

CHEWING ACTIVITY AS AN INDICATOR OF COWS HEAT

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Abstract. *Ruminant animals, including cattle, capturing food, swallow it, almost without chewing. So, it is the best indicator of life of ruminant. Changes in chewing activity are the earliest signal that can be considered as a warning about the potential problems of the functional state and health of cows.*

The research was carried out on cows of Ukrainian black-and-white milk breed whose productivity reached 6000-8000, and in the best animals - 9500-9700 kg of milk with a fat content – 3,6-3,8% and protein – 3,1-3,3%. For research, only healthy cows with a health index (according to the Milcon program) to be at least 88, were selected.

Formulation of the problem.

Ruminant animals, including cattle, capturing food, swallow it, almost without chewing. Then, in the interval between the ingestion these portions are regurgitating into the oral cavity, carefully chew and again swallowed. The regurgitating of received feed, chewing and reciprocal ingestion is called the ruminant process. The time during which the chewing of repeatedly repatriated masses occurs is called the ruminal period [1].

By analyzing the intensity of the chewing process against the background of the motor activity curve in cows with typical heat, elongated heat and silent heat, it can be concluded that the period of sexual excitement of cows is also characterized by significant changes in chewing activity. At the same time, the character of chewing activity changes can be even more effective as a tools of heat detection, in comparison with movement activity, since, as evidence of the study result, "silent" manifestation is not a characteristic for the decline of chewing activity.

Key words: *cows, chewing process, chewing activity, cow's heat*

The time of the onset of the chewing period depends on the nature of the feed and external conditions. Rough, dry food delays the appearance of the ruminant process, water, thins the contents of the rumen and accelerates the appearance of gum. The chewing gum begins after 30-70 minutes after taking the food, but rather with the complete rest of the animal and when it lies. During the day there are 6-8 ruminants, each of which lasts 40-50 minutes. At night, ruminal periods occur more often than in the afternoon.

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Within a day, cows are chewed up to 100 kg of rumen contents.

Changes in chewing activity are the earliest signal that can be considered as a warning about the potential problems of the functional state and health of cows [1,2]. The course of chewing process is one of the main indicators of the optimality of the physiological state of the cow [3, 4]. If chewing activity is reduced, this is an obvious sign that the cow is uncomfortable and is likely to have health problems. When timely response to changes in chewing activity of cows can significantly reduce the decline in milk productivity [4].

In the daily budget, chewing activity ranks second at its expense and is 8-10 hours. Deviations from the above norms can serve as a signal about problems in feeding, maintenance or veterinary [5, 6].

The effectiveness and value of control of chewing activity is confirmed by a high correlation between the duration of the rumination and the time of calving, the onset of sexual heat, the disease of clinical mastitis [7, 8, 9].

Material and methods of research. The research was carried out on cows of Ukrainian black-and-white milk breed whose productivity reached 6000-8000, and in the best animals - 9500-9700 kg of milk with a fat content – 3,6-3,8% and protein – 3,1-3,3%. For research, only healthy cows with a health index (according to the Milcon program) to be at least 88, were

selected. Chewing activity of cows was determined using the modern system of automatic monitoring and monitoring of rumination on the basis of transponders-actometers-ruminographs - HR-Tag. All parameters were counted in the context of 2-hour time intervals, which allowed to determine the dynamics of chewing activity with anchoring to other technological operations [10].

Research results. Reactions to the behavior of cows associated with the implementation of their sexual function, can be attributed to the factors that most actively affect other manifestations of their livelihoods. In the state of heat, cows demonstrate a significant and obvious increase in total movement activity, which is now widely used as an indicator of heat in majority electronic systems designed to determine the optimal time for fertilization [11, 12]. At the same time, in literature available to us, we could not find any references to the results of research on the dynamics of chewing activity of cows on the eve and during heat.

By analyzing the intensity of the chewing process (Fig. 1) against the background of the motor activity curve in cows with typical heat, elongated heat and silent heat, it can be concluded that the period of sexual excitement of cows is also characterized by significant changes in chewing activity.

