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ИЗУЧЕНИЕ ТЕХНОЛОГИЧЕСКИХ СВОЙСТВ БАКТЕРИЙ LACTOBACILLUS CASEI ВЫДЕЛЕННЫХ ИЗ ШУБАТА

Аннотация

Статья посвящена изучению технологических свойств бактерии *Lactobacillus casei* выделенного шубата из Южно-Казахстанской и Кызылординской областей. В результате исследований определены технические условия для производства киломолочного напитка с использованием изучаемой бактерии.

Ключевые слова: *Lactobacillus casei*, шубат, лиофилизация.

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STUDY OF TECHNOLOGICAL PROPERTIES OF BACTERIA LACTOBACILLUS CASEI ISOLATED FROM SHUBAT

Annotation

Article is dedicated to the study of the technological properties of *Lactobacillus casei* bacteria isolated shubat of South Kazakhstan and Kyzylorda regions. As a result of investigations the manufacturing specifications for sourmilk product using the studied bacteria.

Keywords: *Lactobacillus casei*, shubat, lyophilization.

UDC 636.082:636.2

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ETHOLOGICAL FEATURES AND REPRODUCTIVE QUALITIES OF THE KAZAKH WHITE-HEADED BREED IN THE CONDITIONS OF EAST KAZAKHSTAN

Annotation

Results of researches of ethological features and reproductive qualities of the Kazakh white-headed breed in the conditions of east Kazakhstan are given in the article. Polled bull-calves surpass horned peers in live weight at the 8th monthly age by 11kg (5, 7%), 15 months by 13.9 kg (3, 8%). Horned bull-calves move for 1,2% more of the spent time, 54,4% lie, that is 3,4% less, than polled ones (57,8%). Rumination and sleep were longer at the polled for 1, 9 and 1,2%. At intensive cultivation of heifers it is expedient to match at the age of 14-16 months on reaching live weight of 340-360 kg or for two months earlier.

Keywords: hummel; cattle; Kazakh white-headed; breed.

Introduction

In modern conditions of specialization and concentration of livestock production the agricultural ethology is faced by big tasks. Without knowledge of behavior of animals it is impossible to look after them properly and to increase production of livestock products, to raise labor productivity [1].

Considering that many elements of behavior are inherited, it is possible to create by selection quiet and easy-to-control animals with high dairy and meat productivity. The behavior of animals is dismembered on a number of behavioral reflexes. Each such reflex is caused by a certain internal need of an animal and the activities arising on its basis are always directed to satisfaction of this requirement [2]. Together such reflexes constitute complete behavioral activities of an animal.

At loose housing loose in the open keeping of animals the increasing popularity wins the polled cattle [3]. It is safer to take care of them, hornless animals less injure each other and for this reason in herds of the polled animals there are less abortions, injuries of an udder and other parts of a body, and defects of a skin. Density of their placement is 25-30% higher, than horned.

At the same time polled is not always end in itself and creation of herds of hornless animals is justified only on condition of preservation of the high meat, lactic efficiency, a fertility, resistance peculiar to the Kazakh white-headed breed.

Therefore, during creation of massifs of the polled cattle studying of the economic and useful and biological features of the Kazakh white-headed breed is necessary.

Materials and methods

Researches are conducted in "Bagration-2" collective farm in Ulanskiy district, the East Kazakhstan region, in July, 2016. In economy there are 1160 heads of the Kazakh white-headed cattle, including 458 cows and 10 manufacturing bulls. There is 38,2% of the polled animals out of the common livestock. Final calf accretion to 100 cows and 90% of heifers.

Results of the study

Despite identical conditions of feeding and maintenance of polled and horned young growth during all age periods between group distinctions on the live weight (tab. 1) are established. The analysis of the obtained data demonstrates that the largest live weight during all age periods characterized by polled bull-calves and heifers. Bull-calves surpassed in this index of horned peers at 8 months on 11 kg (5,7%), at 15 months - on 13,9 kg (3,8%). Both at 8-, and at 15-month age polled bull-calves were above the standard of breed for 5,3-17,2%, polled respectively for 1,5-11,4%.

