



Anionic Mishran Supplementation in Pleuriparous Animals

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ABSTRACT

Milk fever, also known as periparturient paresis affects high yielding pleuriparous milch cattle and buffaloes, usually within one or two days after calving, resulting in considerable reduction in milk production. In the present study, effect of *Anionic Mishran* supplementation to advance pregnant pleuriparous cattle/buffalo on incidence of milk fever in district Kangra, Himachal Pradesh was assessed. A total of 100 advance pregnant pleuriparous animal were selected. Fifty animals were supplemented *Anionic Mishran @ 100g /day* while 50 animals were kept as control. Information was collected through personnel interview technique about the previous lactation yield of the selected animals, awareness of farmer about *Anionic Mishran*. After calving, information was also collected about parturition related complications and milk yield. Results indicated that parturition related complications are fairly common in milch animals in the area and none of the farmers was aware about *Anionic Mishran* and its utility. Upon supplementation no issue of palatability was faced either in cattle or buffaloes. Only two incidences of retained placenta and one milk fever was observed in supplemented group while the number was 5 and 4, respectively in control group. It may be concluded that *Anionic Mishran* supplementation reduce the incidence of milk fever in high yielding pleuriparous animals and more demonstration of the technology may be conducted for it's up scaling and optimal utilization by the farming community.

Key Words: *Anionic mishran*, Milk fever, Pleuriparous animals.

INTRODUCTION

Milk fever is a metabolic disorder which affects high yielding pleuriparous cattle and buffaloes, usually within few days post parturition. Milk fever not only reduces the milk production but also compromise animals' welfare and dairy economy (Thilising *et al*, 2002). If the affected animal is not provided veterinary care in time, the condition may progress to downer syndrome and death. It has been reported that about one in 20 affected cows, dies due to milk fever (Srivastava, 2014). The major technical problems in cross bred cows reported were of mastitis followed by anoestrous and repeat breeding. Since, farmers were having large number of cows and thus due to deficiency in proper management and feeding of cross bred cows

problems persist (Sharma *et al*, 2013). Likewise, Soni and Patel (2015) reported that the use of mineral mixture and hormonal catalyst in recently calved buffaloes shortened the calving interval.

In hilly areas it is difficult for the farmer to take sick animal to nearby veterinary institution and also for veterinary staff to reach the recumbent animal in remote places on time, making the things even more difficult. To prevent this health issue and its possible impact on milk production and animal welfare a new technology in the form of a feed supplement named *Anionic Mishran* developed by NDRI, Karnal, a leading institution of ICAR, Govt. of India. In the present study, *Anionic Mishran* supplementation to advance pregnant pleuriparous cattle and buffaloes was evaluated on 100 animals.

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MATERIALS AND METHODS

Progressive dairy farmers, each possessing a minimum of one advance pregnant pleuriparous milch cattle or buffalo were selected. Farmers (50) were provided a packet of *Anionic Mishran* (Kamdhenu Feeds) and were advised to feed 50 g *Anionic Mishran* per day and gradually increase up to 100g per day to animals who's calving was due in next few weeks. The net anionic value of *Anionic Mishran* was 11380 meq (Anionic value of Sulphur and Chloride was 7640 and 5080 meq, respectively and cationic value of Potassium was 1340 meq) and it also contained Vitamin-E @ of 10,000 IU/kg. The *Anionic Mishran* feeding was ensured till the day of calving and all the supplemented animals consumed *Anionic Mishran* for at least 10d immediately before calving. Similarly, another fifty advance pregnant pleuriparous animals were kept as control. Information was collected through personnel interview technique from the owner about the previous history of milk fever, lactation yield of the selected animals, length of dry period and awareness about *Anionic Mishran* and palatability of *Anionic Mishran*. After calving, information was also collected about parturition related complications like incidence of dystocia, retained placenta and milk fever.

RESULTS AND DISCUSSION

Parturition related complications

A total of 44 farmers among the 100 selected farmers had observed parturition related complications like dystocia, milk fever, retained placenta, metritis *etc.* in their own or neighboring herds; suggesting that these complications are fairly common in milch animals in the area. Farmers also revealed that incidence of milk fever are observed more during winter months. All the selected farmers readily agreed to supplement *Anionic Mishran* supplied to their advance pregnant animals to overcome such complications.

Awareness about Anionic Mishran

Anionic Mishran was not available in the

private medical/ veterinary chemist shops in the region and almost all selected farmers were not aware about *Anionic Mishran*. Two dairy farmers were using a product Balanion and Vitamix gold from Zydus Animal Health, a private company during last month of pregnancy to avoid milk fever. It indicated that the product *Anionic Mishran* was new to the farming community in the region and more demonstrations need to be conducted to show its utility and effectiveness among its potential users.

Lactation yield

All the selected animals were pleuriparous and had completed two or more lactations. The lactation yield ranged from 1900 to 3300 L for cattle (Jersey/ Crossbred) and 1600 to 2500 L for buffaloes. The lactation yield indicated that all the animals were high yielders making them susceptible to various metabolic disorders like milk fever. Gupta *et al* (2017) observed that average daily milk yield, peak yield and total 180d milk production were found significantly ($P \leq 0.05$) higher by 13.4, 16.17 and 13.07 per cent in mineral mixture fed group than control group, however milk composition parameter were differed non-significantly between treatment and control group.

