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**RESULTS OF YOUNG PIGS EVALUATION BY FATTENING AND MEAT QUALITIES
USING THE SAZER-FREDIN INDEX**

V.I. Khalak, *Candidate of Agricultural Sciences, Senior Researcher, Head of the Laboratory of Animal Husbandry, v16kh91@gmail.com*

*State institution - Institute of Grain Crops, National Academy of Sciences of Ukraine,
14, Vernadsky St., Dnipro, 49009, Ukraine*

B.V. Hutyi, *Doctor of Veterinary Sciences, Professor*

*S.Z. Gzhytsky Lviv National University of Veterinary Medicine and Biotechnology, Pekarska St., 50,
Lviv, 79010, Ukraine*

A.V. Horchanok, *Candidate of Agricultural Sciences, Associate Professor*

L.O. Lytvyshchenko, *Candidate of Agricultural Sciences, Associate Professor*

Dnipro State Agrarian and Economic University, Sergii Yefremov St., 25, Dnipro, 49600, Ukraine

Abstract. *The research results of fattening and meat qualities of young pigs of different intrabreed differentiation according to the Sazer - Fredin index are given in the paper, as well as the economic efficiency of research results is calculated. The research was conducted in agricultural formations of Dnipropetrovsk region and Animal Husbandry Laboratory of the Institute of Grain Crops, NASU. The results show that young pigs from the controlled herd corresponds to class I and class «elite» according to the age of achievement of live weight in 100 kg (days), the fatback thickness at the level of 6-7 thoracic vertebrae (mm) and the length of the chilled carcass (cm). Taking into account the intra-breed differentiation according to the Sazer-Fredin index, it was established that the young pigs from group II ($I = +0.003 - +3.211$ points) exceed peers from group I ($I = -1.791 - -0.329$ points) in the average daily gain in live weight during the period of control fattening, in the age of achievement of live weight in 100 kg, in the fatback thickness at the level of 6-7 thoracic vertebrae, in the length of the chilled carcass and in the length of the bacon side of the chilled half-carcass by an average 4.03%. The use of young pigs, which have the Sazer-Fredin index ranged from +0.003 to +3.211 points, provides additional products at the level of +1.38%, and its cost is 360.32 UAH / head.*

Key words: *young pigs, breed, fattening and meat qualities, index, variability, economic efficiency.*

The theoretical basis for research is the scientific development of native and foreign scientists [1-3].

The aim of the work is to investigate the fattening and meat qualities of young pigs of White Large breed with different intra-breed differentiation according to the index of A. Sazer - H. Fredin, as well as to calculate the economic efficiency of research results.

Materials and methods of research. The research was conducted in agricultural formations of Dnipropetrovsk region, the Research Centre for Biosafety and Environmental Control of Resources of the Agricultural-Industrial Complex of Dnipro State Agrarian and Economic University and the Animal Husbandry Laboratory of State Institution - Institute of Grain Crops, NASU. The work was performed based on the research program of NASU №30 "Innovative technologies of breeding, industrial and organic production of pig breeding" ("Pig breeding").

Large White young pigs of Hungarian selection were the object of the study. Conditions for feeding and management of animals from the experimental groups were identical and complied with zootechnical standards.

Evaluation of animals of the referred production group and breed by criteria of fattening and meat qualities was carried out taking into account the following indicators: the average daily gain in live weight during the period of control fattening, g; the age of achievement of live weight in 100 kg, days; the fatback thickness at the level of 6-7 thoracic vertebrae, mm; the length of chilled carcass, cm; the length of bacon side of chilled half-carcass, cm [4].

The index of A. Sazer - H. Fredin was calculated by the formula:

$$I = \frac{1}{\sigma_g} \times \Delta G_1 - \frac{1}{\sigma_f} \times \Delta F_1,$$

where: I - index of A. Sazer - H. Fredin, points,

ΔG_1 – growth rate in deviations from the average value of the trait;

ΔF_1 - fatback thickness in deviations from the average value of the trait;

σ_g – phenotypic standard deviation of growth rate;

σ_f – phenotypic standard deviation of fatback thickness [5].

