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THE INFLUENCE OF STRESS RESISTANT TYPE OF BULLS ON THE ECONOMIC EFFICIENCY OF PRODUCTIVE USE OF THEIR DAUGHTERS**PRYSHEDKO V.M.** *master of Agriculture, associate professor**Dnipropetrovs'k State Agrarian and Economics University, Dnipropetrovs'k*
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Influence of type of stress resistance servicing bull is investigational on economic efficiency of exploitation of their daughters. It is set that daughters of high type of stress resistance bulls prevailed coevals which are daughters of low stress-resistant type producer on the size of milkness on 450 kg (14,0 %), to percent of fat in milk on 0,07 % and an amount of fat is in milk on 18,9 kg (16,2 %) at $P > 0,95 \dots 0,999$. Daughters of high type of stress resistance servicing bull, from which it is anymore got milk of base adiposeness on 16,2 % to a total value of a 126871,2 hrn., had economic efficiency of the productive use higher, and calculating on a 1 head - 1893,6 hrn.s

Type of stress resistance, servicing bull, daughters of servicing bull, servicing bull, productive use, economic efficiency

Raising of problem. The increase in production of milk and dairy products and the increase of its competitiveness – is a priority in addressing the problem of providing the population with quality food. The economic efficiency of dairy cattle is possible thanks to the productive qualities of animals improvement [1].

The improvement of cattle In Ukraine is due to the usage of servicing bull, mainly Holstein breed. However, this selection is mainly in the direction of increasing milkness and fat content of cows' milk [7,10]. In terms of industrial milk production it becomes important the technological properties of cattle, in particular stress, because only resistant animals to intense process load is able to fully realize the genetic potential of productivity [5,8]. Therefore, relevant research on the impact of the type of stress resistance of bulls on productivity and economic efficiency of their daughters.

Analysis of the last researches. Today in considerable part of dairies of country the productivity of milch herd considerably below genetic potential of animals. Reason of such position is disparity between biological nature, physiology possibilities of organism and external environment, what results in tension of the systems of organism and origins of stresses, which negatively influence on a health and the productivity of animals [6,9,11]. The decision of problem is possible by creation of high type of stress resistance breeds and types of milch cattle, through including to the

selection of sign of stress resistance.

The increase of adaptive properties of animals becomes complicated that which exists reverse connection between firmness of organism to the action of unfavorable factors and high yield, as her realization is large tension on the physiology systems of organism [2]. Therefore than more productive animals, that they are more whimsical to the terms maintenances and exploitations.

Co-operation of organism of animals with an environment is carried out through a cns which together with the hormones of incretion forms adaptive reactions and supports an internal equilibrium. Ability of animals to adapt oneself to the change of terms of external or internal environment without the decline of the productivity got the name of stress resistance [6].

As in the milch cattle a selection is carried out through the use of servicing bull it is important are researches of stress resistance bulls, and also to influence of this sign on the milch productivity and economic efficiency of the use of their daughters.

The purpose of these researches was to set influence of type of stress resistance servicing bulls on the milk productivity and economic efficiency of productive uses of their daughters.

Methods of researches. The research was conducted on the bulls of Holstein breed (Akord 4761, Venets 5735, Oval 5795) and their daughters (n=105). For identifying the type of stress

resistance of bulls we have used a methodology of A. N. Chernenko [4], in which the bulls were selected by the dynamics in the blood, hormones and enzymes in stress and after and compared the figures obtained with the reference standard.

The Stress factor for the experienced animals was a plan taking of blood which is one of ordinary technological measures. As a stress loading come forward complex of factors which accompany taking of blood: simultaneous rigidization of animals fixing for a head, for a nasal ring with the overclamping of vein; change of the mode of feeding, in connection with taking of blood, presence of veterinary doctor and extraneous people (an auxiliary personnel is for taking of blood) and process of taking of blood which carries out influence on animals through a visual way and smell of blood and people, inflicting technological stress to the animals.

In obedience to methods provided identical duration and intensity of action of stress factor on every animal. As stress at hormonal level starts acting already through 10 min from the beginning of influence of loading, blood was taken away simultaneously for all animals during 10 min. Taking of blood was repeated through 1 hour, for the sake of establishment of dynamics of the investigated indexes of blood and clinical indexes.

