

An Analytical Study on Bloat in buffaloes under Climatic Conditions of Tonk district of Rajasthan

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Abstract

Bloat, also called hoven or ruminal tympany, disorder of ruminant animals involving distention of the rumen, the first of the four divisions of the stomach, with gas of fermentation. The study was conducted at 8 blocks (Newai, Tonk, Deoli, Uniara, Todarai singh, Malpura, Peeplu and Dooni) of Tonk district of Rajasthan. The farmers were using practice of feeding normal ration and buffaloes were suffering from high level of fluoride in drinking water, lack of green fodder in animal diet, high temperature and imbalanced ration. We have given adequate amount of dry fodder, green fodder, concentrates, anti bloat oral suspension, mineral mixture@40-50gm/day/animal to cure of buffaloes and suggested Adequate amount of green fodder, Bisalpur drinking water, scientific animal shed, Sodium bicarbonate 50 gm, mineral mixture@40-50gm/day/animal. There was lack of awareness about scientific techniques in dairy farming practices. It is advisable among the all blocks.

Keywords: Analytical Study, Bloat, Buffaloes, Climatic Conditions, Tonk

Introduction

The Murrah breed of Water buffalo (*Bubalus bubalis*) is a breed of domestic water buffalo kept for dairy production. Its home tract stretches around the southern parts of Haryana comprising the districts of Rohtak, Jind, Hisar, Jhajhar, Fatehabad, Gurgaon and the Union Territory of Delhi (O.S.U., 2015). It is originally from Punjab and Haryana states of India^[1] and has been used to improve the milk production of dairy buffalo in other countries, such as Italy, Bulgaria and Egypt. In Brazil this breed of buffalo is used for production of meat and also milk. In India, the Murrah buffalo named Rani of Lakshmi Dairy Farm in Punjab

set a new record of 26.335 kg of milk in the 2016 National Livestock Competition and Expo (The Tribune, 2016). This breed of buffalo sells for a high price (TOI, 2013 and H.T., (2014).

The Murrah buffalo is jet black in colour, sometimes with white markings on the face or legs. Bulls weigh around 550 kg and cows around 450 kg. They typically have short and tightly curved horns. Average milk production is 2200 liters in a lactation period of 310 days (O.S.U., 2015). Eyes are black, active and prominent in females but slightly shrunken in males and should not be walled i.e. cornea should not have whiteness. Neck is long and thin in females and thick and massive in males. Ears are short, thin and alert. Bloat is an over distention of the rumen or reticulum with the gases of fermentation, either in the form of a persistent foam mixed with the ruminal contents, called primary or frothy bloat, or in the form of free gas separated from the ingesta, called

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secondary or free-gas bloat. It is predominantly a disorder of cattle but may also be seen in sheep. The susceptibility of individual cattle to bloat varies and is genetically determined (Peter D. Constable, 2015). India today, stands first in the area of milk production at the world level, with an annual growth rate of about 4%. The country's milk production in 2010 was estimated to be 110 million tones. A large quantity of milk produced in the country amounting to over 46% is being consumed as liquid milk. The production and use of animal products in the use of human diet is receiving tremendous attention. With this object in view the need for developing Animal Husbandry is recognized very well. The other objects are to provide animal power for farming's and adoption of better land use pattern (Singh et al 2012).

The productive improvements among dairying animals can be made through proper management, feeding and handling, etc. which may influence expression of productive characters as per its heritability nature. Before identifying the animals for breeding and production purpose screening of animals shall be performed on the basis of physical traits (Singh et al 2013).

Small ruminants have a large impact on the economy and food supply of people in subtropical and tropical countries. This benefit is often not shown in national statistics because of informal trading and slaughtering (Singh and Sharma, 2017).

