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PJBS

ISSN 1028-8880

Pakistan Journal of Biological Sciences

ANSInet
Asian Network for Scientific Information
308 Lasani Town, Sargodha Road, Faisalabad - Pakistan

Pakistan Journal of Biological Sciences 3 (6): 1092-1093, 2000
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Effect of Pre and Postpartum Supplementation of Cows with Urea Molasses Multinutrient Blocks (UMMB) on the Performance of Their Calves

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Abstract: A study was conducted in a typical village to evaluate the effect of pre and postpartum supplementation (UMMB) of indigenous cows on the performance of their calves. Thirty-two cows were supplemented with UMMB from 6 months of prepartum to 6 months of postpartum period and 30 cows were fed only traditional feed (without UMMB). The cows were milked once a day in the morning. The calves were tied up at the night and allowed to free access or suckling to the dams during the whole day. The birth weight of the calves in supplemented (UMMB) group (14.61 kg) was significantly ($p<0.05$) higher than the control group (12.00 kg). Similarly, live weight gain of supplemented calves was also significantly ($p<0.01$) effected by the cows supplemented with UMMB (117 g/d) than the cows without UMMB (56 g/d). The mortality was 9% in control group whereas no calf did not died during the experimental period. So, it can be concluded that supplementation to pre and postpartum cows with UMMB can have better effect on the performance of their calves.

Key words: Supplementation, UMMB, pre and postpartum

Introduction

Cattle population of Bangladesh is 23.41 million of which 25% (%5.85 million) milking cows and only 14% are crossbred of these cows. Average milk production of our local cows is only one litter per cow per day and total milk production is 1.57 million MT; demand per capita is 240 g whereas availability is only 37 g per capita per day. On the other hand, total meat production is 0.54 million MT: Demand per capita is 120 g but availability only 12 g (BBS, 1997). So, to meet up the increasing demand of increasing population for animal proteineous food (milk, meat etc.), we should improve our cows as exotic breed could not been adopted to this harsh environment. Improving of local calves (heavy birth weight, less mortality and rapid gain) may be criterion of improvement of our local cows. Most of the cows our suffering from malnutrition and used in heavy drought purpose, as a result, most of the calves are born with a minimum weight and then gain very slowly, prenatal and postnatal death are occurred and the calves are affected parasites and other diseases. So, to achieve a healthy calf we should take care of calf from fetal stage to weaning by ensuring the proper nourishment of the cow from prepartum to postpartum period. Before parturition the calf (fetus) will get sufficient nutrition directly from the healthy cow and after parturition will get sufficient nutrition taking more milk from the cows. Only a healthy cow can give birth a healthy newborn calf and that (newborn calf) is a future cow. Miah (1998) observed that milk yield was significantly Increased due to pre and postpartum supplementation with urea molasses multinutrient block (UMMB). However no research work has yet been done on the effect of pre and postpartum supplementation of cows with UMMB on their calves under the village condition of Bangladesh. Therefore, with this idea keeping in mind, the present research work has been undertaken to study the effect of pre and postpartum supplementation of cows with UMMB on the performance of their calves.

Materials and Methods

The experiment was conducted to study the effect of pre and postpartum supplementation of cows with UMMB on their calves in a typical village named Boira, which was nearby Bangladesh Agricultural University, Mymensingh.

Layout of the experiment: The comparative study was conducted with 32 indigenous (Zebu) cows as a treated group and 32 cows were in control group (Table 1).

Table 1: Layout of the experiment

Group	Live weight (kg)	Age (year)	Lactation No.	Ration fed
Control	118-227	3-8	1-4	Traditional
Treated	124-222	3-8	1-4	Traditional + UMMB

Management of the animals: All of the selected cows were mainly stall fed and sometimes tethered during the whole experimental period. Attempts were made to keep all the animals under the same management condition. The cows were fed mainly rice straw with seasonal green grass depending availability. Wheat bran, oil cake, rice bran etc. were supplied as concentrate feed to the cows on optional basis. The farmers were using most of the selected cows for both dairy and drought purpose. The cows were milked once a day in the morning. The calves were tied up at the night and allowed to free access or suckling to the dams during the whole day.