The calculation of economic efficiency of research results [6] and biometric indicators [7] was performed based on generally accepted methods.

Results and discussions. It was established that the average daily gain in live weight of young pigs during the period of control fattening is 777.1 ± 11.11 g (Sv = 7.29%); the age of achievement of live weight in 100 kg is 172.1 ± 1.18 days (Sv = 3.52%); the fatback thickness at the level of 6-7 thoracic vertebrae is 20.9 ± 0.36 mm (Sv = 9.22%); the length of the chilled carcass is 96.3 ± 0.43 cm (Sv = 2.38%); the length of the bacon side of the chilled half-carcass is 83.3 ± 1.06 cm (Cv = 6.73%). The index of A. Sazer - H. Fredin ranges from -1,791 to +3,211 points.

The research results of fattening and meat qualities of young pigs of different intra-breed differentiation according to the index of A. Sazer - H. Fredin are given in Table 1.

It was established that young pigs from group II exceed peers from group I by following criteria: in average gain in live weight during the period of control fattening by 28.2 g (td = 1.43, P > 0.05); in the age of achievement of live weight in 100 kg by 5.1 days (td = 2.21, P < 0.05); in the fatback thickness at the level of 6-7 thoracic vertebrae by 2.3 mm (td = 3.70, P < 0.01); in the length of the chilled carcass by 1, 3 cm (td = 1.52, P > 0.05); in the length of the bacon side of the chilled half-carcass by 1.9 cm (td = 0.87, P > 0.05).

1. Fattening and meat qualities of Large White young pigs of different intrabreed differentiation according to the index of A. Sazer - H. Fredin

Indexes, units of measurement	Biometric indexes	Index of A. Sazer - H. Fredin	
		index gradation	
		-1,791 - -0,329	+0,003 - +3,211
		group	
		I	II
	n	12	16
Average daily gain in live weight during the period of control fattening, g	$\bar{X} \pm S_{\bar{X}}$	759,8±14,96	788,0±12,82
	$\sigma \pm S_{\sigma}$	55,14±11,276	51,31±9,081
	$Cv \pm S_{Cv}, \%$	7,25±1,482	6,51±1,152

Table 1

Age of achievement of live weight in 100 kg, days	$\bar{X} \pm S_{\bar{X}}$	178,1±1,67	173,0±1,62
	$\sigma \pm S_{\sigma}$	5,20±1,063	6,50±1,150
	$Cv \pm S_{Cv}, \%$	2,91±0,595	3,75±0,663
Fatback thickness at the level of 6-7 thoracic vertebrae, mm	$\bar{X} \pm S_{\bar{X}}$	22,1±0,48	19,8±0,40
	$\sigma \pm S_{\sigma}$	1,69±0,345	1,61±0,284
	$Cv \pm S_{Cv}, \%$	7,64±1,564	8,13±1,421
Length of chilled carcass, cm	$\bar{X} \pm S_{\bar{X}}$	95,4±0,58	96,7±0,63
	$\sigma \pm S_{\sigma}$	2,02±0,413	2,54±0,449
	$Cv \pm S_{Cv}, \%$	2,11±0,429	2,62±0,469
Length of bacon side of chilled half-carcass, cm	$\bar{X} \pm S_{\bar{X}}$	82,2±1,69	84,1±1,36
	$\sigma \pm S_{\sigma}$	5,86±1,198	5,45±0,964
	$Cv \pm S_{Cv}, \%$	7,12±1,458	6,48±1,146

The coefficient of variation of fattening and meat qualities of young pigs from the experimental groups ranges from 2.11 to 8.13%.

