

## BIOLOGICAL BEHAVIOUR OF MURRAH WATER BUFFALOES

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### Abstract

Modest but constant and progressive is the importance that buffaloes are achieving at the scientific's, producer's and consumer's societies. Feeding behaviour is a continuous act in animals. Motivation is a reversible process of the brain induced by external factors. So, consumption tends to be continuous until another stimulus such as satiation becomes dominant. The majority of large domestic animals is fed "ad libitum". This originates different situations when they are over or underfed. That is the situation that makes the circadian rhythm an important tool to be used in order to achieve maximum gains in rangelands. For half a year, 3 groups of 10 animals each (2 males and 8 females) were observed recording their biological behaviour. Data analysis showed that grazing activity occurred from 7 to 10 a.m. and from 5 to 8 p.m. setting the maximum grazing period of six hours per day as long as forage is available. The informations allow to adopt strategies for further feeding studies.

**Keywords:** water buffaloes, circadian rhythm, Murrah, feeding behaviour.

### Introduction

Feed intake is one main factor that is responsible for animal liveweight gains. Chacon et al (1976) describe feed intake as related to the time spent eating, the number of bites per unit of

time and the average size of each bite. Voluntary intake is also related to physical factors when digestibility of the feed is below 65% or when digestible energy is less than 10.8 MJ/ kg DM (Ruiz & Menchaca, 1990). Greenhalgh (1982) states that for many years “investigators of grazing animals were probably induced to measure intake simply out of curiosity”. Observing animals grazing, they wished to know much herbage these animals consumed. Nowadays, curiosity is not enough to justify the use of expensive research techniques and more and more practical reasons are needed for measuring intake. The ingestive behaviour as mentioned by Hodgson (1982) is another aspect of intake and may be closely related to the feeding process as locomotion and rumination. The author states that the working day of a grazing animal is divided into alternative periods of grazing, rumination and rest. So, the duration and the distribution of grazing and ruminating activity may influence liveweight gain. The activity patterns of the individual members of a group are usually similar and the timing of the main activities is strongly influenced by the time of sunrise and sunset (Hafez, 1969; Arnold, 1981). Hodgson (1982) concludes that as far as modern techniques and devices are helpful to monitorate patterns of behaviour, the experience gained by watching animals in the field is, by far, more important.

Present work was done to know a little more of the behaviour patterns of wather buffaloes in order to better explore their potential to produce beef of milk, grazing low quality tropical grasses.

### **Material and Methods**

Thirty animals (6 males and 24 females) were observed all day long (24 hours a day) during six months year. They were divided in three groups of 10 animals (2 males and 8 females) grazing three different grasses. Their paddocks were covered with a tropical forage grass (*Panicum maximum* cv. Tanzania; *Setaria sphacelata* cv. Kazungula or *Brachiaria brizantha* cv.

Marandu) and each one had in the middle a shower, a shadow area, a drinking place and a salt hod. All the paddocks faced a main intertown road and had their back facing a quiet area of the farm. The activities were recorded by an electric device during the night that taped all their movements and by observers during the day. Each morning the tape from the previous day was played and all the activities were recorded in a pentium PC and data were stored with the aid of "Etholog" software.

After the six months of observation, it could be possible to resume the main activities and the most distinctive behaviour in a chard. The observations are being carried out for the other six months of the year.

### **Results and Discussion**

Table 1 resumes the concentrations of the main behaviour activities of Murrah buffaloes undergrazing all day long for six months at a 22' 47' Lat. S.

During the Summer, from October/98 to March/99, the average temperatures of the maximum mean temperature was 29.7°C; 18.9°C of the minimum mean temperature and total rainfall during the 6 months was 1,306 mm.

The data in table 1 show that grazing activity (voluntary intake) did take place from 7 to 8 a.m. and 5 to 8 p.m. according to Hafez (1969) and Arnold (1981). As one can note, as far as food is provided, the maximum period of grazing is six hours during the Summer. Showers were used at the hottest hours of the day. Resting periods occurred from 10 a.m. to 2 p.m. mostly under the shade.

The activities were performed in groups of 4 to 6 animals or all together during the daylight period and the observations made in this paper are in accordance with Hafez (1969) and Arnold (1981) (Fig. 1). Grazing was the main activity and last up to six hours a day. It was

observed that there was one to two leaders in each group who was followed by the others when he changed activities. At the hottest hours of the day all the animals looked for the showers which was a sprinkler placed on the top of a 1.70 m high post. After a quick shower they remained in the area laying down on the mud. All these data were coincident to those mentioned by Hodgson (1982).

At night hours their behaviour changed and they gathered all together in the back side of the paddocks faraway from the road performing a kind of circle with the bulls being at the borders (Fig. 1).

As shown, in this paper, Murrah buffaloes have a very strong gregarious behaviour and present, still now, a sense of protection to the females as found in wild animals.

It could be establish a maximum period of six hours of grazing activity as far as food was available. That information could be used to dairy properties that work with these animals. Further studies are being carried out at the same location to find out more informations about the circadian rhythm of Murrah water buffaloes. This paper emphasis the importance of field experience watching grazing animals associated with modern techniques or electronic devices. (Hodgson 1982).

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**Table 1** – Main behaviour activities' concentration of Murrah water buffaloes kept under grazing from Oct/98 to Mar/99 at 22° 47' Latitude South

Activities	Morning	Afternoon	Night/Early morning
Grazing	7 to 10	1 to 3	5 to 8
Standing up ruminating	10 and 12	2	6; 8 to 8:30
Laying down ruminating	6 to 7	1 and 4 (*)	6
Standing up rest (idling)	12 (*)	5	7; 1:30; 5
Laying down rest (idling)	10:30 – 11	2(*)	8; 9; 2
Shower	9	1 to 3	-
Exploration	7; 12	1; 4; 5	7
Drinking	7; 11	2; 4	6

(\*) = activity performed under the shade

