

## FARMERS' ATTITUDE TOWARDS INTERVENTIONS REGARDING BUFFALO CALF HEALTH CARE AND MANAGEMENT PRACTICES UNDER FIELD CONDITIONS

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### ABSTRACT

A survey of small, medium and large size dairy farms was conducted in the peri-urban areas of District Rahim Yar Khan, Pakistan. Forty-eight dairy farms owned by 16 farmers from each category were selected randomly to study the status of health care and management of buffalo calves. The results showed that the mortality rate in buffalo calves was 79.51%. None of the farmers was cutting and disinfecting the navel cord and a large number of them (87.8%) fed colostrum after the expulsion of placenta. About 87.5% of dairy owners provided the buffalo calves with grain/fodder from 6 days to weaning age. More than 93% farmers were not deworming the calves and a majority (60.42%) of these dairy owners did not consult a veterinarian for the treatment of sick calves. The study tended to show that owners of these dairy farms were not interested in rearing the male calves because they did not expect sizeable returns from their sale. Thus, there is an urgent need to educate these dairy owners to make calf rearing an economical proposition.

**Key words:** Peri-urban, calf mortality, colostrum, deworming, management.

### INTRODUCTION

Calves play an important role in the development of the dairy sector of the country, as the future of the dairy herd solely depends upon the successful raising of young calves. Female calves are especially kept for herd replacement. The male calves are usually kept up to weaning when they are sold. Calf-care is not only essential for sustenance of the dairy industry but is also essential for preserving and maintaining our good quality germ plasm. Important aspects in the calf rearing are the health management and proper nutrition (Mehmood, 1991).

One emerging trend in the dairying scenario is the growing number of the commercial dairy farms in the urban and peri-urban areas of the metros and big cities in Pakistan. These dairies mainly cater to the needs of the urban consumers. Keeping in view the growing importance of commercializing the livestock sector to meet the challenges of globalization, in terms of organized production and marketing, a need was felt to study the commercial dairy farms in peri-urban areas regarding the buffalo calf health and management practices. For sustaining the local pastoral livelihood, it is now strategic to give serious and scientific consideration to extensive range-livestock production. (Munir *et al.*, 2007). A survey was conducted to study the existing management practices related to calf health and husbandry and to suggest where interventions are required for the improvement of

health and production of calves in peri-urban areas of District Rahim Yar Khan, Pakistan.

### MATERIALS AND METHODS

#### Study area

The present study was conducted in the peri-urban areas of Rahim Yar Khan district (Punjab, Pakistan). This area lies between 27.40 and 29.16<sup>0</sup>N latitudes and 60.45 and 70.01<sup>0</sup>E longitudes. The district has an area of 11,880 square kilometres and comprises four tehsils. The climate of the district is hot and dry in the summer and cold and dry in the winter. The summer season is comparatively longer. It starts in April and continues till October. The winter season extends from November to March. However, the month of March and November are pleasant. The average rain fall is about 100 mm.

Forty-eight dairy farms from the peri-urban areas running on commercial basis were visited. The farms were categorized as small-sized dairy farms (having up to 10 milch animals), medium-sized dairy farms (having 11 to 20 milch animals) and large-sized dairy farms (having more than 20 milch animals). The following information was obtained on predestined proforma through interviewing the dairy farm owners: i) Precalving care of the dams, ii) Care and management of calves, iii) Disease pattern, iv) Health management practices (deworming and post natal treatment) and v) Feeding management.

### Data analysis

The data were analysed using SPSS-Ver.15. The techniques of Chi-square ( $\chi^2$ ) and Somers'd were used to test the relationship between herd size (HS) and different indicators of health care and management of buffalo calves for the variables measured on nominal and ordinal scales, respectively.

## RESULTS AND DISCUSSION

### Dry period antibiotic therapy

Dry period antibiotic therapy was practiced by none of the farmers. This is in agreement with Tiwari *et al.* (2007), but not in accordance with the findings of William and Theodore (1986). This therapy increases protective properties of colostrum (Roy, 1980) and reduces calf infection (Smith, 1977). None of the farmers was aware of the fact that dry period antibiotic therapy is a useful tool for keeping the udders of dairy animals healthy.

### Major diseases

Table 1 shows that the most common and frequent occurring disease in calves was endoparasite infestation (83.3%), followed by diarrhea and ectoparasite infestation (each 81.3%), navel ill (70.8%), and pneumonia (27.1%). The incidence of diseases was higher in large-sized farms (70.0%) compared to medium (67.5%) and small farms (66.3%). The data indicated that calves were kept with more care at small-sized farms compared to the larger farms, as the number of calves owned by small farmers was less compared to those of larger ones. The field practice revealed that farmers with small herd size were more inclined to rear the calves till the start of milking.

