



The Opinion of Respondents about the Effects of Grazing on *Tabar (Ipomaea Kordofana)* on Animal Health and Milk Characteristics in Gezira State, Sudan

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Abstract

The objective of the experiment was the opinion of respondent about effects of Grazing on Tabar plant on animal health and milk characteristic in Gezira State, Sudan. The questionnaire was conducted in two localities of Gezira state where Tabar plant was cultivated. This included, South Gezira locality and Greater Wad Madani Locality. The questionnaire was distributed randomly to 50 animal owners who already have experience with grazing of Bt-CCR, in each of the two localities. Revealed that the results of increase in milk production, the color of milk, the taste of milk, There is an impact on animal health, Symptoms of feeding on Tabar plant, Quick coagulation of milk, presence of diarrhea and increased frequency of affected animals by Tabar plant grazing was significantly different ($p < 0.001$) higher in no effect of Grazing on Tabar plant. It is recommended that, further studies are required for recommending of the optimum level of inclusion of Tabar plant in ruminant diets.

1. Introduction

Sudan has second largest livestock inventories in Africa. Natural pasture covered almost 24 million hectare. (FAO, 2005) Sudan ranks first in cattle population in Africa (FAO, 2002). Total Sudan cattle population in 2001 was 38.325 million heads. About 29.7% of Sudan cattle population is in Southern Darfur and Kordofan. The middle region (comprising the central clay plain) is the home of 27% of Sudan's cattle. Eastern and Northern regions of the Sudan accommodate 3.6% and 3% of Sudanese cattle, respectively (Abdel Rahman, 2007., Hamid, 2004). According to (Ministry of Finance and National Economy - MFNE, 1997), the major production system may be described as follows: Nomadic in this system livestock, mainly camels and sheep, with some goats, are raised entirely on natural rangelands (MFNE, 1997). Transhumant: the transhumant agropastoral system, households depend mainly on livestock, mostly cattle, with some sheep and goats, although there is some cropping (MFNE, 1997). Sedentary: in this system exists where there is rain fed, arable farming in settled villages. Some livestock,

mainly small ruminants, are kept, but the animals are less important than the crops (MFNE, 1997). Other systems: include ranching, feedlot operations and peri-urban backyard livestock production (M F N E - 1997). Sudanese Plant naming: Sudanese people are well known for their significantly descriptive local plant names. they name plants with names either derived from the local environment (Ahmed, and Warrag. 2005, Harrison and Jackson. 1958 and Wickens, 1991). The effects of grazing on Tabar plant on animal health and milk characteristic was not found available literature. Due to controversy among animal owners from grazing on Tabar plant, Therefore, this research was designed with the following objectives. The opinion of respondent about effects of Grazing on Tabar plant on animal health and milk characteristic in Gezira State, Sudan.

2. Materials and Methods

The study area

Gezira State is located south-west of Khartoum state. The state lies between latitude $32^{\circ}13'$ and $30^{\circ}15'$ N and longitudes $22^{\circ}32'$ and

20°43' E . It covers an area of about 27545km² of which around 90% can be utilized for agriculture. It has a virtually flat relief, with slight tilt of the ground sloping gently from south to the north, which made possible the construction of a gravity-based irrigation system that covers all of the Gezira scheme. Gezira scheme which is a part of the state was mainly constructed for cotton production. Rainfall is characterized by high degree of spatial and temporal variability of wet and dry decades from season to season as well as within the same season. The state is divided into eight localities.

The questionnaire was conducted in two localities of Gezira state where *Tabar* plant was cultivated. This included, South Gezira locality and Greater Wad Madani Locality.

The questionnaire was distributed randomly to 50 animal owners who already have experience with grazing of *Tabar* plant, in each of the two localities.

A questionnaire was designed to analyzing opinion of respondent about the effect of grazing ruminants on *Tabar* plant. It included the following questions:

A. Personal characteristics on grazing of ruminants on *Tabar* plant. The personal characteristics included:

- 1) Education level.
- 2) Supervisor of Labor.
- 3) Dependence of the work site.

