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Short Communication

PERFORMANCE OF SHATAVARI BASED HERBAL GALACTOGOGUE – MILKPLUS® SUPPLEMENTATION TO CROSSBRED CATTLE OF MALNAD REGION

Sukanya, T.S., Rudraswamy, M.S. & Bharath kumar, T.P.
Krishi Vigyan Kendra, Mudigere, Chikmagalur district

ABSTRACT
30 crossbred cattle in mid-lactation were randomly and equally distributed as control (C) and Experimental (E) groups. Milkplus was supplemented to the E group @ 30g/d/animal for a period of 2 months. Supplementation of Milkplus enhanced the milk yield (from 8.26 to 10.11 l/d), milk fat% (3.95 to 4.38), total dry matter intake (from 8.72 to 9.26 kg/d) in C and E groups respectively (P≤0.05). Economics indicated that the farmers got extra profit upon supplementation. The extent of estrus induction was 68 and 43% for E and C groups. Hence, it was concluded that supplementation of Milkplus® is profitable for lactating cattle.

KEY WORDS: Milkplus, galactogogue, supplement, crossbred cattle, herbal.

INTRODUCTION

A galactagogue, or galactogogue, (from Greek: galact: milk and gogue: leading) is a substance that promotes lactation in humans and other animals. It may be synthetic, plant-derived, or endogenous (Gabay, 2002). On the run to enhance milk production, indiscriminate and prolonged use of feed additives, vitamins, minerals, hormones, drugs and synthetic compounds have been used develop adverse effects which opens a detrimental platform to normal health and their prices are high, farmers cannot afford to buy them (Ramesh et al, 2000). A list of herbal agents such as Shatavari (*Asparagus racemoscis*) has been recommended as galactogogues in veterinary medicine (Pattnaik, 2003) and they have minimal health damage on animals.

MATERIAL & METHODS

To assess the effect of galactogogues on milk production, 30 crossbred cattle in mid-lactation were randomly and equally distributed as control (C) and Experimental (E) animals. The experiment was conducted in Chikmagalur district located in the Malenad region of Karnataka, receiving heavy annual rainfall of 922 to 3695 mm. Most of the places have adequate green fodder throughout the year and the farmers either allow their animals for grazing or provide the chopped green fodder in the shed itself (Rudraswamy *et al.,* 2012). Milkplus (a herbal formulation from *Celest Pharma labs Pvt. Ltd*, Devarahosahally, Nelamangala taluk, Bangalore, India) is composed of galactogenic herbs like Shatavari, processed with synergestic herbs and vitamins plus mineral. It was supplemented at the rate of 30g/d/animal for a period of 2 months to animals of E. All the animals were fed homemade concentrate at the rate of 2 kg/animal/day, paddy straw and mixed green grass at the farm. They were housed in well ventilated shed. Deworming, vaccination and other health care were done periodically. Most of the places have adequate green fodder throughout the year and the farmers either allow their animals for grazing or provide the chopped green fodder in the shed itself. Lactation study consisted of an adjustment period of two weeks was given to all the animals and a lactation study of 2 months was carried out. Meanwhile quality and quantity of milk, daily feed intake, estrus induction in cows were recorded

Analytical techniques: The feed materials namely, straw, green grass and other samples were analyzed for proximate principles according to the standard procedures of AOAC (1984). The formula described by Sastry *et al.* (1988) was used to estimate the body weight of the cows fortnightly during the experiment and body condition was assessed using the scale of 1 to 5 (1 poor and 5 excellent) according to the procedure designed by Braun *et al.* (1985). Milk samples were analyzed for fat, total solids, solids-not-fat (SNF), CP and ash (ISI, 1961). All the data were statistically analyzed as per the methods of Snedecor and Cochran (1989) for simple ANOVA.

RESULTS & DISCUSSION

The proximate composition of the feed ingredients is as given in table 1. Composition of mixed green grass varied within narrow limits. Supplementation of Milkplus ® enhanced the milk yield from 8.26 to 10.11 liters/day and milk fat from 3.95 to 4.38 % in control and experimental animals respectively. The results agreed with the findings of Taylor Preciado *et al* (2011) who observed 8.5% increase in milk production supplemented with herbal galactogogue. Analysis of milk showed that total solids, crude protein, SNF though numerically increased, they were statistically indifferent from the control. The income observed per lactation period were Rs. 62983 and 77089 for C and E group respectively which encashes farmer with Rs. 14106 as extra profit upon supplementation of Milkplus® over C group as supported by studies of Tanwar *et al* (2008). Net income was increased by 18.30% in experimental animals. Body weight of the cows of E

group was significantly higher than control (C) group (P≤0.05). Also, total dry matter intake (g/kg BW) were significantly enhanced from 8.72 in C group to 9.26 in E group respectively (table 2) as evidenced by earlier studies in cows (Berhane and Singh, 2002). This may be due to stimulation of feed intake by microminerals, vitamins and better digestibility contributing to increased milk production (Rick Grant, 1992). Estrus induction was observed that 68% of the E group compared to 43% in control animals. Similar observations were observed by Rudraswamy *et al* (2002) where supplementation of micronutrients by feeding UMMB to grassfed cattle induced estrus in 62% in local cows.

