

Influence of Body Weight of Cows on Composition Quality of Milk Produced at Organized and Unorganized Dairy Farm Allahabad, U.P.

Deepak Kumar Verma¹, Ram Pal Singh², Neeraj³

Department of Livestock production & management Sundaesan School of Animal Husbandry & Dairying, SHIATS, Allahabad, U.P India - 211007

Abstract: *The present study was undertaken on "Influence of Body weight of cows on compositional quality of milk produced at organized & unorganized dairy farm Allahabad" on 20 (H.F. Crosses) healthy cows from each organized (SHIATS) & unorganized (Kushwaha) dairy farm Allahabad U. P., All cows were housed in tail to tail barn under similar management conditions. All sanitary precautions were undertaken to produce clean milk by dry full hand method of milking. Representative samples of 200 ml milk were collected at different body weight groups viz. 250-300kg, 301-400kg and 401-500kg. Fresh milk drawn from the udder Samples were analyzed for fat, protein, lactose, ash, solid not fat (SNF), total solid (T.S.), water, acidity percent and sp.gr. It was concluded that Weight of cows influenced Fat, TS and water percent significant while other factors had no effect of weight of cows at organized dairy farm where as weight of cows had no effect on compositional quality of milk at unorganized dairy farm.*

Keywords: H.F. Crosses, Season milk, Composition quality

1. Introduction

Livestock production plays a important role in the rural economy of the developing countries like India. It is an accepted fact from Aryas and even today that cattle are supposed as a wealth. India possesses largest bovine population in the world 185.18 million cattle and 100.65 million buffaloes. (Anonymous 2012) Milk and its product are excellent source of vital nutrients. It is described as nature's nearly perfect food. Milk proteins offer a high quality animal protein in diet. Milk fat fractions are now being recognized to possess interesting anti cancer properties. Mineral and vitamin contents of milk contribute to significant human nutrition. Calcium is needed for protection against brittle bones in the latter part of life. It is now considered to play a vital role in controlling blood pressure in protecting colon from cancer. Milk and milk products from dairy animals are palatable and easy to digest therefore important human food. Milk, according to the prevention of food adulteration (PFA) rules, is the normal mammary secretion derived from the complete milking of a healthy milk animal without either addition there to or extraction there from. Free from colostrums, contains all the nutrients essential for growth i.e. water, fat, proteins, lactose, minerals vitamins and ash and has been recognized as a vegetarian food since ancient times and all Indians consume milk and milk products without reticence. It is especially beneficial for young ones as it contains nutrients for growth and development particularly a sufficient concentration of quality protein, mineral and vitamins. Especially vitamin A, riboflavin and vitamin B12 and is also the richest natural source of calcium in the best available form, (Pathak 2003).

2. Materials and Methods

The present experiment on "Influence of Body weight of cows on compositional quality of milk produced at organized (SHIATS) and unorganized (KUSHWAHA) dairy farms Allahabad was carried out. The period of

experiment one year (July2013-June2014)The cows at organized & unorganized dairy farms were subjected to Californian mastitis test and 20 cows (HF Crosses) from each organized & unorganized dairy farm with negative test were selected for the study. All experimental animals were housed in a tail to tail barn and managed under more and less similar management conditions. Sanitary precautions like clipping of long hair on the udder and flank, grooming, washing of hind quarters, wiping udder with towel soaked in 2% Dettol solution, tying tail with legs etc. were taken care prior to collection of milk samples. Cows were milked by full and dry hand method of milking. Two streams of fore milk from each quarter of udder were discarded and a sample of 200 ml milk was collected directly into sterilized conical flasks and plugged immediately. Sample of milk were brought to laboratory for chemical analysis and the fat, protein, lactose, water, ash, solid not fat (SNF), total solid (TS), Sp. gr. and acidity percent was determined as per AOAC (1995).

Factor of treatment Body weight groups:

- a) 250-300kg.
- b) 301-400kg.
- c) 401-500kg.

Parameters of Study:

Parameters determined in milk were as follows:

- 1) Fat percent
- 2) Protein percent
- 3) Lactose percent
- 4) Ash percent
- 5) Solid not fat(SNF) percent
- 6) Total solid(TS) percent
- 7) Water percent
- 8) Acidity percent
- 9) Specific gravity (sp. gr.) percent

3. Results and Discussion

Highest mean fat percent was recorded as 4.05 in milk of cows of 301-400 kg body weight followed by 3.68 in milk of cows in 401-500 kg and 3.65 in milk of cows in 250-300 kg at organized and 3.40 in milk of 401-500 kg followed by 3.27 in milk of cows of 301-400 and 3.20 in milk of cows in 250-300 kg body weight at unorganized dairy farms. The differences in these values were significant at organized and non significant at unorganized dairy farms .Highest mean protein percent was recorded as 3.44 in milk of cows of 301-400 kg body weight followed by 3.35 in milk of cows in 401-500 kg and 3.28 in milk of cows in 250-300 kg at organized and 3.28 in milk of 301-400 kg followed by 3.26 in milk of cows of 250-300 and 3.17 in milk of cows in 401-500 kg body weight at unorganized dairy farms. The differences in these values were non-significant at both organized and unorganized dairy farms.