If the curve of movement activity of cows in heat rushes rapidly upwards, the curve of chewing activity no less rapidly drops down. In our opinion, it is

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interesting that the duration of the decline in chewing activity corresponds to the duration of increase in motor activity, but the differences between the examined cows for intensity of the decline was not significant. Even in the cow with number 9550, which differed in the "quiet" manifestation of heat, the

shift in chewing activity was not less than in the other two. Thus, we can assume that the dynamics of chewing activity can be successfully used as the main or auxiliary factor in the onset of cow heat.

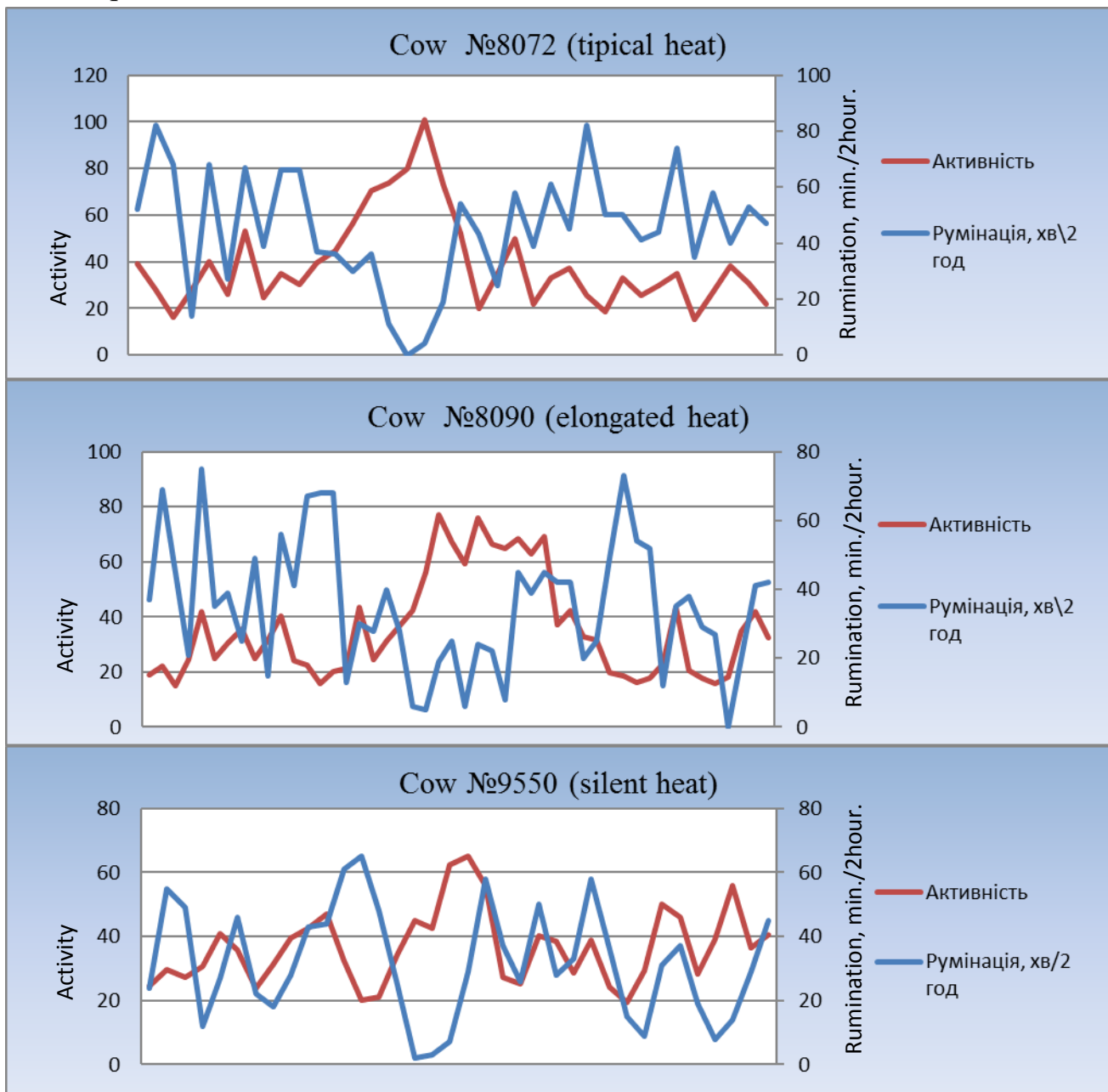


Figure 1. Characteristic of chewing and movement activity of cows with different stages of heat.