Analogical regularity is noted also at heifers though the difference is less essential and statistically is doubtful. Overseeing by body height of heifers showed that hornless heifers in all cases on 4,3 kg (8 months), 9,8 (15 months) and 5,6 kg (18 months) surpassed the horned ones. Live weight on these age periods at the polled heifers equaled $204,3 \pm 3,3$, $300,8 \pm 5,2$ and $356,6 \pm 4,3$ kg that above the standard of breed for 7,6% (8 months), 1,9% (18 months) and below the standard of breed at 15 months for 1,3%.

Live weight of horned heifers at 8 months $200,0 \pm 3,1$ kg, at 15 months - $291,0 \pm 5,3$ kg, in 18 months - $350,8 \pm 4,6$ kg.

Table 1 - Live mass of bull-calves and heifers of the Kazakh white-headed breed of different types, kg

Indicator	horned			polled			± horned to polled, %
	X±m _x	δ	C _v	X±m _x	δ	C _v	
bull-calves							
Live mass: 8 months	211,5± 4,7	23,7	11,2	222,5 ± 4,8	24,6	11,0	-5,2
15 months	370,7± 7,6	39,1	11,6	384,6 ± 8,6	42,7	11,2	-3,8
heifers							
Live mass: 8 months	200,0± 3,1	20,7	10,2	204,3 ±3,3	20,4	9,1	-2,2
15 months	291,0± 5,3	34,6	11,8	300,8 ±5,2	32,8	10,8	-3,4
18 months	350,8± 4,6	28,6	8,1	356,6 ± 4,3	26,7	7,6	-1,6

Thus, at 8-month age the live mass of horned animals are higher than the standard of breed for 5,3%, at 15-month age below the standard of breed for 4,6% and at 18-month age above the standard of breed for 0,3%.

In the conditions of the in the open keeping on a pasture daily time of animals is distributed as follows. At 6-year-old horned cows of the Kazakh white-headed breed wakefulness makes 55,5%, generally from 6 to 18 o'clock, at the polled ones - 54,4% at the same time, the common rhythm of behavior is taken as a percentage (night of 0-6 hours, day 6-12 and 12-18 and evening 18-24 hours). Horned animals 3,2% move more, however rumination and sleep at them for 1,5 and 2,2% are less from time spent in days. Rest continues at horned ones 44,5 and at polled -45,6% within a day. Feed intake respectively 20,8 and 22,5% that is polled cows on feed intake and water spend more for 1,7% of time.

Water intake 2-3 times a day, time of intake is 2,5-6 minutes, however horned cows for water intake spend 0,5-1 minutes more. Polled cow calves at 8-month age have a rest more (60,5%), than horned (56,8%), rumination and sleep at them 1,3 and 1,2% longer out of the spent time, and for water and feed intake they spent time less than 1,5 and 1%. Horned cow calves approached an udder 9 times within a day, suction time 1,2-2,5 minutes, polled respectively - 8 times, 1,5-7,5 minutes, 2 times 1,5-1,8 minutes.

Horned bull-calves moved more for 1,2% out of the spent time, 54,4% laid, that is is 3,4% less, than polled (57,8%). Rumination and sleep were longer at the polled ones for 1,9 and 1,2%.

Horned bull-calves approached an udder 10 times, time of a suction was 1,5-9 minutes, water intake was 2 times a day within 1,5-3 minutes. Polled bull-calves approached an udder 9-10 times, time of a suction was 2-7 minutes, water intake was 2 times (1,5-3 minutes).

At 15-month age horned bull-calves spent for water and a feed intake $260 \pm 1,2$ minutes (18,1%), for $638,7 \pm 5,0$ minutes (44,3%) laid, stood for $273,3 \pm 3,5$ minutes (13,6%) and for $267,7 \pm 1,2$ minutes (18,6%) moved, including the ruminant period at them proceeded $532,7 \pm 3,2$ minutes (37,0%) and sleep - $151,3 \pm 1,8$ minutes (10,5%). Polled ones respectively $263,0 \pm 2,5$ (18,3%), $653,7 \pm 0,9$ (45,4%), $284,3 \pm 3,7$ (19,7%), $239,0 \pm 4,6$ (16,6%), $552,2 \pm 4,9$ (38,4%) and $172,3 \pm 7,7$ (12%). From this it follows that horned bull-calves at 15-month age moved for 2% more of time, conceding on all other indexes polled for 0,2-1,5% of the spent time.

Horned bull-calves drank water 3 times within 2-5,7 minutes, polled ones respectively 3 and 1,5-5,5.