TABLE 1: Chemical composition of feeds used for the experiment (%)

Ingredients	Concentrate	Paddy straw
Dry matter	90.82	90.53
Organic matter	91.54	90.32
Crude protein	18.68	4.05
Ether extract	4.65	2.09
Crude fiber	9.68	32.85
Nitrogen free extract	58.53	51.33
Total ash	8.46	9.68

TABLE 2: Effect of Milkplus supplementation on feed intake and performance of lactating cows

Observations	Control	Experiment (Milkplus)
No. of cows	15	15
Body weight of cows, kg		
Initial	341±9.38	344±11.26
Final	346±13.19[a]	356±12.38[b]
Change in body weight	5	12
Metabolic body weight (kg)	80.22±5.86	81.96±7.21
Body score of cows		
Initial	3.75±0.13	3.75±0.12
Final	3.75±0.11	4.00±0.06
Total Dry matter intake, kg/day	8.72±0.18[a]	9.26±0.22[b]
Total dry matter intake, g/kg $W^{0.75}$	108.68±7.88	112.94±8.39
Total dry matter intake, g/100 kg BW	0.252±0.01	0.260±0.01

[ab] means with different superscripts in the row differ significantly (P<0.05)

CONCLUSION

Supplementation of milkplus enhanced milk quantity, quality and ultimately economy of the farmer. It corrected the nutritional deficiency disorders involving mineral, vitamin deficiency as evidenced by higher percentage of estrus induction in E group. Hence, it was concluded that Milkplus can be used as herbal galactogogue in crossbred cows

REFERENCES

AOAC, (1984) Official analytical methods, Association of Analytical Chemist, Washington, D.C.

Berhance M and Singh VP, (2002) Effect of feeding indigenous galactopoietics feed supplements on milk production in crossbred cows, *Indian J Anim Sci*, ***72(7), 609-611***

Braun, R. K., Donovan, G. A., Trant, Q., Shearer, J. K., Blisse, L., Webb, D., Beede, D. K. and Harris, B. (1985) Body condition scoring dairy cows as herd management tool. *Compendium food animal*, University of Florida, pp 62- 67. USA

Gabay, M. P. (2002) "Galactogogues: Medications that induce lactation". *Journal of human lactation : official journal of International Lactation Consultant Association* **18** (3): 274–279.

ISI, (1961) Chemical Analysis of Milk. IS: 1479 (part II), Indian Standards Institution, New Delhi, India

Pattnaik A.K. (2003) Effect of herbal additives on lactating ruminants with or with out subclinical mastitis, Thesis submitted to Orissa university of Agriculture and Technology, Bhubaneswar (Orissa) India.

Ramesh P.T., Mithra S.K., Syryanarayan T., and Sachan A. (2000) Evaluation of Galactin, A Herbal Galactagogue Preparation in Dairy Cows. The Veterinarian (24), February, 15

Rick J. Grant, (1992) G92-1111 Mineral and Vitamin Nutrition of Dairy Cattle. In:Historical materials from University of Nebraska. http://digitalcommons.unl.edu/extensionhist/440

Rudraswamy M.S., Sukanya, T.S., Yogesh, G.S. and Suresh, T. (2002) Supplementation of Urea Molasses Mineral Block to grass fed local cattle of malenad region, *Mysore J. Agri Sci.*,46 (4): 846-850

Sastry, N. S. R., Thomas, C. K. and Singh, R. A., (1988) *Textbook of Farm Management and Poultry Production*. 5th edition. Vikas Publishing House, Delhi, India.

Snedecor, G. W. and Cochran, W. G. (1989) *Statistical Methods*. 8th Edn. Iowa State University Press, Ames, Iowa.

Tanwar PS, Rathore, SS and Kumar Y. (2008) Effect of Shatavari (*Asperagus recemosus)* on milk production in dairy animals, *Ind J Anim Res*, **42**(3), 232-233.

Taylor Preciado A., Orozco Hernandez J.R., Contreras Carranza A., Carranza de la Mora V. and Rocha Chavez, G. (2011) Use of an Herbal Galactogogue on Milk Quality and Yield. *Asian Journal of Animal and Veterinary Advances, 6: 297-300.*