Livestock has become an integral part of all interventions aimed at reducing rural poverty and enhancing food and nutrition security. The dairy livestock owners who raise cattle and buffaloes are yet ignorant with scientific management practices (Singh and Somvanshi, 2020). In tropical and subtropical regions dairy cattle usually depend

exclusively on native or introduced pastures as their only source of nutrients, and in particular, during critical periods of the year, such as the winter or dry season, the animals cannot fulfill their nutrient requirements because forage is either scarce or of low quality (Singh, G. 2019). Originating in Asia, goats have spread over all the continents and inhabit almost all -climatic zones from arctic - circle to the equator (Singh, G., 2024). The balance maintained among the three for several millennia has been disturbed by over exploitation of natural resources for meeting the demands of increasing population of men and animals (Singh et. al., 2024).

Bloat is simply the buildup of gas in the rumen. This gas is produced as part of the normal process of digestion, and is normally lost by belching (eructation). Bloat occurs when this loss of gas is prevented. There are two sorts of bloat. The least common type is gassy bloat, which occurs when the gullet is obstructed (often by foreign objects such as potatoes) or when the animal can't burp (such as with milk fever or tetanus). The second type of bloat is frothy bloat, which happens as the result of stable foam developing on top of the rumen liquid, which blocks the release of the gas (NADIS, 2007).

Bloat produced under experimental conditions by feeding fresh alfalfa and bloat-causing feedlot diets. Bloat has also been observed under grazing conditions on alfalfa pastures. Bloat is a complex disease that is difficult to predict under field conditions (Majak, 2003).

Methodology

The area under this study is in Tonk District, Rajasthan, which is located in Eastern part of the state between 75 0 07' 00" E to 76 0 19' 00" E and 25 0 41' 00" N to 26 0 34' 00" N. The total geographical



Fig. 1: Identification of Bloat in Buffaloes

area covered by the District is 7194 km². Location map showing the sampling sites is represented in Figure 1. The climate of the area is semi-arid type. The average annual rainfall of the district is 598 mm. The area is having general flat to undulating topography. The Banas River, 135 kms in length, is major one running through Tonk district (Sharma *et al.*, 2015). The study was conducted at 8 blocks (Newai, Tonk, Deoli, Uniara, Todarai Singh, Malpura, Peeplu and Dooni) of Tonk district of Rajasthan.

The methodology used was an adaptation from Alvarez Funes and Paz Motola (1997), with the following phases: (i) sample selection and construction of the data – gathering instrument, and (ii) information treatment and statistical processing, including the review and selection of variables for the analysis of types, application of multivariate statistical techniques.

Information treatment and statistical analysis:

- The data were introduced into an Excel matrix after checking for missing and abnormal data. Comparison between the different quantities variable was performed using Fisher's 't' test for analysis.

Results and Discussion

It was observed from Table 1 that the status of bloat in Murrah buffaloes in the 8 blocks (Newai, Tonk, Deoli, Uniara, Todarai Singh, Malpura, Peeplu and Dooni) of Tonk district was analyzed.

The farmers of Newai block were using practice of feeding normal ration and buffaloes were suffering from high level of fluoride in drinking water, lack of green fodder in animal diet, high temperature and imbalanced ration. We have given adequate amount of dry fodder, green fodder, concentrates, anti bloat oral suspension, mineral mixture@40-50gm/day/animal to cure of buffaloes and suggested Adequate amount of green fodder, Bisalpur drinking water, scientific animal shed, Sodium bicarbonate 50 gm, mineral mixture@40-50gm/day/animal. The BC ratio was 1.72.

The farmers of Tonk block were using practice of feeding normal ration and buffaloes were suffering from high level of fluoride in drinking water, high temperature and imbalanced ration. We have given adequate amount of dry fodder, green fodder, concentrates, anti bloat oral suspension, mineral

mixture@40-50gm/day/animal to cure of buffaloes and suggested Adequate amount of green fodder, scientific animal shed, Sodium bicarbonate 50 gm, mineral mixture@40-50gm/day/animal to cure of buffaloes and suggested Adequate amount of green fodder, Bisalpur drinking water, scientific animal shed, mineral mixture@40-50gm/day/animal. The BC ratio was 2.31.