**Table 1: Disease incidence in calves at various dairy farms**

Disease	Small (n=16)	Medium (n=16)	Large (n=16)	Total (N=48)
Diarrhea	13 (81.3)	15 (93.7)	11 (68.7)	39 (81.3)
Endoparasites	14 (87.5)	11 (68.7)	15 (93.7)	40 (83.3)
Ectoparasites	11 (68.7)	13 (81.3)	15 (93.7)	39 (81.3)
Navel ill	12 (75.0)	11 (68.7)	11 (68.7)	34 (70.8)
Pneumonia	3 (18.7)	4 (20.0)	6 (37.5)	13 (27.1)
Average	10.6 (66.3)	10.8 (67.5)	11.6 (70.0)	33 (68.7)

Values in parentheses are percentages.

### Calf mortality

The calculated value of Chi-square (37.16) indicates that calf mortality increased ( $P < 0.05$ ) as herd

size increased. A lower calf mortality was observed (60.0%) in the small dairy farms, followed by the medium size (83.1%) and large-sized farms (85.2%). Overall calf mortality was 79.5% in these dairies (Table 2). These results are in line with those of Speicher and Hepp (1973), Bali *et al.* (1979), Natranjan *et al.* (1980) and Khan *et al.* (2007).

**Table 2: Mortality in calves at farms of three sizes**

Farm size	Born	Died	Mortality rate (%)
Small	80	48	60.0
Medium	154	128	83.1
Large	176	150	85.2
Total	410	326	79.5

$\chi^2_{Cal} = 37.16$

### General condition

The general condition and appearance of the calves kept in these dairies tended to show that majority of calves (51.7%) were very weak and emaciated. As shown in Table 3, the condition of calves was poor in the medium and large dairies ( $P = 0.01$ ). Similar findings were reported by Tiwari *et al.* (2007).

**Table 3: General condition of calves at various farms**

Condition	Small (n=8)	Medium (n=10)	Large (n=11)	Total (N=29)
Good	5 (62.5)	1 (10.0)	1 (9.1)	7 (24.1)
Average	2 (25.0)	2 (20.0)	3 (27.3)	7 (24.1)
Emaciated	1 (12.5)	7 (70.0)	7 (63.6)	15 (51.7)

Values in parentheses are percentages.

### Colostrum feeding

It was observed that the commercial dairy owners did not feed the colostrum timely. They waited for the expulsion of placenta, and on many occasions the animal did not release placenta for more than 7-8 hours, thus the colostrum feeding was delayed, leading to lowered immunity level in calves. As shown in Table 4, the percentages of calves receiving colostrum within 2 to 3 hours after birth on small, medium and large-sized dairy farms were 12.5, 18.8 and 18.8 respectively. This study found non-significant effect of herd size on the colostrum feeding practice of farmers. Similar findings were reported by Verma and Sastry (1994), Malik and Nagpaul (1999), Tiwari *et al.* (2007) and Khan *et al.* (2007). Majority of the buffalo owners fed colostrum to calves only after expulsion of placenta, as they thought that if they feed colostrum immediately after birth, then the animal would not release the placenta. Moreover, colostrum feeding before the expulsion of placenta could lead to diarrhea in calves.

**Table 4: Time of first colostrum feeding, fodder/ grain feeding and type of treatment at different farms**

Parameters	Farm size			
	Small (n=16)	Medium (n=16)	Large (n=16)	Total (N=48)
<b>Time of first colostrum feeding</b>				
Within 2-3 hours after birth	2 (12.5)	3 (18.8)	3 (18.8)	8 (16.7)
After expulsion of placenta	14 (87.5)	13 (81.3)	13 (81.3)	40 (83.3)
<b>Fodder/grain feeding</b>				
Less than 1 wk. old	3 (18.7)	2 (12.5)	1 (6.3)	6 (12.5)
Between 1 wk. old and weaning age	13 (81.3)	14 (87.5)	15 (93.7)	42 (87.5)
<b>Type of treatment</b>				
Called a vet. immediately when calf fell sick	3 (18.7)	2 (12.5)	3 (18.7)	8 (16.6)
Used indigenous medicines then a vet. was called	8 (50.0)	2 (12.5)	1 (6.3)	11 (22.9)
Never called a veterinarian	5 (31.3)	12 (75.0)	12 (75.0)	29 (60.4)

Values in parentheses are percentages.