At the same time, the character of chewing activity changes can be even more effective as a tools of heat

detection, in comparison with movement activity, since, as evidence of the study result, "silent"

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manifestation is not a characteristic for the decline of chewing activity.

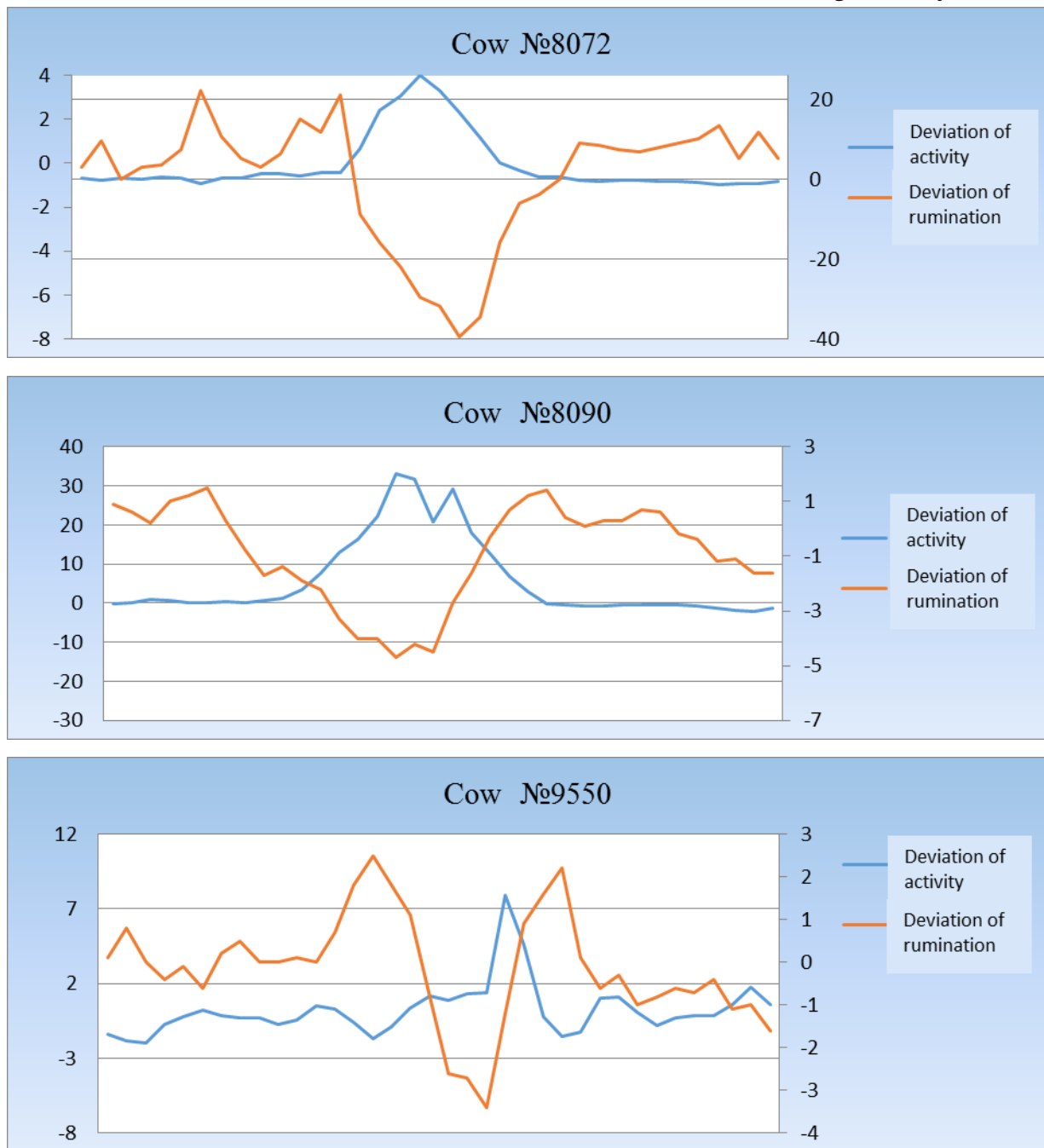


Figure 2. Deviation of indicators of chewing and movement activity of cows with a different course of sexual heat.