The farmers of Deoli block were using practice of feeding normal ration and buffaloes were suffering from high level of fluoride in drinking water, high temperature and imbalanced ration. We have given adequate amount of dry fodder, green fodder, concentrates, anti bloat oral suspension, mineral mixture@40-50gm/day/animal to cure of buffaloes and suggested Adequate amount of green fodder, scientific animal shed, Sodium bicarbonate 50 gm, mineral mixture@40-50gm/day/animal to cure of buffaloes and suggested Adequate amount of green fodder, Bisalpur drinking water, scientific animal shed, mineral mixture@40-50gm/day/animal. The BC ratio was 2.46.

The farmers of Uniara block were using practice of feeding normal ration and buffaloes were suffering from high level of fluoride in drinking water, high temperature and imbalanced ration. We have given adequate amount of dry fodder, green fodder, concentrates, anti bloat oral suspension, mineral mixture@40-50gm/day/animal to cure of buffaloes and suggested Adequate amount of green fodder, scientific animal shed, Sodium bicarbonate 50 gm, mineral mixture@40-50gm/day/animal to cure of buffaloes and suggested Adequate amount of green fodder, Bisalpur drinking water, scientific animal shed, mineral mixture@40-50gm/day/animal. The BC ratio was 2.52.

The farmers of Todarai Singh block were using practice of feeding normal ration and buffaloes were suffering from high level of fluoride in drinking water, high temperature, imbalanced ration. We have given adequate amount of dry fodder, green fodder, concentrates, anti bloat oral suspension, mineral mixture@40-50gm/day/animal to cure of buffaloes and suggested Adequate amount of green fodder, scientific animal shed, Sodium bicarbonate 50 gm, mineral mixture@40-50gm/day/animal to cure of buffaloes and suggested Adequate amount of green fodder, Bisalpur drinking water, scientific animal

Table 1: Status of bloat in Murrah buffaloes

S. No.	Name of Block	No. of animal	Causes of Bloat	T1	T2	BC Ratio	Guidelines for Prevention
1.	Newai	10	High level of fluoride in drinking water, lack of green fodder in animal diet, high temperature, imbalanced ration	Farmers practice of feeding normal ration	Dry fodder+ Green fodder+ Concentrates+ anti bloat oral suspension +Mineral mixture@ 40-50gm/day/animal	1.72	Adequate amount of green fodder+Bisalpur drinking water+Scientific animal shed+Sodium bicarbonet 50 gm+Mineral mixture@40-50gm/day/animal
2.	Tonk	10	High level of fluoride in drinking water, High temperature, imbalanced ration	Farmers practice of feeding normal ration	Dry fodder+ Green fodder+ Concentrates+ anti bloat oral suspension +Mineral mixture@ 40-50gm/day/animal	2.31	Adequate amount of green fodder+Bisalpur drinking water+Scientific animal shed+Sodium bicarbonet 50 gm+Mineral mixture@40-50gm/day/animal
3.	Devli	10	High level of fluoride in drinking water, High temperature, imbalanced ration	Farmers practice of feeding normal ration	Dry fodder+ Green fodder+ Concentrates+ anti bloat oral suspension +Mineral mixture@ 40-50gm/day/animal	2.46	Adequate amount of green fodder+Bisalpur drinking water+Scientific animal shed+Sodium bicarbonet 50 gm+Mineral mixture@40-50gm/day/animal
4.	Uniarra	10	High level of fluoride in drinking water, High temperature, imbalanced ration	Farmers practice of feeding normal ration	Dry fodder+ Green fodder+ Concentrates+ anti bloat oral suspension +Mineral mixture@ 40-50gm/day/animal	2.46	Adequate amount of green fodder+Bisalpur drinking water+Scientific animal shed+Sodium bicarbonet 50 gm+Mineral mixture@40-50gm/day/animal
5.	Todarai Singh	10	High level of fluoride in drinking water, High temperature, imbalanced ration	Farmers practice of feeding normal ration	Dry fodder+ Green fodder+ Concentrates+ anti bloat oral suspension +Mineral mixture@ 40-50gm/day/animal	2.46	Adequate amount of green fodder+Bisalpur drinking water+Scientific animal shed+Sodium bicarbonet 50 gm+Mineral mixture@40-50gm/day/animal
6.	Malpura	10	High level of fluoride in drinking water, lack of green fodder in animal diet, high temperature, imbalanced ration	Farmers practice of feeding normal ration	Dry fodder+ Green fodder+ Concentrates+ anti bloat oral suspension +Mineral mixture@ 40-50gm/day/animal	1.51	Adequate amount of green fodder+Bisalpur drinking water+Scientific animal shed+Sodium bicarbonet 50 gm+Mineral mixture@40-50gm/day/animal
7.	Peep plu	10	High level of fluoride in drinking water, lack of green fodder in animal diet, high temperature, imbalanced ration	Farmers practice of feeding normal ration	Dry fodder+ Green fodder+ Concentrates+ anti bloat oral suspension +Mineral mixture@ 40-50gm/day/animal	1.51	Adequate amount of green fodder+Bisalpur drinking water+Scientific animal shed+Sodium bicarbonet 50 gm+Mineral mixture@40-50gm/day/animal
8.	Dooni	10	High level of fluoride in drinking water, High temperature, imbalanced ration	Farmers practice of feeding normal ration	Dry fodder+ Green fodder+ Concentrates+ anti bloat oral suspension +Mineral mixture@ 40-50gm/day/animal	2.89	Adequate amount of green fodder+Bisalpur drinking water+Scientific animal shed+Sodium bicarbonet 50 gm+Mineral mixture@40-50gm/day/animal

