Urinating Frequency in 24 Hours in Romanian Black and White Primiparous Cows

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Abstract

Investigation carried out in this study focused on the urinating frequency and factors that has an influence on them, in 9 Romanian Black and White primiparous cows, during the first hundred days of lactation, in tied stalls. The aim of this study was to measure the urinating frequency of the cows in 24 hours that were divided into 3 day periods: 07:00-14:00, 14:00-21, 21:00-07:00, according to administration order of the fodder (fibrous-succulents and succulents-fibrous). Results: *during the first hour interval (07°°-14°°), in the first order (O1) the urinating frequency is increasing slightly from 4-5 cows during the first hours up to 8 cows urinating at the of interval. In the second order (O2) the urinating frequency is almost constant, being lower between 11:00 and 12:00. In the second hour interval (14°°-21°°), in the first order (O1) the lowest urinating frequency was found at the beginning of the interval, when 4 cows urinated, and the highest frequency at the end of interval with 8 cows urinating. In the second order (O2) the urinating frequency is relatively constant, the minimum value of 6 cows being at the middle of this interval, and the maximum of 8 cows at the end of interval. In the third hour interval (21°°-07°°), for both orders, the urinating frequency slightly decrease to 2-3 urinations until midnight, then increase to 8-9 until first hour in the morning.*

Keywords: behaviour, Romanian Black and White cows, urinating frequency..

1. Introduction

Cattle urinated less frequently than they defecate. At pasture urine presents less of a problem than faeces, although herbage may be scorched at high stocking rates and during dry weather. Normally cattle prefer to graze pasture than has recently received a deposition of urine, perhaps because of the herbages increased sodium content, and will graze it lower than uncontaminated herbage [1].

Urination frequency is on average about 9 times in the 07:00:21:00 interval and 6 in the night interval [2].

Others authors have observed 8 urinations/day, respective 6 urinations in the night time in Holstein cows [3].

The aim of this study was to measure the urinating frequency of the cows in 24 hours, according to administration order of forages (fibrous-succulents and succulents-fibrous).

2. Materials and methods

Experiments were carried out in The Experimental and Didactical Station of the Banat University of Agricultural Sciences and Veterinary Medicine Timişoara, during the winter season.

The biological material in the study was 9 Romanian Black and White cows at first freshening, in their first one hundred days of lactation, were divided into three groups of three cows.

For a better interpretation the recorded material was divided in three periods for every 24 hours of surveillance: 07:00 to 14:00, 14:00 to 21:00 and 21:00 to 07:00.

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Methods were as follows:
- taping on video tapes the urinating behaviour of cows 24 hours/day,
- collection of data by viewing the video cassettes,
- data computation and statistical analysis.

For statistical analysis of the data averages, dispersion indices and difference significance were calculated for urination frequency, according to the administration order of the fodders (fibrous-succulent and succulent-fibrous). These statistics were calculated for each daily interval I_1 – from 07°° to 14°°, I_2 – from 14°° to 21°° and I_3 – from 21°° to 07°°.

Data were computed using the ANOVA/MANOVA analysis.

3. Results and discussion

Urination frequency in the first hour interval I1 (07°°-14°°), in the first administration order of forages O1 (fibrous-succulents) and in the second administration order of forages O2 (succulents-fibrous) are presented in the 1 figure.

In the first order (O1), the urinating frequency is increasing slightly from 4-5 cows during the first hours up to 8 cows urinating at the interval.

In the second order (O2) the urinating frequency is almost constant, being lower between 11:00 and 12:00.

In the figure 2, are presented urination frequency in the second hour interval I_2 (14°°-21°°) in the O1 and O2 administration order of forages.

In the first order (O1) the lowest urinating frequency was found at the beginning of the interval, when 4 cows urinated, and the highest frequency at the end of interval with 8 cows urinating.

In the second order (O2) the urinating frequency is relatively constant, the minimum value of 6 cows being at the middle of this interval, and the maximum of 8 cows at the end of interval.

Urination frequency in the night hour interval I_3 (21°°-07°°) and in the O1 and O2 administration order of forages are presented in the figure 3.