The peculiarity of the method for detecting of cows in heat is that the most effective conclusion about the state of sexual excitation of animal is made on the basis of the use of algorithms for calculating the deviation of dynamics of motor and chewing activity indicators (usually in the

context of 8-hour intervals), which allows to more accurately visualize the presence of regularities in comparison with the study of measured values (Fig. 2).

Conclusions:

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1. Period of sexual excitation of cows is characterized by significant changes in chewing activity.
2. Rapid decrease of the level of chewing activity can be no less

probable indicator of heat than movement activity growth.

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показник життя жуйних тварин. Зміни в жувальній активності є найбільш раннім сигналом, який можна розглядати як попередження щодо потенційних проблем функціонального стану і здоров'я корів.

ЖУВАЛЬНА АКТИВНІСТЬ ЯК ПОКАЗНИК СТАТЕВОЇ ОХОТИ У КОРІВ Ю. Ю. Баняс

Анотація. Жуйні тварини, в тому числі велика рогата худоба, хапають їжу, ковтають її, майже не пережовуючи. Тому, це кращий

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Дослідження проводилося на коровах української чорно-рябої молочної породи, продуктивність яких досягла 6000-8000, а на кращих тварин - 9500-9700 кг молока з вмістом жиру – 3,6-3,8% і білка – 3,1-3,3%. Для дослідження було відібрано тільки здорові корови з індексом здоров'я (за програмою Мілкона) не менше 88.

Аналізуючи інтенсивність жувального процесу на тлі кривої активності у корів з типовим проявом статевої охоти, подовженої охоти і тихої охоти, можна зробити висновок, що період статевої охоти корів також характеризується значними змінами жувальної активності. У той же час характер змін жувальної активності може бути ще більш ефективним в якості інструменту виявлення охоти в порівнянні з руховою активністю, оскільки, як свідчить результат дослідження, «тихий» прояв не характерний для зниження жувальної активності.

Ключові слова: корови, жувальний процес, жувальна активність, статеві охоти

ЖЕВАТЕЛЬНАЯ АКТИВНОСТЬ КАК ПОКАЗАТЕЛЬ ПОЛОВОЙ ОХОТЫ У КОРОВ

Ю. Ю. Баняс

Анотація. Жвачные животные, в том числе крупный рогатый скот, хватают пищу, проглатывают ее, почти не пережевывая. Поэтому, это лучший показатель жизни жвачных животных. Изменения в жевательной активности являются самым ранним сигналом, который можно рассматривать как

предупреждение о потенциальных проблемах функционального состояния и здоровья коров.

Исследование проводилось на коровах украинской черно-рябой молочной породы, продуктивность которых достигла 6000-8000, а на лучших животных - 9500-9700 кг молока с содержанием жира - 3,6-3,8% и белка. - 3,1-3,3%. Для исследования были отобраны только здоровые коровы с индексом здоровья (по программе Милкона) не менее 88.

Анализируя интенсивность жевательного процесса на фоне кривой активности у коров с типичным проявлением охоты, удлиненной охотой и тихой охотой, можно сделать вывод, что период половой охоты коров также характеризуется значительными изменениями жевательной активности. В то же время характер изменений жевательной активности может быть еще более эффективным в качестве инструмента обнаружения охоты по сравнению с двигательной активностью, поскольку, как свидетельствует результат исследования, «тихое» проявление не характерно для снижения жевательной активности.

Ключевые слова: коровы, жевательный процесс, жевательная активность, половая охота