In cows, the type of stress resistance was determined by the method of E. P. Kokorina [5], which is based on determining the level of inhibition of lactation reflex that occurs because of the stressful factor. Stress loads for milking cows by the experimenter, instead of attached animals' operator in machine milking.

All other elements of milking (time, duration, sequence of preparatory operations and other) were without changes. Pre-milking preparation was standard which provided valuable reflex of leadingout of milk. Considered putting on of the last glass the milking beginning. Completion of milking, in obedience to methods, a decline of intensity of leadingout of milk was to 0,2 kg/min

The dynamics of leadingout of milk was investigated for animals at the estimation of stress resistance during five milking. At processing of data went out from that the pavlovian reflex braking results in the decline of yield for the first minute of milking which notably does not affect size of basic parameters of leadingout of milk and will

milk. Is unconditioned reflex of braking of reflex of to the return of milk appears in the characteristic falling back of curve. Surely and the pavlovian reflex braking in a sum gives sharp curvature of dynamics of leadingout of milk.

Every milking was estimated on a presence and intensity of braking of reflex of return of milk. Took into account and expressed in percents from 100 %: a 1) common amount of milking with the presence of braking; 2) amounts of milking are with the presence of the conditionally-reflex braking (hopes for the first min milking less than 2,0 kg); 3) amounts of milking are with the presence of the is unconditioned reflex braking; 4) amounts of milking are with the presence of sharp curvature of dynamics of of leadingout of milk. Braking of plenitude of milking dry determined by comparison each of five milked with a base-line yield - conducted by a permanent milkmaid.

The amount of milking took into account with the decline of yield in comparing to control more, as on 20,0 %.

For expression of stress resistance expected the coefficient of intensity of braking of reflex of return of milk. He shows by itself the sum of percents of experiments with the is unconditioned reflex braking, sharp curvature of curves of dynamics of of leadingout of milk and braking of plenitude of milking dry, divided into 3. As pavlovian reflex violations of reflex of return of milk notably do not influence on the basic parameters of of leadingout of milk hopes, then at the calculation of this coefficient, they were not taken into account.

Milk production of cows for 305 days of lactation was studied with control milking.

Economic efficiency of using cows daughters of bulls with different types of stress resistance was determined by the method [3] by the formula:

$$E = \Pi \times \frac{C \times \Pi}{100} \times J \times K$$

where: E – is the cost of additional products, UAH.; Π – the purchase price per unit of output, relative to the existing prices in Ukraine, UAH. (the cost of 1 kg of milk at the time of the study was 3 UAH. 85 kop); C – the average animals' productivity; Π – average increase of primary production, expressed as a percentage per head when

using a new or improved achievement compared to animals of basic use; Π – is a constant reduction ratio of the associated additional costs on profitable products to 0,75; K – number of animals.

Biometric processing data, obtained during the research process, was performed by the method of variation statistics with the help of PC using Microsoft Excel.

Results of researches. As the result of the research, we found that brutes Akord 4761 and Vincts 5735 refer to the high stress-resistant type and Oval 5795 – to low stress-resistant type. Among the daughters of high stress-resistant type of bulls were 48 heads with a high type of stress resistance and 19 heads of low stress-resistant type, and among the daughters of low stress-resistant type of bull, respectively: 7 and 31 heads.

The analysis of the productive qualities of cows-daughters of examined bulls (table. 1) showed that daughters of high type of stress resistance differed with better indicators of milk production compared with daughters of low stress-resistant type. We have found a significant difference in the amount of milk yield, fat content in milk and the amount of milk fat, which were respectively: 450 kg (14,0 %) at $P>0,999$; 0,07 % at $P>0,95$ and 18,9 kg (16,2 %) when $P>0,999$.

The analysis of the productive qualities of cows of different types of stress-resistance, which come from high type of stress resistant servicing bulls showed that cows with high type of stress resistance prevailed cows with low type of stress resistance according to milk yield for 305 days on 321 kg (10,2 %) at $P>0,95$, and fat content in milk – 0,04 % and the amount of milk fat – 12,8 kg (10,9 %) if $P>0,95$. The level of milk production

of daughters of low type of stress resistance bull, in the framework of the research groups was not significantly different. Suggesting less influence of low type of stress resistant bull on the phenotypic variability of these traits in their daughters.