During the third interval, urination frequency was: between 21°°-22°° hours urinating 3 cows in O1 and 5 cows in O2, between 22°°-23°° hours urinating 3 cows in O1 and 4 cows in O2, between 23°°-00°° hours urinating 4 cows in O1 and 5 cows in O2, between 00°°-01°° hours urinating 5 cows in O1 and 4 cows in O2. Between 01°°-02°° hours, in both administration order of forages urinating 4 cows. Between 02°°-03°° hours urinating 2 cows in O1 and 3 cows in O2, between 03°°-04°° hours urinating 4 cows in O1 and 6 cows in O2, between 04°°-05°° hours urinating 6 cows in O1 and 7 cows in O2. 5 cows urinating in both order between 05°°-06°° hours and in the last hour of interval urinating 8 cows in O1 and 9 cows in O2.

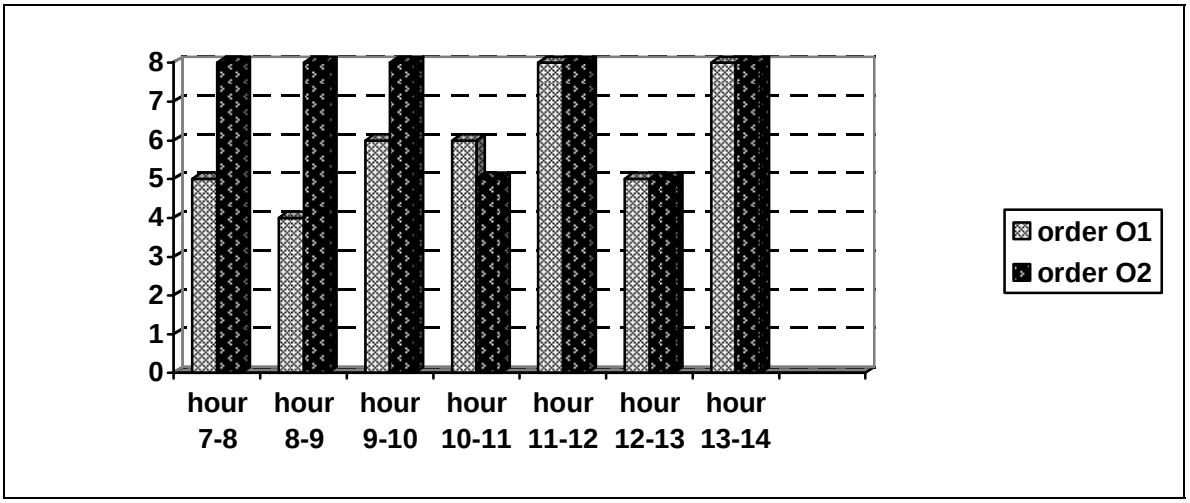

Figure 1. Urination frequency in the I_1 (7°°-14°°) hour interval in the O1 and O2 order

