Indian J. Anim. Nutr. 2022. 39 (3): 272-276
doi: 10.5958/2231-6744.2022.00033.0

Indian Journal of Animal Nutrition

Awareness Programme through Front Line Demonstration on Multi Nutrient Block (MNB) Supplementation in Lactating Goats

Pankaj Lavania[1] and Lokesh Kumar Jain[2]
[1]College of Agriculture, Jodhpur, [2] College of Agriculture, Sumerpur,Pali
Agriculture University, Jodhpur, Rajasthan, India
*Correspondence: lavanaip@yahoo.com

ABSTRACT

An on-farm trial was conducted to evaluate the efficacy of Multi Nutrient Block (MNB) supplementation on milk yield in lactating goats under dryland conditions during 2021-2022. Total 200 goats were selected from 100 herdsfor the supplementary feeding in six villages of Bali tehsil of Pali Rajasthan. The study revealed that the feed supplementation with MNB to the lactating goats @100g/day/animal under field conditions improved their milk yield by 17 per cent and overall health of animals, besides reducing the cost offeeding. Conducting farmer's participatory trial farmers' animal farm proved to be very effective for creating awareness among farmers. However, awareness needs to be created among the farmers about the usefulness of MNB by ensuring availability at their farm in the district through feed shop or State Animal Husbandry Department. Further, most of the farmers' were dependent and prefer the scientist from KVK/ SAU's followed by Veterinary officer, technical assistant and Veterinary Assistant on for latest updating the livestock management practices as major source of information. It is a profitable and low cost economic venture for resource poor farm families for livelihood and entrepreneurship in goat husbandry. It would go a long way encourage farmer across India to follow the recommended practices and enhance their income. Thus, paving a way of sustainable livestock production for doubling farmers' income in animal rich arid eco system.

KEYWORDS: Goat, Feed supplementation, Milk yield, Multi nutrient block

Article received: 17 July 2022; Article accepted: 21 September 2022

INTRODUCTION

Goat husbandry has tremendous potential for income and employment potential, especially in tribal areas with and without costly feed supplement. The goat popularly known as poor man's cow is capable of changing the rural economy, if proper attention is paid in multi ways (Lavania and Kumar, 2013). The crop residues based animal feeding in most of the developing countries of the world is not adequate to meet or even maintenance requirement of the animals. The crop residues and grasses which are low in protein and high in crude fiber, restricts their intake, utilization of other nutrients and digestibility (Lavania and Khadda, 2017). The feed requirement of small ruminants is mainly met by extensive grazing on common lands, degraded pasture, road side vegetation, etc. in arid regions, which often causes deficiency of certain nutrients especially in the scarcity period after monsoon *i.e.* from November to June. In many areas with small flock of goats, lactating goats are fed with top feeds of loong (*Prosopis cineraria*), Pala (*Ziziphus nummularia*) and other concentrate feed available at farmers' home Singh and Singh (2003) well documented the importance of Urea Molasses Mineral Block (UMMB) as supplement for livestock throughout the year but more beneficial during the dry season. Though the importance on benefits of greater utilization of MNB on farm has been stressed in nearly all the workshops/ conferences/ seminars by leading scientists of country but most of feed supplement studies were being done at on-station and very few attempts have been made to evaluate the response of MNB supplementation on milk production in the small herds at on-farm condition.Therefore, there is an urgent need to seek

alternative supplements to improve the nutrition during scarcity period to sustain the productivity of goats. Further, major stress was lack of timely updation with latest information. In view of this, the present trial was conducted to fulfill these objectives to assess the response of multi nutrient block supplementation on milk yield, cost effectiveness of feeding lactating goats and reliability on latest information for tribal farmers' in dry lands of Rajasthan.