Horned heifers at 18-month age for $796,7 \pm 3,8$ minutes (55,3%) were awake, and for $643,3 \pm 4,6$ minutes (44,7%) had a rest.

They drank water 3 times a day within 2-7 minutes while polled ones within 1,5-6,5 minutes.

Polled heifers within a day were awake for $669,3 \pm 51,1$ minutes (46,5%), had a rest $770,7 \pm 3,0$ (53,5%), that is on rest at them left for 8,8% of time more. At the polled heifers duration of rumination was 6,0 less, and on sleep they spent more for 3,0% of time. During all age periods horned animals were more active, they moved more (1,0-3,5%), spent for feed and water intake spent more time, however duration of the ruminant period generally spent less time, except 18-month-old heifers (6,0%).

Effectiveness of maintaining meat cattle breeding is in many respects caused by reproductive ability of a parent livestock.

Studying of features of realization of reproductive function of polled and horned cows revealed particular between group distinctions (tab. 2).

Table 2 – Fertility of cows

Group of animals	n	impregnated after insemination, %	Calved, heads	Deadborn, heads	Abortions, heads.	received	
						calfs	Fertility, %
horned	80	100	74	2	3	69	92,5
polled	80	100	78	2	1	75	97,5

At the same time, though cows of both groups had an absolute rate of fertilization, at the polled animals in the first hunting were slightly more impregnated animals, than on group of horned, for 3,7%. In the period of pregnancy any deviations from physiological norm were not revealed. Calving flowed past without obstetric aid. In group of polled animals 1 abortion and 2 dead born calves were recorded, at horned respectively 3 and 2. All cows differed in good manifestation of a maternal instinct. A fertility on group of horned cows was made by 92,5%, polled - 97,5, that is was received on 4 calves more. Duration of service period was made by 51,9-53,7 days.

All cows were fruitfully inseminated. Therefore, horned animals on reproductive qualities conceded polled ones a little.

Reproductive ability of animals

The way of keeping cows in a delivery room. As it had already been mentioned earlier, the main production in meat cattle breeding is the young growth increase therefore all other technological questions have to be subordinated to receiving calves and their exact cultivation [4,5,6]. Still among scientists and production workers questions of at what age and with what live weight it is necessary to couple heifers, where and how to deliver, for what purposes to use the issue received from heifers, etc. [7,8,9] are debatable. On reproductive functions of animals a set of factors, in particular, feeding level, age and the state of health, a season of year, a condition of keeping affect, including during calving period, affect. These questions are especially urgent for a zone of east Kazakhstan.

When carrying out heifers' calving of 32 heads from them calved in individual machines of 2,5 x 3,0 m in size at loose housing contents. They were placed in maternity cages at strong indications of a fast calving (in 1-5 days) where they were with a calf within 7-10 days. Then animals were transferred to another group. In machines 15 bull-calves and 17 heifers were born. 48 heads of heifers were spread, being on a leash, from them 25 bull-calves and 23 heifers were born. In total, there were 40 bull-calves and 40 heifers. From this number 30 heads were observed on duration of delivery and an issue licking. Childbirth in machines continued on average 2 hours 52 min., and on a leash - 2 h. 43 min. Firstcalf heifers continuously licked the calves in machines for 22 minutes, and on a leash - 17,6 min., or it is 20% less. For calves in type-setting groups express shelters in which they received necessary feeding, salt, water were equipped, in the same place they had a rest.

From the beginning of cows' calving indoors microclimate was observed. In definite winter days and the beginning of March air temperature indoors fell to -18-20,5 °C. In the III decade of March and the first half of April, i.e. after the end of cows' calving, by means of a week thermograph and a hygrograph temperature, air humidity of indoors, where there were experimental cows with calves were measured. In March average daily temperature fluctuated from -6 to -10,5 °C, in April - from -1,5 to -5,5 °C, and the relative humidity of air those months made 70,0-79,2%. Therefore, temperature moisture conditions for animals were rather comfortable.

In more detail these questions were studied on the cows of the 2nd calving spread equally in machines and on a leash. It is revealed that childbirth in machines on all groups of cows continued on average 2 hours 59 minutes, and on a leash - 3 hours 23 minutes, or for 24% longer. More time was spent by cows in machines and for the continuous licking of calves for 25,4%.