Highest mean lactose percent was recorded as 4.84 in milk of cows of 250-300 kg body weight followed by 4.76 in milk of cows in 401-500 kg and 4.73 in milk of cows in 301-400 kg at organized and 4.75 in milk of 250-300 kg followed by 4.67 in milk of cows of 301-400 and 4.51 in milk of cows in 401-500 kg body weight at unorganized dairy farms. The differences in these values were non-significant at both organized and unorganized dairy farms Highest mean ash percent was recorded as 0.70 in milk of cows of 401-500 kg body weight followed by 0.69 in milk of cows in 250-300 kg and 0.69 in milk of cows in 301-400 kg at organized and 0.68 in milk of 301-400 kg followed by 0.67 in milk of cows of 250-300 and 0.67 in milk of cows in 401-500 kg body weight at unorganized dairy farms. The differences in these values were non-significant at both organized and unorganized dairy farms. Highest mean T.S percent was recorded as 12.90 in milk of cows of 301-400 kg body weight followed by 12.39 in milk of cows in 400-500 kg and 12.46 in milk of cows in 250-300 kg at organized and 11.90 in milk of 301-400 kg followed by 11.88 in milk of cows of 250-300 and 11.75 in milk of cows in 401-500 kg body weight at unorganized dairy farms. The differences in these values were significant at organized and non significant at unorganized dairy farms. Highest mean S.N.F percent was recorded as 8.85 in milk of cows of 301-400 kg body weight followed by 8.81 in milk of cows in 250-300 kg and 8.80 in milk of cows in 401-500 kg at organized and 8.68 in milk of 250-300 kg followed by 8.63 in milk of cows of 301-400 and 8.35 in milk of cows in 401-500 kg body weight at unorganized dairy farms. The differences in these values were no significant at both organized and unorganized dairy farms .Highest mean water percent was recorded as 87.54 in milk of cows of 250-300 kg body weight followed by 87.52 in milk of cows in 401-500 kg and 87.10 in milk of cows in 301-400 kg at organized and 88.25 in milk of 401-500 kg followed by 88.12 in milk of cows of 250-300 and 88.10 in milk of cows in 301-400 kg body weight at unorganized dairy farms. The differences in these values were significant at organized and non-significant at unorganized dairy farm. Highest mean specific gravity was recorded as 1.031 in milk of cows of 250-300 kg body weight followed by 1.030 in milk of cows in 301-400 kg and 1.030 in milk of cows in 401-500 kg at organized and 1.029 in milk of 250-300 kg followed by 1.029 in milk of cows of

301-400 and 1.028 in milk of cows in 401-500 kg body weight at unorganized dairy farms. The differences in these values were non-significant at both organized and unorganized dairy farms. Highest mean acidity percent was recorded as 0.14 in milk of cows of 401-500 kg body weight followed by 0.13 in milk of cows in 250-300 kg and 0.13 in milk of cows in 301-400 kg at organized and 0.16 in milk of 401-500 kg followed by 0.16 in milk of cows of 250-300 and 0.15 in milk of cows in 301-400 kg body weight at unorganized dairy farms. The differences in these values were non-significant at both organized and unorganized dairy farms.

Mean values of parameters in milk in different body weight groups at organized and unorganized dairy farms

Mean values of parameters in different body weights at organized and unorganized dairy farms.								
Parameters	Organized dairy farms				Unorganized dairy farms			
	250-300 Kg.	301-400 Kg.	401-500 Kg.	Results	250-300 Kg.	301-400 Kg.	401-500 Kg.	Results
(I) Chemical								
Fat percent	3.65	4.05	3.68	S	3.20	3.27	3.40	NS
Protein percent	3.28	3.44	3.35	NS	3.26	3.28	3.17	NS
Lactose percent	4.84	4.73	4.76	NS	4.75	4.67	4.51	NS
Ash percent	0.69	0.69	0.70	NS	0.67	0.68	0.67	NS
TS percent	12.46	12.90	12.48	S	11.88	11.90	11.75	NS
SNF percent	8.81	8.85	8.80	NS	8.68	8.63	8.35	NS
Water percent	87.54	87.10	87.52	S	88.12	88.10	88.25	NS
(II) Others								
Sp. gr.	1.031	1.03	1.03	NS	1.029	1.029	1.028	NS
Acidity percent	0.13	0.13	0.14	NS	0.16	0.15	0.16	NS

4. Conclusion

The compositional quality of milk was found to be better at organized dairy farm compared to unorganized dairy farm. It was concluded that Weight of cows influenced Fat, T.S. and water percent significant while other factors had no effect of weight of cows at organized dairy farm where as weight of cows had no effect on compositional quality of milk at unorganized dairy farm.

Hence, to improve the quality of milk it was suggested that awareness among unorganized dairy farm about scientific management practices as per body weight should be increased of animals a basic knowledge is needed since these factors also has an important role to make a dairy farm profitable. .

References

- [1] AOAC (1995) Association of official analytical chemists, 16th Ed. P.O. Box 540 Benjamin Franklin station washing DoC20, 0444.
- [2] Bhasin, N.R. (2011) Inaugural session I.D.A. *Indian Dairyman*. 63, 3:24-25.

- [3] **Manorama year book, (1998)** Cinderella of Indian agriculture .Manorama India year book.
- [4] **Makwana, A.K., Gurjar, M.D., Prajapati, J.P. and Shah, B.P. (2011).** Opportunities for mini scale dairy enterprise. *Indian Dairyman*, **63**: 50-58.