B. Grazing of *Tabar* plant on:

1. Feeding of ruminants on *Tabar* plant.
2. Concentrate feeding.
3. Effect on milk production.

If yes: what is the effect on :

1. Milk production.
2. Color of milk.
3. Taste of milk.
4. Milk coagulation time.
4. Impact on animal health.
5. Do you notice any symptoms from Feeding on *Tabar* plant?
6. Is there any case of diarrhea.
7. Type of the animal mostly affected by grazing on *Tabar* plant.

Statistical analysis were performed using SPSS, Chi-square test was employed and the t-test was used for detection of difference between means.

3. Results and Discussion

Based on the table (1), the significant number ($P \leq 0.001$) of respondents agreed that, feeding *tabar* increase milk production, had no effect on color of milk and the taste of milk. There is an impact on animal health, symptoms of feeding on *Tabar* plant, quick coagulation of milk, presence of

diarrhea and increased frequency of affected animals by *Tabar* plant grazing. It was found that, *Tabar* plant grazing had significantly different. It is clear that no effect on the animals grazed on it almost all of the respondents agreed that *Tabar* plant grazing had some no effects on animals compared to effects. However Awad (2013) found on increase in milk and no effect of symptoms of feeding on *Tabar* plant and no effect of animal health and no effect of diarrhea. While, Hammed et al (2015) indicated that plant *Tabar* is number one suspected plants that caused incidence of phytobezoars.

Investigation of the total effect on increasing milk production table (2) was higher compared to no effect (91% versus 9%). From the investigation of effect on increasing milk production table (2), it is clear that almost 49 % of the respondents claimed medium to very large increase in milk production from grazing on *Tabar*. While only 32% claimed small increase. However, Awad (2013) found on increase in milk.

Table (3) revealed that, the no effect of *Tabar* grazing on milk color was significantly ($P \leq 0.01$) higher compared to effect between the respondent opinion on the total no effect of grazing *Tabar* on the color of milk and the total effect of grazing *Tabar* on the color of milk. Generally more investigations that included consumers and milk processing units are needed. However, the no effect of *Tabar* grazing on milk color was not available in the literature cited for this study.

As presented in Table (4) the total no effect on milk taste was significantly ($P \leq 0.01$) higher compared to the total effect of grazing *Tabar* on the test of milk (89% versus 11%). However, the total no effect on milk taste on *Tabar* was not available in the literature cited for this study.

As presented in Table (5) the total no effect (symptoms) of feeding on *Tabar* was significantly ($P \leq 0.01$) higher than effect. However,(Awad, 2013) found no effect of symptoms of feeding on *Tabar* plant and no effect of animal health and no effect of diarrhea.

Investigation of number of total animals affected by diarrhea Table (6) was significantly higher in animals not grazed on *Tabar* plant compared to the total effect of grazing *Tabar* on diarrhea (89% versus 11%). However, (Awad, 2013) found no effect of symptoms of feeding on *Tabar* plant and no effect of animal health and no effect of diarrhea.

As presented in Table (7) the effect of *Tabar* grazing on different animal types was higher in the total no effect of grazing *Tabar* on different animal types compared to the total effect of grazing *Tabar* on different animal types (82% versus 18%). Generally

the result of this questionnaire indicated that, Tabar affect the different type of animals grazed on it with different levels of no effect. However, the effect of Tabar grazing on different animal types was not available in the literature cited for this study. The animals on the open range are selective in what they eat not only needs to be specified in terms of plants or different parts of plants in different stages of growth.

it also needs to be looked at separately for each species of animals. in spite of their general anatomical and physiological similarities, different species of ruminants do not eat the same things, if, like it is the case on the open range, they have the choice. they have different motor habits and food preferences. Here we see goats browsing a higher layer of the vegetation than sheep (Awad, 2013).

Table (1). Percent opinion of respondent about Tabar plant.