MATERIALS AND METHODS

An on farm trial was conducted on 200 lactating goats (average age of the goats was 3 to 5 years) belonging to 100 tribal farmers maintained at farmers' condition in purposively six villages of Bali block of Pali District under jurisdiction of Agriculture University, Jodhpur, Rajasthan were selected for the supplementary feeding in Tribal Sub plan (TSP) funded project on Livestock based Integrated Farming System sanctioned by the Division of Education, ICAR, New-Delhi in the year 2021-2022. Before the beginning of feeding trial, a focused participatory rural appraisal (PRA) was conducted to define, group and prioritize major feed sources, feeding system, constraints; and to select the wiling respondents for conducting on farm experiment. At the end of feeding trial, a formal topical survey and focused group discussion was conducted to know the perception of participating farmers regarding feasibility of MNB as strategic supplement feeding to lactating goats during dry season. Trial was conducted for a particular micro situation where animals met out their nutrient requirement mainly through grazing and concentrate feed which was prepared locally available feed ingredient. Most of the natural and palatable vegetation rich cover is degraded due to over exploitation. Degraded grasslands are able to produce only 10-20% herbage yield compared to protected grasslands (Patidar et al., 2014). Most of the green forages available for grazing during lean months of medium quality (7.2-7.8% crude protein and 32-35% crude fiber) don't meet production requirement of lactating animals. The concentrate feeds are not often in balance form, but deficient some minerals and vitamins. Therefore, the feeding of MNB was found suitable under this micro situation. Farmers were selected for on-farm feeding based on their willingness to participate and ownership at least two lactating doe's early to mid lactation. The feeding of selected animals 8h grazing, plus small amount of homemade concentrate varying from 250g to 350g per animal per day, regular supply of MNB as a lick during the whole period of study, without interruption for a period of 3 months to overcome deficiency of nutrients. Natural vegetation in this region is sparse and is comprised of perennial and annual grasses, other herbaceous plants, shrubs and trees. The MNB were offered to the animals @ 100 g/day/goat after goats returned from grazing. One block generally consumed by the animal within 18-21 days depending upon the need of animal. All the animals got used to licking the blocks within an adaptation period of three weeks. The daily milk yield of goats was recorded by farmers in Milk Record Index Card. Data were also collected on three point continuum i.e. always(3), sometime (2) and rarely (1), therefore, mean percent score (MPS) for the different information sources were calculated.

Themulti nutrient blocks (MNB) were procured from Central Arid Zone Research Institute, Jodhpur, and were provided to the farmers for on-farm assessment. The MNB contained urea (4.3%), molasses (44.5%), vitamin-mineral mixture (4.3%), dolomite (4.3%), wheat bran (32.1%), cluster bean gum dust (1%) and cluster bean meal (5.1%) weighing each block of about 2 kg.

RESULTS AND DISCUSSION

A partial budget analysis was conducted to assess the feasibility of feeding MNB. In partial budget analysis only those items of income expenses were considered that change (Danilo, 2002). Therefore, the cost of MNB only has been considered since all the variable costs are the same.

Table1. Effect of feed supplementation with MNB on milk yield in goats

Name of village	Number of farmers	Number of goats	Total blocks (No.)	Average initial milk yield/ (l/d/head)	Average final milk yield (l/d/head)	Milk yield (l)increase Over 12 weeks	Input cost (Rs)	Net Benefit (Rs)	B:C ratio
Khetarli	20	40	240	2.28	2.62	943	16,800	18,864	1.13
JunaBera	20	40	240	1.80	2.10	998	16,800	19960	1.19
Maldar	15	30	180	1.60	1.88	865	12,600	17300	1.37
Bothara	15	30	180	2.20	2.55	825	12,600	16500	1.30
Raghunah pura	15	30	180	1.80	2.08	845	12,600	16900	1.34
KhetarliKhada	15	30	180	1.40	1.65	890	12,600	17800	1.41
Total / Average	100	200	1200	1.84	2.14	5366	84,000	107324	1.27

The MNB offered to the animals @ 100 g day^{-1} head^{-1} after goats returned from grazing. It observed that the MNB was accepted by goats. The average age of the goats was 3 to 5 years and daily milk yield ranged from 1.40 to 2.28 lit.in different villages (Table1). The tremendous improvement in mean daily milk yield was 17 per cent with a low cost input. It may be attributed that, MNB feed as an alternative supplement containing high energy ingredients, non-protein nitrogen substance and vitamin mineral mixture resulted in a significant improvement in dry matter and water intake and consequently improved milk yield with overall health of the animals. In general farmers were also observed and reported that feeding with MNB improved kidding performance and twinning rates in goats. Results of study are corroborated with the findings of Ramesh et. al. (2009) that the UMMB has a positive effect on milk production and reproductive performance of cow. A total of 5366 liters increased milk yield was obtained from 200 goats after feeding of MNB for three months period. The B: C ratio of this intervention was 1.27 in goats. Improvement in basal diet due to MNB supplementation has been established and may vary widely depending upon nature of basal diet and feeding system (Garg et al., 1998, Patidar et al., 2014, Tiwari et al., 2014; Sharma et al., 2014).

The data present in Table 2 showed the results pertaining to access and availability of latest information sources for seeking technology on livestock management practices. The maximum respondent prefer and access it from scientist of KVK/ state agriculture universities and accorded first rank (92.2%) followed by veterinary officers (86.7%). This may be due to the reason that KVK is doing more awareness work for the farmers in the district and is more reliable in providing consultancy on agricultural problems. They used to exchange their views, ideas and experience more informally and frequently with KVK scientists. An overview reflects that tribal farmers have an access to both localite and cosmopolite sources of information on livestock management practices in the study area. Almost similar results were also recorded by Dani et al. (2007), Pathak et al. (2009), Singh, et al. (2015) and Kumar et al. (2018).