According to the results of calculating the economic efficiency of the use of young pigs of different intra-breed differentiation according to the index of A. Sazer - H. Fredin, it was established that the maximum increase in additional products was obtained from animals of group II, that is +1.38% (Table 2).

2. Economic efficiency of research results

Group	Index gradations A. Sazer - H. Fredin	Average daily gain in live weight during the period of control fattening from 30 to 100 kg, g	Increase in additional products, %	Cost of additional products, UAH / US dollars / head
General sample	-1,791 - +3,211	777,1±11,11	–	–
I	-1,791 - -0,329	759,8±19,96	-2,22	-579,65 / -20,96
II	+0,003 - +3,211	788,0±12,82	+1,38	+360,32 / +13,03

Note: * – the selling price of young pigs at the time of the research was UAH 44.8. per 1 kg of live weight
The cost of additional products received from animals of these groups is +360.32 UAH / head.

Conclusion

1. It is established that young pigs from the controlled herd belong to class I and class «elite» according to the current Instruction on valuation of pigs by following criteria: the age of achievement of live weight in 100 kg, the fatback thickness at the level of 6-7 thoracic vertebrae and the length of chilled carcass.

2. Taking into account the intra-breed differentiation according to the index of A. Sazer - H. Fredin, young pigs from group II (I = +0.003 - +3.211 points) exceed peers from I group (I = -1.791 - -0.329 points) in the average daily gain in live weight during the period of control fattening by 3.62%, in the age of achievement of live weight in 100 kg by 2.86%, in the fatback thickness at the level of 6-7 thoracic vertebrae by 10.10%, in the length of the chilled carcass by 1.34%, in the length of the bacon side of the chilled half-carcass by 2.25%.

3. The use of young pigs, which have the index of A. Sazer - H. Fredin ranged from +0.003 to +3.211 points, provides additional products at the level of +1.38%, and its cost is 360.32 UAH / head.

4. The use of this index as an additional criterion for assessing sows and breeding boars by the quality of offspring is proposed.

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РЕЗУЛЬТАТИ ОЦІНКИ МОЛОДНЯКУ СВИНЕЙ ЗА ВІДГОДІВЕЛЬНИМИ І М'ЯСНИМИ ЯКОСТЯМИ З ВИКОРИСТАННЯМ ІНДЕКСУ САЗЕРА – ФРЕДИНА

В.І. Халак, Б.В. Гутий, А.В. Горчанок, Л.О. Литвищенко

Анотація. *Наведено результати досліджень відгодівельних та м'ясних якостей молодняку свиней різної внутріпородної диференціації за індексом Сазера - Фредина, а також розраховано економічну ефективність результатів досліджень. Дослідження проведено в агроформуваннях Дніпропетровської області та лабораторії тваринництва ДУ Інститут зернових культур НААН. Результати досліджень свідчать, що за віком досягнення живої маси 100 кг (діб), товщиною шпигу на рівні 6–7 грудних хребців (мм) та довжиною охолодженої туші (см) молодняк свиней підконтрольного стада відповідає I класу та класу «еліта». З урахуванням внутріпородної диференціації за індексом Сазера – Фредина встановлено, молодняк свиней II групи ($I = +0,003 - +3,211$ бала) переважали ровесників I ($I = -1,791 - -0,329$ бала) за середньодобовим приростом живої маси за період контрольної відгодівлі, віком досягнення живої маси 100 кг, товщиною шпигу на рівні 6-7 грудних хребців, довжиною охолодженої туші і довжиною беконної половини охолодженої півтуші в середньому на 4,03 %. Використання молодняку свиней, у яких індекс А. Сазера – Х. Фредина коливається у межах від +0,003 до +3,211 бала забезпечує одержання додаткової продукції на рівні +1,38 %, а її вартість дорівнює 360,32 грн/гол.*

Ключові слова: *молодняк свиней, порода, відгодівельні та м'ясні якості, індекс, мінливість, економічна ефективність.*