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THE EFFECTIVENESS OF THE USE OF BREEDING SERVICING BULLS BASED ON THEIR ADAPTIVE CAPACITY**CHERNENKO O.M.** *PhD in agricultural sciences, associate professor**Dnipropetrovs'k State Agrarian and Economics University, Dnipropetrovs'k*
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Представлено результати племінного використання 16 бугаїв-плідників гошитинської породи залежно від їх адаптаційної здатності. Встановлено, що за перший рік племінного використання у бугаїв із нижчими адаптаційними якостями поєднується зменшення кількості еякулятів ($r = -0,276 \pm 0,231$), об'єму еякуляту (мл) ($r = -0,172 \pm 0,243$), загальної кількості одержаної сперми (мл) ($r = -0,346 \pm 0,220$), кількості спермодоз з усіх еякулятів ($r = -0,405 \pm 0,209$), концентрації спермій (млрд) ($r = -0,401 \pm 0,210$) та загальної кількості спермій в еякуляті ($r = -0,397 \pm 0,211$) за $P < 0,95$

Бугаї-плідники, адаптаційна здатність, гошитинська порода, якість сперми, співвідносна мінливість

During the last 15 years in European countries have been actively working to identify genetically-molecular mechanisms of the negative impact of stress on farm animals. Scientists have found that the most sensitive to stress is immune and reproductive systems of the organism and the advantage in dealing with stress is recommended to provide by feeding animals with antistress premix. However, the drugs only temporarily able to reduce the negative impact of stressors on the organism. Perspective is a selective way, when the offspring can inherit resistance to operational loads, which always take place in conditions of industrial technology [1-4]. However, it remains poorly examined the dependence of bulls sperm productiveness from their resistance to stress [1]. Therefore, the study of the bulls' performance is an important question that we have investigated in conjunction with their reproductive ability in terms of Dnipropetrovsk tribal enterprises according to index type of stress resistance, that we have developed [5] as for concentrations of cortisol, testosterone, creatine kinase, alanine and serum glutamate-oxaloacetate-transaminase before and after exercise on the animals body.

Purpose and methods of researches. Quantitative and qualitative indicators of sperm productiveness of servicing bulls for the first year of breeding usage.

Determine the adaptive capacity of servicing bulls we have developed stress index type (ITS_i) which is integrated in the concentration of corti-

sol, testosterone activity of creatine phosphokinase, alanine aminotransferase and aspartat aminotrasferase before and after prescribed method, the load on animals [5]:

$$ITS_i = \left(\left(\frac{K_2 - K_1}{K_1} \right) + \left(\frac{T_2 - T_1}{T_1} \right) + \left(\frac{ALT_2 - ALT_1}{ALT_1} \right) + \left(\frac{AST_2 - AST_1}{AST_1} \right) + \left(\frac{KK_2 - KK_1}{KK_1} \right) \right) \times 100$$

Distributing of animals resistance to stress was conducted by comparison by the sizes of ITS_i and ITS_{RN}. At determination of size ITS_{RN} undertake to attention minimum and maximally possible indexes of reviewer norm, specific and pedigree belonging and floor, and also age and living mass of animals is taken into account in which. Subject to the condition, when ITS_{RN} an animal is considered of high stress resistance type, and after ITS_i > ITS_{RN} - of low stress resistance type.

Results of researches. According to largest index of the type of stress (ITC) we have found 9 and 7 animals of high and low stress resistance type. For the first year breeding brutes of a high stress resistance type are characterized by a higher activity of sperm by 1,3 points, sperm concentration 0,1 bln/ml, the number of sperm in the ejaculate 0,8 bln, less rejection sperm 17,9 % ($P > 0,999$), a large number of sperm that are suitable for freezing 128 ml ($P > 0,99$), a large number

Table 1. Qualitative indicators of servicing bulls sperm performance for the first year of tribal usage

Bulls operationa qualities (type)	Index			
	The activity of sperm, point	Sperm concentra- tion bln/ml	The total number of sperm in the ejaculatee, bln	Spoiled sperm ml
High stress-resistant, n = 9	7,9 ± 0,15	1,0 ± 0,03	4,0 ± 0,28	41,5 ± 7,45
Low stress-resistant, n = 7	6,6 ± 0,41	0,9 ± 0,04	3,3 ± 0,22	64,0 ± 7,94
d ± m _d	1,3 ± 0,4**	0,1 ± 0,04*	0,8 ± 0,3*	-22,5 ± 10,9*
Percentage of low stress-resistant type	119,1	111,4	123,1	64,8
The type of bulls' stress resistance	Spoiled sperm, %	Sperm, suitable for freezing, ml	Received the amount of quali- tative doses of sperm 1 ejaculate	Fertilized ability of sperm, %
High stress-resistant, n = 9	13,3 ± 1,75	269,4 ± 28,69	94,8 ± 8,85	-
Low stress-resistant, n = 7	31,2 ± 3,64	141,4 ± 31,22	67,0 ± 8,20	-
d ± m _d	-17,9±4,0***	128,0±42,4**	27,8±12,1*	-
Percentage to low stress-resistant type	-	190,6	141,5	-

of high-quality doses of sperm from one ejaculate 27,8 doses ($P>0,95$) (table. 1).