We have examined the influence of stress resistant bulls on differences in the productivity of their daughters of the same stress resistance. For this purpose, we have analyzed the performance of high type of stress resistant first-born – daughters of high type of stress resistant bulls, in comparison with high type of stress resistant first-born heritors of low type of stress resistant bull. We have determined that the daughters of high type of stress resistant bulls dominate their descendants of low type of stress resistant bulls according to milk yield for 305 days at 610 kg (19,4%) at $P>0,95$, and fat content in milk – 0,04% at $P<0,95$ and the amount of milk fat – 24,1 kg (20,7 %) when $P>0,99$.

We have also compared the performance of low type of stress resistant firstborns, which are daughters of high type of stress resistant bulls with low type of stress resistant firstborns – the descendants of low type of stress resistant servicing bulls. It was found that the daughter of high type of stress resistant bulls, though not significantly, but significantly higher than their peers – the descendants of low type of stress resistant bulls according to milk yield for 305 days of 205 kg (6,3 %), fat content in milk – 0,05 % and the amount of milk fat – 24,1 kg (8,1 %).

Economic efficiency of the productive use of cows daughters of bulls of different types of stress resistance are given in table. 2.

Thus, we have established (table. 2) that the

Table 1. Indicators of milk productivity of cows-daughters of bulls with different types of stress resistance, $\bar{X} \pm S_{\bar{x}}$

Index	Cows-daughters of high type of stress resistance of servicing bulls, n=67	Cows-daughters of low type of stress resistance of servicing bulls, n=38
Milk yield for 305 days of lactation, kg	3670±78,6***	3220±89,7
The fat content in milk, %	3,75±0,018*	3,68±0,027
Milk fat, kg	137,65±2,659***	118,50±2,852

Note: * – $P>0,95$; *** – $P>0,999$

Table 2. Economic efficiency of cows-daughters of bulls with different types of stress resistance

Index	Cow-daughters of high type of stress resistance bulls, n=67	Cow-daughters of low type of stress resistance bulls, n=38
Milk yield of the underlying fat, kg	4048	3485
An increase of main products, %	16,2	-
The cost of additional products per 1 head, UAH	1893,6	-

daughters of high type of stress resistant bulls have a higher economic efficiency according to operational index. They give more milk of basic fat 563 kg. As the result the gain of the main products was 16,2 %, and the cost of additional products amounted to 1893,6 UAH. for 1 cow.

Conclusions. It was proved the influence of the type of stress resistance of bulls for milk production and economic efficiency of their daughters. Daughters of a high type of stress resistant bulls

surpassed peers – daughters of low type of stress resistant servicing bulls according to the volume of milk yield for 305 days of lactation 450 kg (14,0 %), fat content in milk by 0,07 % and the amount of milk fat 18,9 kg (16,2%) when $R > 0,95 \dots 0,999$. Economic efficiency of the productive use was higher among the daughters of high type of stress resistant servicing bulls, from which were received more milk basic fat 16,2% of the total cost 126871,2 UAH., and based on 1 head – 1893,6 UAH.