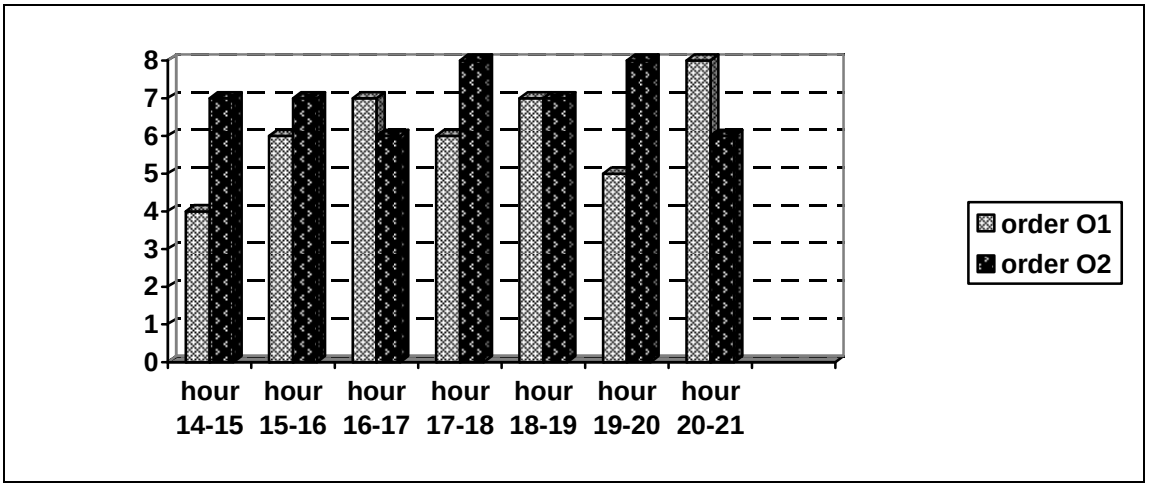

Figure 2. Urination frequency in the I_2 (14°°-21°°) hour interval in the O1 and O2 order

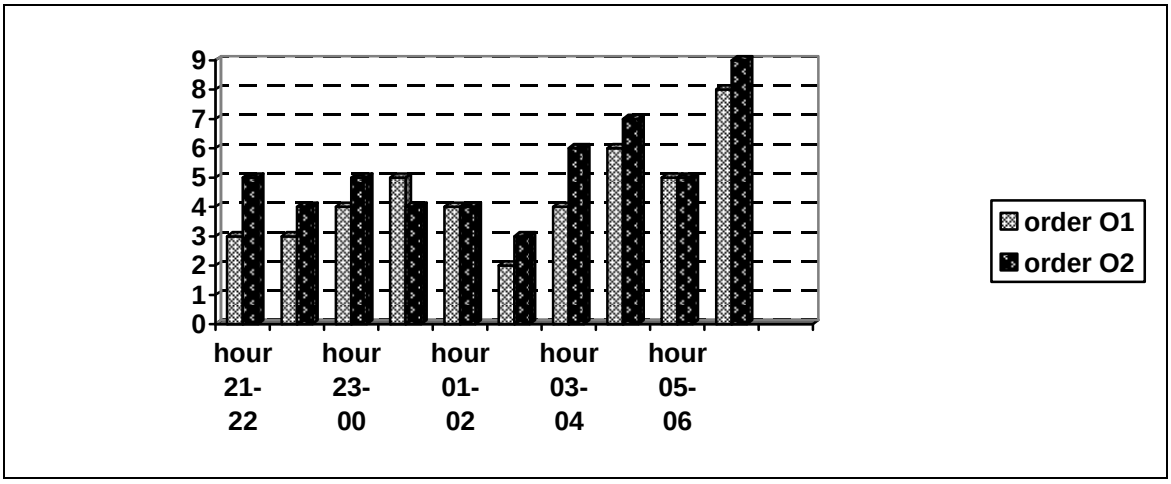

Figure 3. Urination frequency in the I_3 (21°°-07°°) hour interval in the O1 and O2 order

4. Conclusions

During the first hour interval (07°°-14°°)

- in the first order (O1) the urinating frequency is increasing slightly from 4-5 cows during the first hours up to 8 cows urinating at the of interval
- in the second order (O2) the urinating frequency is almost constant, being lower between 11:00 and 12:00.

In the second hour interval (14°°-21°°)

- in the first order (O1) the lowest urinating frequency was found at the beginning of the interval, when 4 cows urinated, and the highest frequency at the end of interval with 8 cows urinating.
- in the second order (O2) the urinating frequency is relatively constant, the minimum value of 6 cows being at the middle of this interval, and the maximum of 8 cows at the end of interval

In the third hour interval (21°°-07°°), for both orders, the urinating frequency slightly decrease to 2-3 urinations until midnight, then increase to 8-9 until first hour in the morning.

References

[1] Jaramillo. V.J.. Small-scale heterogeneity in a semiarid grassland: the role of urine deposition by herbicides. Dissertation Abstracts International B. Sciences and Engineering. 50:3283 B. 1990.

[2] Whincester. C.F.. Morris. M.J.. Water intakes rates of cattle. Journal of Animal Sciences. 65:722. 1991.

[3] Phillips. C.J.. Cattle Behaviour. pp. 107-108. Farming press book. United Kingdom. 1993.

[4] Animal behavior, 2000, Home page address: www.cattletoday.com/archive/2000/November/116.html.