ADAPTATION OF COWS OF SCHWYZ BREED IN ENGINEERING AND BIOLOGICAL SYSTEM "MAN – MACHINE – ANIMAL"

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The main problem of the modern dairy cattle – is raising the level of milk productivity due to increased efficiency of the use of feed nutrient [1]. At the same time, is a topical issue the problem of adaptation of imported livestock to new ecological and climatic conditions, intensive technology of exploitation and ensuring feed [2; 3]. It is necessary to provide animals with high quality feed. The organization of normalized feeding is determined, first of all, by the need for dry matter. The ration is considered to be balanced if the need for organic nutrients (carbohydrates, proteins, fats), macro- and micronutrients, vitamins is provided with a set of feeds, and if necessary, enriched with additives [4; 5].

The research was carried out at the industrial complex for the production of milk on cows of Schwyz breed (Big brown Swiss), which were formed in three groups: group I – animals imported from Austria in the spring; group II – animals imported from Austria in autumn; group III – animals imported from the Sumy region of Ukraine. Experimental animals were on 2-3 months of lactation. Milking was carried out on a milking installation of the type "Parallel" three times a day with an 8-hour interval. Suspended part of the milking machine DeLaval MC 53 a weight of 2.1 kg with glasses of technology Top-Flow, provided a stable vacuum. The 360 ml collector and the pulsator DeLaval EP 100 provided the alternate milking the left and the right half of the udder of cows.

The daily ration of feeding lactating animals was quite structured. In the structure of the ration on rough feeds accounted for 12.0 %. Rough feeds were represented by two types of straw and hay of Sudanese grass. At the same time in the fodder mixture was introduced a very nutritious haylage from bean grass alfalfa and corn silage. Daily was giving the hay of 20.19 kg, the silage weight was 6.52 kg, which was less than 3.1 times. The share of concentrated feed in the ration of lactating cows accounted for 43.8 % [6]. For protein supplementation in the ration, the soybean meal was introduced at 1.59 kg.

The total weight of the full-fledged feed mixture was 42.2 kg for each animal. In the ration, the dry substance did not exceed 24.52 kg, which was 3.91 kg per 100 kg of live weight of cows. The dry substance of the ration for Schwyz cows was provided with raw fiber at the level of 22,9 %.

In the conducted studies, it was clearly observed that experimental groups of animals were characterized by an extended lactation period that ranged from 364.1 to 372.4 days. Big brown Swiss cows of the III (control) group, for which the weather-

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climatic conditions of the Ukrainian steppe were a place of ecological origin, showed a high level of productivity and produced 9023.0 kg of milk for the entire lactation period. At the same time, under identical conditions of operation, Schwyz breed cows of the second group had a significantly higher milk-yield, which was on average 11094.0 kg, which was more by 18.7 % (P<0.001). The highest level of productivity was observed of the cows of the I group, which received 12126.8 kg of milk during the entire lactation period, exceeding the index of analogues of the II group of 8.5% (P<0.001), while the value of the III (control) group was 25.6 % (P<0.001).

It is known that the index of insemination can act as a catalyst for adaptive plasticity of the organism of cows. In these studies, the animals of the third (control) group were characterized by the lowest indicator, which was an average of 2.83 units. In the same conditions of exploitation, significantly higher index of insemination index were observed of Swiss breed cows of II group, in which it was higher than the analogues of the III (control) group by 13.98 % (P<0.001) and was about 3.29 units. The highest indicator of the number of inseminating per one fertilization was characterized by the experimental livestock of I group, in which the index of insemination was 3.80 units. This value was greater than that of analogues of group II by 13.42 % (P<0.001), and control cows of II group – by 25.53 % (P<0.001).

It was quite natural that the reproductive ability coefficient of lactating cows was directly dependent on the index of insemination. It is no coincidence that, the animals of the third (control) group, in which he amounted to an average of 0.93, were the best reproductive ability. Significantly lower reproductive ability was observed in experimental animals of I and II groups, an average of 0.87 and 0.88, respectively.

In accordance with the technological requirements for milking of Swiss breed cows on the milking installation of the "Parallel" type, the sanitary-preparatory operations are reduced to the immersion of each nipple udder in a glass with washing solution (t=35-40° C), wiping it with a dry towel, dispensing the first drops of milk on the floor and connecting milking cups. Unconditionally reflex stimulation of the receptor apparatus of udder before milking is quite short-term, since it does not exceed 30.9 seconds. In addition, all unconditioned stimuli are performed discretely, therefore, are significantly expanded in time. That is why, on conditional reflex stimulation of the lactation center of cows accounts for 88 % of the time, and on unconditionally reflex stimulation of the receptor apparatus of the udder tissues – only 12 %.

It was established that milking of 20 cows at the milking machine type "Parallel" spent on average 11 minutes and 9 seconds. That is, the service of one cow requires 33.5 seconds, and 40 cows – 29.9 seconds.

Researches have shown that after short-term unconditioned-reflex stimuli of the receptor apparatus of the udder, the experimental cows showed high readiness for milking. Experimental groups of cows were characterized by a high and almost identical one milk-yield, which did not drop less than 10.9 kg, although not exceeding 11.8 kg. To collect of this amount of milk by the milking machine was spent on average from 4.6 to 4.8 minutes. Automatic milking the last milliliters of milk started

with a significant reduction in milk flow and lasted an average of 15-17 seconds, after which the milking machine automatically removed from the udder.

Experimental groups of Schwyz breed cows differed in terms of the intensity excretion milk from the udder by the milking machine. Thus, the average intensity of milk excretion in cows of the (control) group of Sumy breeding was 2.4 kg/min. In cows of the third group of Austrian breeding imported in the fall, the average intensity of milk excretion was almost the same, and it was 2.5 kg/min. The relatively high average intensity of milk excretion was characterized by the animals of the second group of the Austrian selection imported in spring in which this index was 2.8 kg/min, which was higher than the values of the analogues of the III group by 10.7 %, with the probability of a difference of P<0.05, and the index of the I (control) group – by 14.3 % with the probability P<0.01.

In this case, all experimental animals showed high rates of the highest indicator of milk excretion. Thus, its maximum intensity in Swiss breed cattle of the (control) group of Sumy breeding was 3.7 kg/min, while in animals of the III group this figure was greater by only 7.5 % and did not exceed 4.0 kg/min. Good indicator of the maximum intensity of milk excretion was characterized by cows of the second group, in which this index was on average 4.1 kg/min, which was close to the value of Schwyz cattle of the III group, but on 9.8 % (P<0.05) exceeded indicator of cows of Sumy selection of I (control) group.

In the conducted researches, there was a high and direct functional dependence between the magnitude of the one milk-yield and the index of maximum intensity of milk excretion, which is at the level $r= +0.63-\pm0.029$. In this case, the regression coefficient is 0.21 units.

Thus, Schwyz cows of Austrian breeding are quite easily adapted to the new technological and ecological conditions of the steppe zone of Ukraine, and therefore have a high one milk-yield of 11.7-11.8 kg, and an active form of realization of the reflex of milk yield.

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