### Fodder/grain feeding of calves

Table 4 indicates that 12.5% of dairy farmers fed the buffalo calves with grain/fodder when calves were 6 days old and the remaining farmers were feeding them from one week to weaning age. The study observed no variation between fodder/grain feeding practice of farmers among the three herd sizes. Similar observations were made by Tiwari *et al.* (2007) and Bilal *et al.* (2008).

### Treatment

Table 4 also indicates that majority of the dairy owners did not provide proper medication to the calves. Majority of the commercial dairy owners (60.4%) did not consult a veterinarian when the calves fell sick, as they thought it uneconomical. Around 23% of the dairy owners were using ethno-veterinary medicines. Only 16.6% farmers called a veterinarian immediately when their calves fell sick. The statistical analysis revealed that farmers with small size dairy farms were inclined towards better treatment of buffalo calves ( $P < 0.05$ ). Similar results were reported by Tiwari *et al.* (2007) and Bilal *et al.* (2008).

### Deworming

A major reason of calf mortality was the parasitic load in the calves due to which their health deteriorated and they often died (Sharma and Mishra, 1987). In this study, a small number of farmers (6.3%) were deworming their calves (Table 5), but they were not following any recommended schedule for deworming. Most of them dewormed when the calf was off-feed or when worms were observed in the faeces. The study found no variation in deworming practice among the farmers with different herd sizes.

### Appropriate housing and bedding

None of the small and medium-sized dairy farm owners were providing separate space to calves, whereas only 6.3% of the owners belonging to large-sized dairy farms were allocating separate space for calves (Table 5). The calves were tied in the corner of

shed of the adult animals in a crowded manner, which indicated that farmers were not paying due attention to the housing of young stock. A small value of Somers'd (0.042) indicated that farmers with different herd sizes did not provide separate space to buffalo calves. Speicher and Hepp (1973) and Tiwari *et al.* (2006) made similar observations.

**Table 5: Deworming, separate space allocation and manger provision for calves**

Practices	Farm size			
	Small (n=16)	Medium (n=16)	Large (n=16)	Total (N=48)
<b>Deworming</b>				
Yes	-	2 (12.5)	1 (6.3)	3 (6.3)
No	16 (100)	14 (87.5)	15 (93.7)	45 (93.7)
<b>Separate space allocation</b>				
Yes	-	-	1 (6.3)	1 (2.1)
No	16 (100)	16 (100)	15 (93.7)	47 (97.9)
<b>Manger provision</b>				
Yes	-	14 (87.5)	14 (87.5)	28 (58.3)
No	16 (100)	2 (12.5)	2 (12.5)	20 (41.7)

Values in parentheses are percentages.

### Feeding facilities

Apart from providing appropriate housing to the calves, it is essential that proper sized mangers be constructed for them, so that the calves can be fed properly and the feed becomes safe from being contaminated or wasted. It was observed that 87.5% respondents belonging to the medium and large-sized dairy farms had constructed separate mangers for calves, whereas none of the owners of small-sized dairy farms provided separate mangers for calves (Table 5). Small dairy farms have wooden mangers and had not

properly constructed mangers, whereas large and medium dairy farms did have the required mangers. Tiwari *et al.* (2007) reported the same trend in this respect in Uttar Pradesh, India.

#### Navel cord care

The study showed that most of the calves suffered from navel cord infection. As navel cord is a channel through which infectious agents can enter into the blood or underlying tissues, leading to certain serious diseases in newborn calf, it is very essential that the livestock owners should take proper care of the navel cord after the birth of the calf. Cutting the cord with a hygienic blade and then dipping the cord in an antiseptic solution is a recommended practice (Sharma and Mishra, 1987).

All the commercial dairy owners did not cut or disinfect the navel cord due to which navel cord infection in buffalo calves was seen at most of the farms. Similar results were obtained by Tiwari *et al.* (2006) and Bilal *et al.* (2008). Discussion with the farmers revealed that these farmers were unaware of the health implications and benefits of practicing navel cord cutting and disinfection.

#### Milk feeding

All the calves were fed milk by direct suckling without considering the actual requirements according to their body weight. The farmers were using the calves only for milk let down. The calves were suckling milk both before and after milking. It has been emphasized that a calf must receive sufficient milk during first three months or a minimum of 110 liters of whole milk should be fed over a period of 4-5 weeks (Sharma and Mishra, 1987). At most of the farms, the calves died due to malnutrition and starvation.

#### Conclusions

The result of the present study appeared to suggest a common trend of ignoring the prophylactic measures and husbandry practices for proper rearing of calves. The main reasons of ignorance were the lack of extension services and poor financial status of the farmers. The practice to neglect and starve the calves in these dairies is resulting in an evident natural loss in terms of quality germplasm.

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