Parameter	Effect of feeding Tabar plant	No effect of feeding Tabar plant	Sig
Increase in milk production	91	9	
Effect on the color of milk	9	91	
Effect of the taste of milk	11	8	0.003
There is an impact on animal health	13	87	
Symptoms of feeding on Tabar plant	18	82	
Quick coagulation of milk	6	94	
Presence of diarrhea	11	89	

Table (2). Percent effect of Tabar plant on increasing milk production

Parameter	Increasing milk production of feeding Tabar plant	No increasing milk production of Feeding Tabar plant	Sig
Very large increase	32		
A large increase	14		
Medium increase	13		0.000
A small increase	32	9	
Total	91	9	

Table (3). Percent effect of Tabar plant on the color of milk

Parameter	Effect of feeding Tabar plant	No effect of feeding Tabar plant	Sig
Significant impact	3		
Little effect	6	91	
Total	9	91	0.000

Table (4). Percent effect of Tabar plant on milk taste

Parameter	Effect of feeding Tabar plant	No effect of feeding Tabar plant	Sig
Significant impact	4		
Little effect	7	89	0.000
Total	11	89	

Table (5). Percent symptoms of feeding on Tabar plant

Parameter	Effect of feeding Tabar plant	No effect of feeding Tabar plant	Sig
Diarrhea	2		0.003
Diarrhea ,common , achange in the color and taste of milk and mucus	4		
Diarrhea and Colds	3		
Diarrhea, A change in the color and taste of milk and mucus	3		
Diarrhea and Bloat	2		
A change in the color and taste of milk and diarrhea	4	82	
Total	18	82	

Table (6). Percent effect of Tabar plant on Diarrhea

Parameter	Effect of feeding Tabar plant	No effect of feeding Tabar plant	Sig
Large cases	8		
A few cases	3	89	0.000
Total	11	89	

Table (7). Percent effect of Tabar plant on different animal types

Parameter	Effect of feeding Tabar plant	No effect of feeding Tabar plant	Sig
Cows	2		
Sheep	3		
Goat	1		
Cows and Sheep	4		
Cows and Goats	2		0.000
Cows, sheep and goat	4		
Sheep and Goat	2	82	
Total	18	82	

4. Conclusion and Recommendation

This research addresses the opinion of respondents about effects of Grazing on Tabar plant on animal health and milk characteristics, Gezira State, Sudan. Based on the study findings it could be concluded that:

1. There was an agreement between respondents in both sites on that, tabar plant had some no effects on :

- Milk production.
- The color of milk.
- The taste of milk.
- The impact on animal health.
- The milk coagulation.
- The symptoms due to feeding on Tabar plant

It is recommended that, further studies are required for recommending of the optimum level of inclusion of Tabar plant in ruminant diets.

Some studies on:

- Meat produced from animals fed on Tabar plant and by-products.
- Designed research experiments on Tabar plant as animal feed. However, it is too early to drive a definite recommendation on to the safety of Tabar plant as animal feed.

References

- Abdel Rahman, I. M. (2007). Sudanese Cattle Resources and Their Productivity. A Review National Dairy Research Institute, Karnal-132 001 (Haryana). *Agric. Rev*, 28 (4) : 305-308.
- FAO. (2002). Production Year Book, FAO. Rome, Italy.
- Hamid, H. I. (2004). In: Workshop on Characterization and Improvement of Sudanese Livestock and Poultry. Ministry of Sciences and

Technology, Animal Resources Research Corporation. January 14, 2004.

4. FAO. (2005). Livestock Information, Sector Analyze and Policy Branch AGAC. http://www.fao.org/ag/againfo/resources/en/publications/sector_briefs/lsb_NPL.pdf

5. MFNE. (1997). Ministry of Finance and National Economy, Sudan. Report by the Committee on Macro-economy (in Arabic).

6. Schlee, G. (2012). Pastoralism in Interaction with other Forms of Land Use in the Blue Nile Area of the Sudan: Project Outline and Field Notes 2009–10 (Halle, 2012).

7. Awad, A and Günther, S. (2013). Pastoralism in Interaction with other Forms of Land Use in the Blue Nile Area of the Sudan II: Herbarium and Plant Diversity in the Blue Nile Area, Sudan (Halle, 2013).

8. Ahmed, H. K and Warrag, E. I. (2005). Sudan Vegetation Cover Assessment, Using NOAA-AVHRR Data, For the Period between “1982 – 1999”. *Sudan Silva*, 11(1): 20 – 33.

9. Harrison, M. N and Jackson, J. K. (1958). Ecological Classification of the Sudan. Forest bulletin 2. Forest department Khartoum: 1– 45.

10. Wickens, G. E. (1991). Natural Vegetation. in Craig, G. M. (ed.), *The Agriculture of the Sudan*. London: Oxford University Press, 54 – 67.