REFERENCES

1. Аграрний сектор економіки України (стан і перспективи розвитку) / [Присяжнюк М.В., Зубець М.В., Саблук П.Т. та ін.]; за ред. М.В. Присяжнюка, М.В. Зубця, П.Т. Саблука, В.Я. Месель-Веселяка, М.М. Федорова. – К.ННЦ ІАЕ, 2011. – 1008 с.
2. Литягина Е. Н. Связь стрессоустойчивости с молочной продуктивностью, типами высшей нервной деятельности и поведением у высокопродуктивных коров: дис. на соиск. науч. степени канд. биолог. наук: 03.00.13 / Литягина Елена Николаевна. – Тюмень, 2004. – 158 с.
3. Методика определения экономической эффективности использования в сельском хозяйстве результатов научно-исследовательских и исследовательско-конструкторских работ, новой техники, изобретений и рационализаторских предложений. – М.: ВНИИПИ, 1983. – 149 с.
4. Черненко О. М. Рекомендації з оцінки типу стресостійкості у ремонтних бугайців та бугаїв-плідників / Черненко О. М. – Дніпропетровськ, 2010. – 50 с.
5. Рекомендации по оценке стрессоустойчивости коров при машинном доении / [Кокорина Э. П., Туманова Э.Б., Филиппова Л.А., Задальский С. В.] – Л.: ВНИИРГЖ, 1978. – 37 с.
6. Стреси сільськогосподарських тварин і птиці / [Головач В. М., Снітинський В. В., Аксьонова Г. В. та ін.]. – К.: Урожай, 1990. – 144 с.
7. Pryce J. E. Fertility in the high-producing dairy cow / J.E. Pryce, M.D. Royal, P.C. Garnsworthy, I. L. Mao // Live-stock Production Science – 2004. – vol. 86. – № 1-3. – P. 125–135.
8. Roche J.R. Invited review: Body condition score and its association with dairy cow productivity, health, and welfare / J.R. Roche, N.C. Friggens, J.K. Kay [et al.] // J. Dairy Sci. – 2009, – Vol. 92, – №. 12.
9. Senft R. L. A Model of Thermal Acclimation in Cattle / R. L. Senft, L. R. Rittenhouse // J. Anim. Sci. – 1985. – 61. – P. 297–306.
10. Veerkamp R.F., Beerda B., and van der Lende T. Effects of genetic selection for milk yield

on energy balance, levels of hormones, and metabolites in lactating cattle, and possible links to reduced fertility / R.F. Veerkamp, B. Beerda, and van der T. Lende // – Livestock Production Science – 2003 – Vol. 83, – P. 257–275.

11. West J. W. Effects of heat-stress on production in dairy cattle / J. W. West // J. Dairy Sci. – 2003 – 86. – P. 2131–2144.

ВЛИЯНИЕ ТИПА СТРЕССОУСТОЙЧИВОСТИ БИКОВ-ПРОИЗВОДИТЕЛЕЙ НА ЭКОНОМИЧЕСКУЮ ЭФФЕКТИВНОСТЬ ПРОДУКТИВНОГО ИСПОЛЬЗОВАНИЯ ИХ ДОЧЕРЕЙ

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Исследовано влияние типа стрессоустойчивости быков-производителей на экономическую эффективность эксплуатации их дочерей. Установлено, что дочери высокострессоустойчивых быков преобладали сверстниц, которые являются дочерьми низкострессоустойчивого производителя по величине удоя на 450 кг (14,0 %), содержанию жира в молоке на 0,07 % и количеству молочного жира на 18,9 кг (16,2 %) при $P > 0,95 \dots 0,999$. Экономическая эффективность продуктивного использования выше была у дочерей высокострессоустойчивых производителей, от которых больше получено молока базисной жирности на 16,2 % общей стоимостью 126871,2 грн., а в расчете на 1 голову - 1893,6 грн.

Тип стрессоустойчивости, быки-производители, дочери быков-производителей, молочная продуктивность, продуктивное использование, экономическая эффективность

ВПЛИВ ТИПУ СТРЕСОСТІЙКОСТІ БУГАЇВ-ПЛІДНИКІВ НА ЕКОНОМІЧНУ ЕФЕКТИВНІСТЬ ПРОДУКТИВНОГО ВИКОРИСТАННЯ ЇХНІХ ДОЧОК

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Досліджено вплив типу стресостійкості бугаїв-плідників на економічну ефективність експлуатації їхніх дочок. Встановлено, що дочки високостресостійких бугаїв переважали ровесниць, що є дочками низькостресостійкого плідника за величиною надою на 450 кг (14,0 %), вмістом жиру в молоці на 0,07 % та кількістю молочного жиру на 18,9 кг (16,2 %) за $P > 0,95 \dots 0,999$. Економічна ефективність продуктивного використання вищою була в дочок високостресостійких плідників, від яких більше отримано молока базисної жирності на 16,2 % загальною вартістю 126871,2 грн., а з розрахунку на 1 голову – 1893,6 грн

Тип стресостійкості, бугаї-плідники, дочки бугаїв-плідників, молочна продуктивність, продуктивне використання, економічна ефективність