shed, mineral mixture@40-50gm/day/animal. The BC ratio was 2.67.

The farmers of Malpura block were using practice of feeding normal ration and buffaloes were suffering from High level of fluoride in drinking water, lack of green fodder in animal diet, high temperature and imbalanced ration. We have given adequate amount of dry fodder, green fodder, concentrates, anti bloat oral suspension, mineral mixture@40-50gm/day/animal to cure of buffaloes and suggested Adequate amount of green fodder, scientific animal shed, Sodium bicarbonate 50 gm, mineral mixture@40-50gm/day/animal to cure of buffaloes and suggested Adequate amount of green fodder, Bisalpur drinking water, scientific animal shed, mineral mixture@40-50gm/day/animal. The BC ratio was 1.51.

The farmers of Peeplu block were using practice of feeding normal ration and buffaloes were suffering from high level of fluoride in drinking water, lack of green fodder in animal diet, high temperature, imbalanced ration. We have given adequate amount of dry fodder, green fodder, concentrates, anti bloat oral suspension, mineral mixture@40-50gm/day/animal to cure of buffaloes and suggested Adequate amount of green fodder, scientific animal shed, Sodium bicarbonate 50 gm, mineral mixture@40-50gm/day/animal to cure of buffaloes and suggested Adequate amount of green fodder, Bisalpur drinking water, scientific animal shed, mineral mixture@40-50gm/day/animal. The BC ratio was 1.66.

The farmers of Dooni block were using practice of feeding normal ration and buffaloes were suffering from high level of fluoride in drinking water, high temperature and imbalanced ration We have given adequate amount of dry fodder, green fodder, concentrates, anti bloat oral suspension, mineral mixture@40-50gm/day/animal to cure of buffaloes and suggested Adequate amount of green fodder, scientific animal shed, Sodium bicarbonate 50 gm, mineral mixture@40-50gm/day/animal to cure of buffaloes and suggested Adequate amount of green fodder, Bisalpur drinking water, scientific animal shed, mineral mixture@40-50gm/day/animal. The BC ratio was 2.67.

Our results are similar with Majak et al 1995 who have reported that Any delay in event of froth

bloat in feedlot animals might suggests that a slow changes in the ruminal microbes that considered as an important element in explaining the cause, furthermore the physical form of a grain ration appears to be related to grain bloat , since in frothy legume bloat, in which a rapid release of leaf nutrients is important in producing bloat, it seems likely that the small particle size of ground feed could have the same effect.

Our results are fully corroborated with Meyer, 2017 who have reported that the Bloat in older animals is associated with grazing legumes in legume-dominant pastures, feeding high-grain diets, and impaired eructation processes.

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