the third week the rumen can be considered well developed (Gillil *et al.* 1962). Borhami *et al.* (1967) found that the VFA concentration was lowest at two weeks and reached the highest level between 6-17 weeks. In goats, ruminating activity was noticed for the first time in kids, when they were 11-20 days (Abdel-Rahman and Kandil, 1985). Houria (1995) added that eating and ruminating activities were noticed for the first time in lambs, when they were aged 21 days. It may be suggested that at 6 weeks of age the gastric development of calves may reach a satisfactory level to make them dependent on the supplementary diet.

Posture behaviour.

In group pens, calves spent more time standing than in individual pens at different periods from birth to weaning. The opposite was true for lying activity (Table 6). In general, lying period decreased from the second to the tenth week, but tended to be stable later on. Individually raised calves had longer lying periods than group pen calves.

Table 7. Overall average of frequency and time spent/day (24 hrs.) for eating, ruminating, lying, and standing during suckling period

Item	Eating	Ruminating	Lying	Standing
No. of recurrence (frequency):				
Individual pen	14.2	7.7	6.3	15.2
Group pen	15.8	9.8	8.2	17.2
Total time (min.):				
Individual pen	257.7	136.6	752.6*	687.4*
Group pen	251.4	136.6	624.5	815.5
Average time spent per each frequent recurrence (min.):				
Individual pen	18.2	17.7	119.5*	45.2
Group pen	15.9	13.9	76.2	47.4
Total time as % of 24 hrs. Each day:				
Individual pen	17.9	9.5	52.3*	47.7
Group pen	17.5	9.5	43.4	56.6

* P < 0.05

Data in Table (7) show that calves raised in group pens appeared to have, on the average, the highest frequency and time spent in standing activity compared with calves raised in individual pens. During the 24 hour observations, the times spent by pre-weaning calves kept in individual pens were 17.9, 9.5, 52.3 and 47.7 % for eating, ruminating, lying and standing, respectively. The same observations were 17.5, 9.5, 43.4 and 56.6 %, respectively for calves raised in group pen. Raising system had a significant effect on time spent lying and standing during the 24 hour observations. Generally, in group penned calves, intersuckling or the habit of sucking each other was common among dairy calves. After milk consumption, especially if they were taken quickly, calves often continue to suck each other's ears, navels, teats or parts of their pen.

It could be concluded that using individual pens with high milk level (10%) during suckling period, gave better growth performance and lower mortality rate. In other words, the present results showed improved returns from rearing calves in individual pens as compared to group pens.

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تأثير نظم الرعاية والجنس وموسم الولادة على كل من الأداء و بعض الأنشطة السلوكية اليومية لعجول فريزيان رضيفة.

سعيد سعيد عمر

قسم الإنتاج الحيوانى، كلية الزراعة، جامعة المنوفية، المنوفية شبين الكوم

تمت هذه الدراسة فى تجربتين: فى التجربة الأولى تم استخدام عدد ١٦٠ من العجول الفريزيان الرضية والمولودة خلال فصلى الشتاء والصيف فى محطة بحوث الإنتاج الحيوانى بطوخ طنشبا جامعة المنوفية لدراسة تأثير نظامين لتنشئة العجول على أدائها خلال فترة الرضاعة. حيث تمت تربية العجول فى نظامين (أقاص فردية أو مجموعات فى أحواش) وتم إرضاع العجول على مستويين من اللبن (٨٪ أو ١٠٪ من وزن الجسم) حتى القطام عند وزن ٩٠ كجم . وفى التجربة الثانية تمت دراسة بعض الأنشطة السلوكية لعدد ٢٠ عجل ذكر رضيع حيث قسمت العجول إلى مجموعتين ، وضعت كل مجموعة تحت أحد نظامى الإيواء السابقين، وتمت هذه التجربة فى وحدة دراسة سلوك الحيوان بقسم الإنتاج الحيوانى بكلية الزراعة-جامعة المنوفية. تم استخدام المستوى ١٠٪ لبن لرضاعة العجول فى كلا المجموعتين بهذه التجربة وتم أيضا استخدام بادئ ودريس جيد فى كلا التجريبتين مع توفر الماء بطريقة حرة دائما للعجول.

ومن أهم النتائج المتحصل عليها الآتى:

التجربة الأولى:

- سجلت العجول المرباة فردية فى أقاص إرتفاعاً معنوياً فى معدل النمو اليومى من الميلاد حتى القطام (بمتوسط ٩٠٠ جم يومياً) كما أن هذه العجول وصلت إلى وزن القطام مبكراً عند عمر ٦٤,٥ يوم ، فى مقابل معدل نمو يومى للعجول المرباة فى مجموعات فى أحواش جماعية بلغ فى المتوسط ٦٢٣ جم يومياً ووصلت إلى وزن القطام فى عمر متأخر بلغ ٩١,٥ يوم.
- سجلت العجول المغذاة على مستوى عال من اللبن (١٠٪ من وزن العجول) زيادة معنوية فى معدل النمو اليومى عن المستوى المنخفض من اللبن (٨٪). وكان لموسم الولادة تأثير معنوى أيضاً على معدل النمو اليومى حيث كان النمو أعلى فى العجول المولودة شتاء عن تلك المولودة صيفا كذلك تفوقت العجول الذكور على العجلات الإناث فى هذه الصفة.

- انخفض معدل النفوق في حالة التربية الفردية عنه في التربية الجماعية (٢,٥ مقابل ٦,٢٥%) كما انخفض معدل النفوق في العجول المغذاة على المستوى العالي من اللبن بالمقارنة بالعجول المغذاة على المستوى المنخفض من اللبن ، وفي العجول الذكور بالمقارنة بالعجلات الإناث.

التجربة الثانية:

- لوحظ بدء نشاط الأكل والاجترار في العجول الفريزيان الرضيعة عند عمر ١٥ يوم ومع ذلك كانت نسبة الاجترار إلى الأكل أكبر ما يمكن عند عمر ٦-١٢ أسبوع لكل من النظام الفردي والجماعي أي بالقرب من فترة الفطام.
- أوضحت دراسة كل من الكفاءة الغذائية و الكفاءة الاقتصادية أن النظام الفردي أكفاً من الجماعي، و أن مستوى ١٠% لبن الرضاعة كان أكفاً اقتصادياً من مستوى ٨% ، وأن العجول المولودة في الشتاء كانت أفضل من العجول المولودة في الصيف وكانت العجول الذكور أكفاً في أدائها من العجلات .