Duration of dry period

The duration of dry period ranged from 24 to 60d in cattle and 95 to 142d in buffaloes. Cows with long non-lactating periods are predisposed to become excessively fat, and a long non-lactating period may result in a more quiescent calcium homeostasis. In the present study, five case of milk fever were observed (04 in cattle and 01 in buffalo) all of which had a dry period of more than 24d. So duration of dry period has no bearing on incidence of milk fever or *Anionic Mishran* supplementation was effective to check milk fever notwithstanding the length of dry period.

Palatability of Anionic Mishran

The *anionic mishran* was fed mixed with concentrate feed so no issue of palatability was

Anionic Mishran Supplementation in Pleuriparous Animals

Table 1. Effect of *Anionic Mishran* supplementation on incidence of milk fever and other attributes in high yielding pleuriparous dairy animals.

Particular	<i>Anionic Mishran</i>	Control
Total animals	50	50
Cattle (Jersey and Crossbred)	36	32
Buffalo (Graded Murrah)	14	18
Parturition related complications milk fever, retained placenta, dystocia, metritis etc observed by farmers in own/neighboring herds.	44 per cent	
Awareness about <i>Anionic Mishran</i> /substitutes	3 per cent	
<i>Anionic Mishran</i> feeding acceptability among selected farmers	50/50	N.A.
Milk yield	Cattle	1900 –3300 L
	Buffalo	1600-2500 L
Ensuing Lactation	3 rd	22
	4 th	19
	5 th or above	9
Duration of dry period	Cattle	24 to 60 days
	Buffalo	95 to 142 days
<i>Anionic Mishran</i> palatability	No issue	N.A.
Incidence of dystocia	Nil	1/50
Incidence of retained placenta	2/50	5/50
Incidence of milk fever	1/50	4/50

observed either in cattle or buffaloes. *Moore et al* (2000) has reported that the unnatural acidosis induced by the *Anionic Mishran* could possibly lead to a reduced feed intake but apparently no reduction in feed and fodder intake was observed in the present study.

Post calving parameters:

Incidence of dystocia and retained placenta

Incidence of dystocia or difficult calving was not observed in the *Anionic Mishran* supplemented group while only one dystocia was observed in the control group. Two animals in the *Anionic Mishran* supplemented group and 4 animals in control group suffered from retained placenta. *Anionic Mishran* sometimes reduce the overall dry matter intake, decreased feed intake and a negative energy balance before calving increase plasma NEFA and concentration of liver triglyceride at calving. This in turn may increase the risk of displaced abomasums,

mastitis, and retained placenta post partum. As feed intake of the above animal was not affected upon *Anionic Mishran* supplementation so the possibility of negative energy balance and consequent retained placenta due to *Anionic Mishran* supplementation do not hold in the present case.

Milk fever

One incidence (Cattle) of milk fever was observed in the *Anionic Mishran* supplemented group while in the control group 5 animals (3 Cattle + 2 Buffalo) displayed clinical signs of milk fever. The affected animals recovered after intra venous infusion of Calcium borogluconate and adjunct treatment. Thirunavukkarasu *et al* (2010) reported that in Tamil Nadu about 14 per cent cow and 12 per cent buffaloes suffer from milk fever. In the present study, incidence of milk fever in control group was about 10 per cent while in supplemented group, only 2.0 per cent. The present observations

were in harmony with those reported by Thakur *et al* (2017). Anionic salts prevent milk fever by acidifying the blood to restore tissue responsiveness to the parathyroid hormone (Patel *et al*, 2011). But the technique is not 100 percent effective as one case of milk fever was still reported among the supplemented animals. Although the time period of feeding the anionic salts has been suggested to be 3-4wk but Oetzel (1996) suggested that a feeding period of 10 days prepartum is sufficient. The present study supports the view that it may be possible to reduce the time period without losing the effect.

In hilly areas, foliage from species like *Grewia optiva*, *Quercus spp* and *Prunus pudum* is an important source of fodder for livestock especially during winter months. Such fodder is rich in calcium content often meeting the calcium requirement of dry and low yielding animals. When calcium intake extensively exceeds the requirements, the calcium demand can be met almost entirely by passive diffusion from the intestinal tract, rendering the calcium homeostatic mechanisms relatively inactive. This sudden and extensive draw on blood calcium need to be replaced via increased intestinal calcium absorption and increased resorption of calcium from the bones. The reactivation of the calcium homeostatic mechanisms is, however, time-consuming. By feeding low calcium (<20 g/d) diets in the dry period, the calcium homeostatic mechanisms are activated before calving, and the cow is thus capable of absorbing calcium more efficiently from the intestinal tract as well as drawing calcium from the bone around the time of calving. In hilly areas, where calcium rich tree foliage is available in plenty for livestock feeding; such strategy will not be effective unless calcium binder is added in the ration to reduce calcium availability (Wilson, 2001). So the dairy farmers need to opt for *Anionic Mishran* supplementation to check incidence of milk fever.

CONCLUSION

It may be concluded that *Anionic Mishran*

supplementation reduce the incidence of milk fever in high yielding pleuriparous animals.

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