We have determined that for the first year of tribal usage from high stress-resistant type of servicing bulls received a greater number of ejaculate on 20.3 pieces, and their volume was greater than 0.3 ml. As a whole, it was received more than 105.5 ml sperm ($P>0,95$) and the number of

doses of sperm on 3355,3 pieces from all the ejaculates (Table. 2).

For animals with low performance characteristic is the large amount of ETS. We have determined that with its growth in laboratory animals activity of spermatozoa has reduced ($r = 0,401\pm0,210$; $P>0,99$) (Fig. 1).

Table 2. Quantitative indicators of sperm productiveness of servicing bulls for the first year of breeding usage

Bulls operational qualities (type)	Index			
	the number of ejaculate	The volume of ejaculate, ml	retrieved sperm, ml	the number of sperm doses from all ejaculates
High stress-resistant, n = 9	78,6 ± 6,64	4,0 ± 0,22	310,9 ± 34,26	7363,3±971,41
Low stress-resistant, n = 7	58,3 ± 9,84	3,7 ± 0,33	205,4 ± 36,72	4008,0±1002,21
d ± m _d	20,3 ± 11,9	0,3 ± 0,4	105,5 ± 50,2*	3355,3±1395,7*
Percentage to low stress-resistant type	134,8	108,5	151,4	183,7

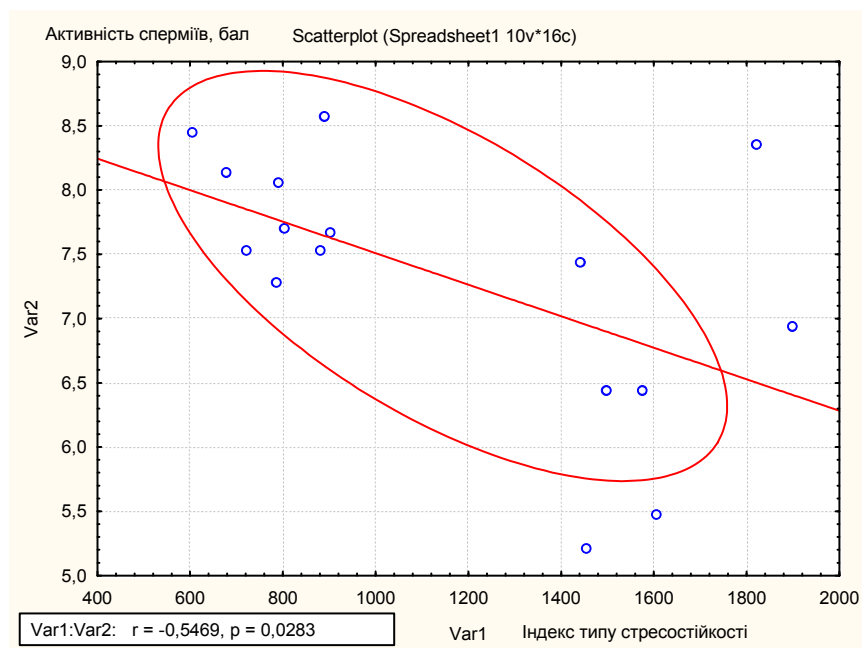


Fig. 1. ETS correlation with the percentage of defective sperm

The data from Fig. 2 show that the increase in ETS is accompanied by a sharp increase in the percentage of defective sperm ($r = +0,775 \pm 0,100$; $P > 0,999$).

Fig. 3 shows that with a decrease in performance of the bulls we can see a significant reduc-

tion in the number of quality doses of sperm from one ejaculate ($r = 0,432 \pm 0,203$; $R > 0,95$).

We have also found that with a decrease in bulls performance, which is simultaneously characterized by a large index (ETS), the reduction of ejaculate ($r = 0,276 \pm 0,231$), volume of ejaculate (ml) ($r = 0,172 \pm 0,243$), the total number of re-