Table 2. Access and availability of information sources for seeking information on livestock management practices

Sources	Mean percent score(MPS)	Rank
Scientist from KVK/ University	92.2	I
Veterinary Officer	86.6	II
Technical Assistant from KVK	83.3	III
Veterinary Assistant	83.1	IV
Local leader	78.8	VI
Progressive livestock farmer	80.0	V
Relatives	75.0	VII
Sarpanch	66.6	VIII
Neighbours	60.0	IX
Relatives	42.2	X
Input dealers	35.5	XI

OUTCOME OF TECHNOLOGY

On the eve of field day, extension functionaries of all departments including Department of Agriculture, Department of Animal Husbandry were gathered. The general reaction of the participating farmers was that the animal starts showing excellent sign of health such as improved hair coat condition, brightness in eyes, moist muzzle growth and production. Further, they reported that problems like- low milk yield, short milking period, prolapsed of uterus, repeat breeding etc. may overcome and animal got activeness after feeding of MNB. By seeing the positive outcomes of MNB feeding to milch animals' gradually MNB technology spreaded among the farming community especially during lean months and enhances milk yield in lactating doe's improving economic status of poor farmers.

CONCLUSION

Supplementation of MNB improved the milk yield, maintained body weight and condition of animals. In the opinion of the participating farmers, supplementation with MNB improves the milk yield and general condition of animals. Thus, the MNB supplementation technology is a cost effective approach to maximize the milk production of animals reared on locally available feed resources for better animal productivity in dry lands of India. However, awareness needs to be created among the farmers about the usefulness of MNB.

ACKNOWLEDGEMENT

Authors are thankful to The Director Education, Agriculture University, Jodhpur providing necessary facilities and logistics support for conducting this study and Division of Education, ICAR, New- Delhi funded the project under TSP scheme. Authors are also thankful to goat breeders for participation in this study.

REFERENCES

Dani, R.C., Das. L.,Saha,S., and Mishra,S.K. 2007. Impact of on-farm trials on integrated pest management in rainfed rice on the knowledge level of farmers. Oryaza. 44(3):256-259.

Danilo, P.2002. ILRI Manual 5, ILRI, Nairobi, Kenya, pp189.

Garg, M.R., Mehta,M.K. and Singh,D.K.1998.World Animal Review. 90(1):22-27.

Kumar, R. Goyal, T.C., Punjabi, N. K. and Rajput, D.S. 2018. Information seeking behaviour of tribal livestock owners in Sirohi district of Rajasthan. Indian Journal of Extension Education, Research and Development. 26: 135-138.

Lavania, P. and Kumar, D. 2013. Livelihood security of tribal farmers through adoption of goat production technology in Southern Rajasthan. Environment & Ecology. 31(2): 524-526.

Lawania, P. and Khadda, B.S. 2017. Efficacy of urea molasses mineral block on milk production and reproductive performance of zebu cattle under field condition. Journal of Krishi Vigyan. 6(1):83-87.

Pathak,M., Singh, R.K., Dubey, A.K., Dandapat,A., Kumari, C., Shekhar, S. and Singh, G.P. 2009. Knowledge empowerment through participatory trials in rainfed rice ecosystem. Indian Journal of Extension Education. 9(1): 25-27.

Patidar, M., Patel, A.K., Mishra, A.K., Sirohi, A.K., Kumawat, A.S., Meghwal, P.R. and Roy, M.M. 2014. Improving Livelihood of farmers through livestock interventions in Nagaur District of Rajasthan. Central Arid Zone Research Institute, Jodhpur, pp-56-59.

Ramesh, B.K.,Thirumalesh,T. and Suresh, B.N. 2009. Effect of feeding of urea mineral molasses block on milk production, milk composition and onset of oestrus in dairy animals. Indian Journal of Animal Nutrition. 26(4):322-326.

Sharma, M., Singh, G and Keshwava. 2014. Feeding of UMMB lick to dairy animals: A farmers reactive study. Journal Krishi Vigyan. 2(2):39-43.

Singh, P.R. and Singh, M 2003. Effect of UMMB supplementation on milk production in buffaloes and cows: on farm trial. Indian Journal Animal Nutrition. 20(10):1-5

Singh, S., Sharma, C.S., Kumar, U., Anoop and Kumar, R. 2015. Awareness programme through on farm testing on use of mineral mixture in dairy animals. Indian Journal Animal Research. 49 (1): 143-145.

Tiwari, R., Sharma, M.C. and Singh, B.P. 2014. Awareness and impact of area specific mineral mixture technology in field situation. Indian Journal of Animal Science. 83(4):453-437.