Feeding of UMMB: Solidified UMMB were made by cold method according to Sansoucy (1986) with urea (10%), molasses (39%), rice polish (20%), wheat bran (20%) lime (6%) and common salt (5%). UMMB were fed to the cows from 6 months of prepartum to 6 months of postpartum. UMMB was supplied to the animal directly within the wooden box thrice a day. The cows licked it as their wish. All the cows in UMMB group had free access to normal feed available to the farmers and ad libitum clean drinking water.

Record keeping: Birth weight of each newborn calf was taken. During 6 months of postpartum (6 months of lactation) each calf was weighed once in month preferably in the morning to observed the live weight 'changes.

Statistical analysis: Statistical analysis of the data were carried

out to analyze of variance in Completely Randomized Design (CRD) and test was carried out to find out the significant difference between means. Mortality was determined by Chi-square method.

Results and Discussion

The study was conducted to evaluate the effect of UMMB supplementation of pre and postpartum indigenous (Zebu) cows on their newborn calves and live weight gain of them (calves).

Birth weight of calves: The average birth weights of newborn calves of control and treated (UMMB) groups were 12.00 and 14.91 kg respectively (Table 2). Average birth weight of calve, was significantly ($p<0.05$) influenced by the cows were supplemented with UMMB than the cows without UMMB (control). Jolly *et al.* (1996) reported average birth weight of calves was significantly ($p<0.01$) higher in supplemented (cracked maize 1 kg + formaldehyde treated sunflower seed meal 0.5 kg 60 days postpartum) group (39 kg) than the calves (28 kg) of control group of *Dos indicus* × *Dos taurus* heifers. Sepulveda *et al.* (1994) found that birth weight of Romney Marsh lamb was 4.2 kg and 3.9 kg whose mother (ewe) supplemented (urea molasses mineral salt blocks) and without supplemented (control) respectively. Stephenson and Bird (1992) also obtained significant heavier birth weight of lamb (3.4 kg) of urea supplemented ewes than the lamb (2.4 kg) without supplemented ewes. So, above results it may be told that heavier birth weight was obtained due to prenatal proper nourishment from supplementation to their mother.

Table 2: Performance of the calves

Parameter	Control	UMMB	Level of significance
Birth weight of calves (kg)	12.00 ± 1.53	14.61 ± 3.04	*
Calf weight gain (g.d)	55.00 ± 36.00	117.00 ± 47.54	**
Mortality (%)	9	0	

* = Significant at 5% levels of probability
** = Significant at 1% levels of probability

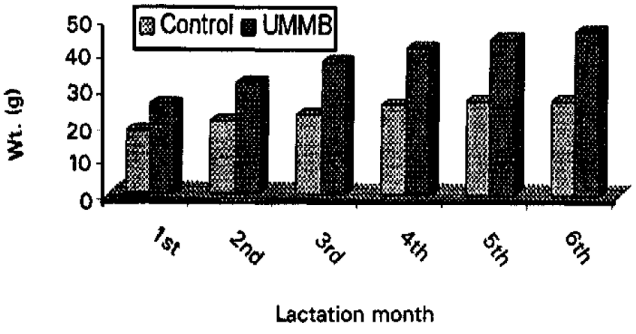

Fig. 1: Calf weight (g) changes at different lactation months

Live weight gain of calves: Average live weight gain of calves (g/d) upto 6 months of lactation of control and supplemented groups were 56 and 117 respectively (Table 2). Calf weight increased more efficiently in supplemented groups than control groups (Fig. 1). Although milk analyses has not been done but it is assumed that the milk of UMMB supplemented cows contents make milk fat and protein. UMMB supplementation of the cows significantly (0.01) effected on live weight of calves, which may be due to suckling of better quality and quantity of milk in respect of more milk fat and protein by the calves during the day time. Sepulveda *et al.* (1994) also found live weight (30, 60 and 90 days of age) of Romney Marsh lamb was 11.9, 20.6 and 27.6 (control) and 14.6, 24.4 and 31.4 (Pre and post lambing supplementation) respectively.

Mortality: Prenatal death of a one calf was occurred and one calf was died at 2nd month and another was 1 month of lactation in control group. Due to malnutrition and parasitic infestation, these deaths were occurred. The calves did not get sufficient nutrient from their mother cows (control). But no calf was died in supplemented group, due to intake of sufficient nutrient from their mother cows.

From above results and discussion it may be concluded that supplementation to pre and postpartum cows with UMMB can better effect on the performance of their calves.

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