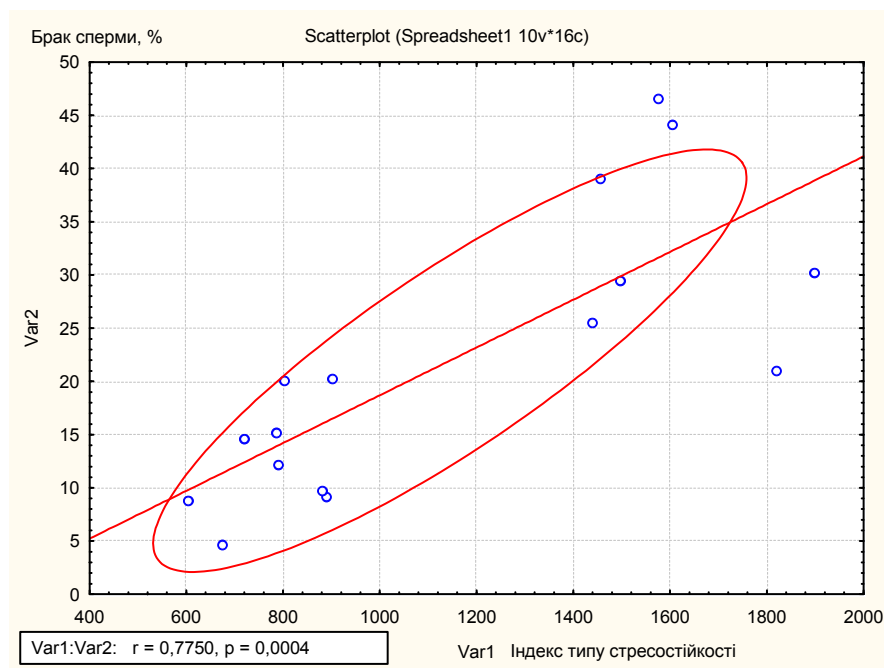


Fig. 2. ETS correlation with the percentage of defective sperm

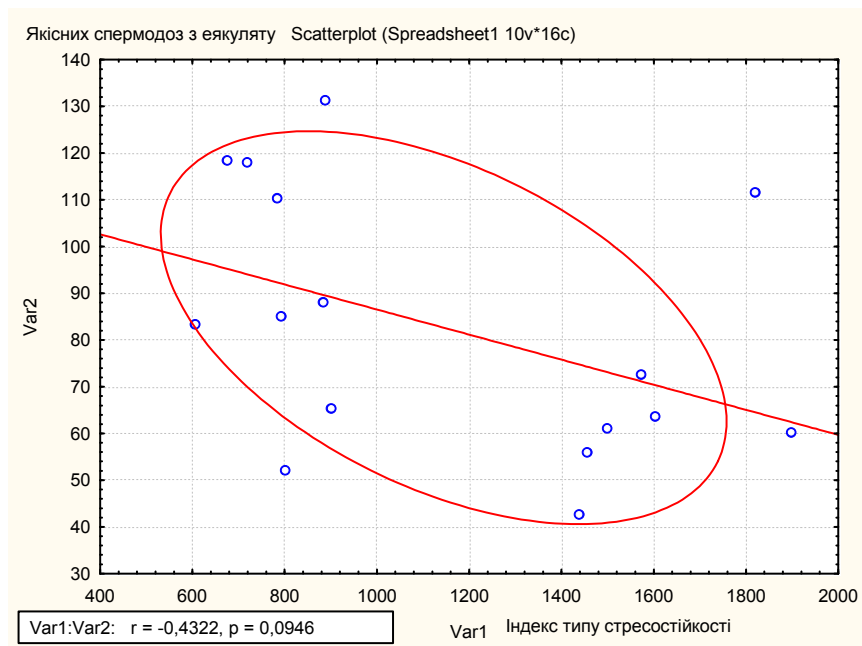


Fig. 3. ETS correlation with the number of quality doses of sperm from one ejaculate

ceived sperm (ml) ($r = 0,346 \pm 0,220$), the number of doses of sperm from all ejaculates ($r = 0,405 \pm 0,209$), concentration of sperm (bln) ($r = 0,401 \pm 0,210$) and total number of sperm in the ejaculate ($r = 0,397 \pm 0,211$) at $P < 0,95$ are connected.

Conclusion. According to the results of our research it was found that the main indicators of fertilized ability of sperm, and quality of sperm is

significantly dependent on the performance of bulls. The greatest influence of the type of stress on the activity of sperm, the percentage of defective sperm amount of sperm that is suitable for freezing and the number of received quality doses of sperm from one ejaculate ($P > 0,95 \dots 0,999$) that must be considered when selecting and animal exploitation in tribual enterprises.

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ЭФФЕКТИВНОСТЬ ПЛЕМЕННОГО ИСПОЛЬЗОВАНИЯ БЫКОВ-ПРОИЗВОДИТЕЛЕЙ В ЗАВИСИМОСТИ ОТ ИХ ЭКСПЛУАТАЦИОННЫХ КАЧЕСТВ

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Представлены результаты племенного использования 16 быков-производителей голишинской породы в зависимости от их адаптационной способности. Установлено, что за первый год племенного использования у быков с низкими адаптационными качествами сочетается уменьшение количества эякулятов ($r = -0,276 \pm 0,231$), объема эякулята (мл) ($r = -0,172 \pm 0,243$), общего количества полученной спермы (мл) ($r = -0,346 \pm 0,220$), количества спермодоз из всех эякулятов ($r = -0,405 \pm 0,209$), концентрации спермиев (млрд) ($r = -0,401 \pm 0,210$) и общего количества спермиев в эякуляте ($r = -0,397 \pm 0,211$) за $P < 0,95$

Быки-производители, адаптационная способность, голишинская порода, качество спермы, соотносительная изменчивость
