CONTRIBUTIONS TO THE KNOWLEDGE OF SOME ASPECTS REGARDING THE DRINKING BEHAVIOUR IN MULTIPAROUS ROMANIAN BLACK AND WHITE COWS

CONTRIBUȚII LA CUNOĂȘTEREA UNOR ASPECTE PRIVIND COMPORTAMENTUL DIPSIC LA VACILE MULTIPARE DIN RASA BALȚĂTĂ CU NEGRU ROMÂNEASCĂ

GAVOJDIAN D., STANCIU G., TRIPON I., CZISZTER L.T., ACATINCĂI S., BAUL SIMONA
Faculty of Animal Sciences and Biotechnologies, Timișoara, România

The aim of this study was to determine some aspects of drinking behaviour in the cold-season. The study was carried out on 10 multiparous cows, housed in a tied stanchion barn 24 hours per day. During the experiments the following behaviour aspects were monitored: the number of drinking periods per 24 hours and drinking frequency. When cows were fed twice a day the average number of drinking periods was 11, and when cows were fed three times per day, the average number of drinking periods per cow was 12.2 per day. The highest frequency of drinking period in the first part of the experiment (one with two meals per day) was registered at 10:00 and 18:00-19:00 h. When the forages were administrated in three meals three peaks were registered, between 09:00, 15:00 and 20:00 h. During the night time, consumption of water was very low.

Key words: Romanian Black and White, multiparous cows, drinking behaviour.

Introduction

Water is considered the most important nutrient for the lactating dairy cows (2), but little research has focused on drinking behaviour.

Drinking is synchronized in lactating cattle with feeding and milking, this is a learnt response to an impending osmotic demand. In intensive systems cattle drink more frequently, usually 6 to 8 times a day, although there is considerable variation between animals (2, 3).

Frequency of drinking is positively correlated with the number of meals per day (2) and the volume of consumed water (1, 4).

In dairy cattle, water consumption it is influenced by many factors: the quantity of dry matter ingested from the forage, production of milk, temperature, breed, the level of protein and salt from the feed, the effort made by the animal during the day, the water delivery system used and the quality of the water provided to the animal.
The aim of this paper was to study the main features regarding drinking behaviour in multiparous Romanian Black and White cows during the cold-season.

**Materials and Methods**

Ten multiparous (parity = 3.1) Romanian Black and White cows were used in the current study. The cows were housed in a tie stanchion barn at the Didactical Farm of the Banat University of Agricultural Sciences and Veterinary Medicine Timișoara. This experiment was carried out during the cold-season, in between 22-28 February.

Cows monitored were in their first hundred days of lactation, and had an average daily yield of 15.7 liters of milk, with a mean body weight of the cows of 617 kg.

During the experimental period, cows were fed with a diet consisted in 20 kg corn silage, 8 kg of pasture hay and 3 kg of concentrates. Fresh feed was provided in the first five days of the experiment twice daily at 06:30 and 16:30 h, and three times per day in the second part of the experiment at 06:30, 13:30 and 19:30 h. The cows were milked twice a day at approximately 05:00 and 17:00 h.

Data regarding environmental temperature was recorded three times a day, at 07:00, 14:00 and 23:00 h. The average air temperature registered during the experiment was 5.5 °C outside and 8.1 °C inside the barn.

In our research we studied some specific drinking behaviour, such as number of drinking periods in administrating the forage twice daily and three times per day, and the frequency of drinking during the three segments of the day, and in both feeding regimens (two and three times per day).

Drinking behaviour was monitored 24 hours, using 4 video cameras (CC 9622BIR) connected to a video capture device of 120 fps with four channels. Video recordings were analysed by continuous observation for each cow and each period.

**Results and Discussions**

Average number of drinking periods registered in the first part of the experiment was 11 per day and per cow.

Frequency of drinking periods in the first part of experiment is showed in Figure 1, cows drank more around 10:00 h (18 times) in the morning, after the consumption of the first meal, and another peak was reached in the afternoon, between 18:00 and 19:00 h after they finished the consumption of the second meal.

During the night period, the number of drinking periods were diminished, especially during 23:00 and 06:00 h, when were registered a total of 6 drinking periods.

The number of drinking periods registered after the milking time was very low, compared to the ones registered at short time after they finished the consumption of the feed.
Figure 1. Frequency of drinking periods in the period with two meals per day

Frequency of drinking periods in the second part of the experiment, when cows were fed three times per day, is showed in Figure 2. The average number of drinking periods was 12.2 per day and per cow. Cows drank with a higher frequency during 09:00-10:00 h, after they finished the consumption of the first meal, at 15:00 h when they finished the second meal and between 20:00 h, after the third meal.

Figure 2. Frequency of drinking periods in period with three meals per day

During the night period, especially between 24:00 and 05:00 h, the number of drinking periods was very much lower than the rest of the day, and were recorded a total of 8 drinking periods.

The average number of drinking periods registered in the second part of the experiment increased with 1.6 compared to the first part of the experiment.
Conclusions

The number of drinking periods registered in our study is higher than that reported by both Phillips (1993) and Huzzey et al. (2005), most likely because the cow studied were close to peak lactation.

Drinking frequency increased when cows were fed three times per day, revealing that feeding periods are correlated with drinking periods.

During the night time, in both parts of the experiment, drinking frequency was very low comparative with those registered during day time.

Bibliography


CONTRIBUȚII LA CUNOAȘTEREA UNOR ASPECTE PRIVIND COMPORTAMENTUL DIPSIC LA VACILE MULTIPARE DIN RASA BALȚĂTĂ CU NEGRU ROMÂNEASCĂ

GAVOJDIAN D., STANCIU G., TRIPON I., CZISZTER L.T., ACATINCĂI S., BAUL SIMONA
Faculty of Animal Sciences and Biotechnologies, Timișoara, România

Scopul prezentei lucrări a fost acela de a descrie unele aspecte ale comportamentului dipsic, în sezonul rece. Studiul a fost efectuat pe un număr de 10 vaci multipare, întreținute legat 24 de ore pe zi. Astfel, în cadrul experimentului s-a urmărit numărul de adăpâri pe 24 de ore. La administrarea rației în două taimuri s-au înregistrat un număr mediu de 11 adăpâri pe zi, iar la administrarea rației în trei taimuri, numărul mediu de adăpâri a fost de 12.2 pe 24 ore. Frecvența cea mai ridicată a adăpârilor la administrarea rației în două taimuri s-a înregistrat în jurul orei 10 dimineața și orelor 18-19 seara. În cazul administrării rației în trei taimuri au fost înregistrate trei peak-uri, în jurul orelor 9-10 dimineața, 15 după-amiaza și ora 20 seara. Pe durata perioadei de noapte, consumul de apă a fost redus.

Cuvinte cheie: Bâlțată cu negru românească, vaci multipare, comportament dipsic.