At the end of the sucking period, cows were investigated on pregnancy intrarectally. It was found out that in the I group infertility was made by 10%, in the II and the IV - 20% and in the III - 25%. At the cows calved in machines, the number of dries was on average 7,1% less, than at hotel on a leash, including in the I group - on 7,7; II - 6,0; III - 3,6 and IV - 10%. This results from the fact that at loose housing contents in a maternity stall it was convenient for a cow to accept the necessary pose at childbirth, it was not limited in offspring licking time that promoted the accelerated separation of a heam and thereof - involutions the birth-interlabial paths that in turn positively affected more fissile manifestation of desire and efficient fertilization.

Conclusions

Therefore, it is possible to draw a conclusion that at polled and horned young growth during all age periods between group distinctions on live weight are established, and reproductive qualities and ethological features of animals of the Kazakh white-headed cattle in the conditions of "Bagration - 2" collective farm of Ulanskiy district, the East Kazakhstan region meet physiological standards.

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ШЫҒЫС ҚАЗАҚСТАНДАҒЫ ҚАЗАҚТЫҢ АҚБАС ТҰҚЫМЫНЫҢ ЭТИОЛОГИЯЛЫҚ ЖӘНЕ РЕПРОДУКТИВТІ ҚАСИЕТТЕРІ

Аннотация

Бұл мақалада Шығыс Қазақстандағы қазақтың ақбас тұқымының этиологиялық және репродуктивті зерттеу нәтижелері көрсетілген. Тірі салмақ арасында мүйізсіз бұқалар мүйізді құрдастарынан 8 айлығында 11кг (5,7%), 15 айлығында 13,9кг (3,8%) асып түсті. Мүйізді бұқалар көп қозғалады 1,2% арналған уақыттан, 54,4% жатат, мүйізсіздерден 3,4% (57,8%) кем көрсеткішті көрсетеді. Мүйізсіздердің күйіс қайтаруы мен ұйқы уақыты өте ұзақ 1,9 және 1,2%. Интенсивті технологиямен өсіргенде қашар сиырларды 14-16 айларында тірі салмағы 340-360кг жинағанда немесе екі айға ертерек қашыру керек.

Кілт сөздер: қазақтың ақбас тұқымы; мүйізді; мүйізсіз.

Нурмуханбет Е.О., Нургазы К.Ш.

ЭТОЛОГИЧЕСКИЕ ОСОБЕННОСТИ И ВОСПРОИЗВОДИТЕЛЬНЫЕ КАЧЕСТВА КАЗАХСКОЙ БЕЛОГОЛОВОЙ ПОРОДЫ В УСЛОВИЯХ ВОСТОЧНОГО КАЗАХСТАНА

Аннотация

В статье приводятся результаты исследований этологических особенностей и воспроизводительные качества казахской белоголовой породы в условиях восточного Казахстана. По живой массе комолые бычки превосходят рогатых сверстников в 8 месячном возрасте на 11кг (5,7%), 15 месяцев на 13.9 кг (3,8%). Рогатые бычки больше двигаются на 1,2% от затраченного времени, лежат 54,4%, то есть на 3,4% меньше, чем комолые (57,8%). Жвачка и сон были более продолжительны у комолых на 1,9 и 1,2%. При интенсивном выращивании телок целесообразно случать в возрасте 14-16 месяцев по достижении живой массы 340-360 кг или на два месяца раньше.

Ключевые слова: комолый; рогатый скот; казахская белоголовая; порода.

УДК 616.921.5:351.774.7:615.076.9

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СРАВНИТЕЛЬНЫЙ АНАЛИЗ ПО ОЦЕНКЕ ПИРОГЕННОСТИ ПОЛУФАБРИКАТА ПЕРВОЙ ОТЕЧЕСТВЕННОЙ ИНАКТИВИРОВАННОЙ ВАКЦИНЫ «KAZFLUVAC®» ПРОТИВ ГРИППА А/Н5N1

Аннотация

В работе представлены результаты по определению пирогенности и бактериальных эндотоксинов в полуфабрикате экспериментальных серий первой отечественной вакцины «Kazfluvac®» для здравоохранения против гриппа А/Н5N1 из штамма А/АстанаRG/6:2/2009. Испытание на пирогены на кроликах состояло в измерении повышения температуры тела, вызываемого у кроликов внутривенным введением