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FATTENING AND MEAT QUALITIES OF FOREIGN ORIGIN YOUNG PIGS

Formulation of the problem. Acceleration of the selection process in pig breeding in Ukraine is carried out due to the introduction of innovative methods for assessing the breeding value of native genotype animals as well as the use of breeding boars and sows of foreign selection [1-3]. Therefore, the topical issue is the study of both the reproductive qualities of the initial parental forms of different origin and the fattening and meat qualities of their offspring.

Analysis of recent research and publications. The chosen direction of research is confirmed by the works of native scientists, among them there are the following: Tsereniuk O.M. [4], Luhovyi S.I. [5], Khalak V.I. et al. [6], Khalak, V.I., Ivanina O.P. [7], Khalak, V.I. et. al. [8, 9]. So, according to Krasnoshchok O.O., it is established that the young pigs of the Large White × Landrace combination are characterized by

the best fattening qualities; the effect of heterosis is equal to 111.58% [10]. Analysis of variance showed that the impact of combinations on the average daily gain is 24.56%, on the index of "intensity of formation" is 26.67; in terms of earliness it is 26.85 and 16.97% respectively; in terms of feed costs it is 25.10 and 23.74%. The author notes that the use of Landrace breeders and terminal boars improves the meat quality of local and hybrid pigs: slaughter yield increases by 1.6 - 3.2%; the area of the rib eye by 7.2 - 13.9 cm^2; chump weight by 0.7 - 0.8 kg; the thickness of the fat is reduced by 6.8 - 7.8 mm.

The purpose and objectives of research. The aim of the work is to investigate the fattening and meat qualities of Large White young pigs of English and Hungarian origin, as well as to calculate the cost-effectiveness of research results.

Materials and methods of research. The research was conducted in agricultural formations of Dnipropetrovsk region, meat-packing plant "Jazz" and livestock laboratory of the State Institution "Institute of Grain Crops of NAAS of Ukraine". The work was performed according to the research program of NAAS of Ukraine №30 "Innovative technologies of breeding, industrial and organic production of pig products ("Pig breeding").

Large White young pigs of English (VBAP, group I) and Hungarian (VBUP, group II) origin were the object of the study.

Evaluation of animals for fattening and meat qualities was carried out taking into account the following indicators: average daily gain in live weight during the control fattening period, kg; age of achievement of live weight of 100 kg, days; thickness of fatback at the level of 6-7 thoracic vertebrae, mm; length of chilled carcass, cm; length of bacon side of chilled half carcass, cm [11].

Integrated evaluation of fattening and meat qualities of young pigs from experimental groups for was performed according to the O. Wangen index:

$$I = (\frac{1}{\sigma_{СП}} \times СП) + (\frac{1}{\sigma_{ТШ}} \times ТШ)$$

where: *I* – O. Wangen index, points, *СП* – the average daily gain in live weight for the period from birth to the age of 100 kg live weight; *ТШ* – thickness of fatback at the level of 6-7 thoracic vertebrae, mm; $\sigma_{СП}$ – phenotypic standard deviation of the average daily gain of live weight, g; $\sigma_{ТШ}$ – phenotypic standard deviation of fat, mm (cited in [12]).

Biometric processing of the obtained data [13] and calculation of economic efficiency of research results [14] were performed according to generally accepted methods.

Research results and their discussion. The results of control fattening of English and Hungarian origin young pigs (*n = 42*) show that the average daily gain of live weight of animals during the control fattening period is 780.4 ± 5.91 kg (Cv= 4.91%); the age of achievement of live weight of 100 kg is 171.8 ± 1.44 days (Cv= 5.10%); the thickness of the fatback at the level of 6-7 thoracic vertebrae is 22.3 ± 0.41 mm (Cv= 11.36%); the length of the chilled carcass is 96 , 8 ± 1.62 cm (Cv = 4.10%); the length of bacon side of chilled carcass is 82.6 ± 5.03 cm (Cv = 14.93%). O. Wangen's index ranges from 31.10 to 60.85 points.

The research results of fattening and meat qualities of Large White young pigs of English and Hungarian origin are shown in *Table1*.

Table 1. Fattening and meat qualities of Large White young pigs of English and Hungarian origin

Indexes, units of measurement	Biometric indicators	Groups	
		I	II
Average daily gain in live weight during the control fattening period, kg	*n*	*10*	*32*
	X±Sx	795,2±5,95	777,0±6,59
	Cv±Scv, %	4,60±1,031	4,94±0,617
Age of achievement of live weight of 100 kg, days	*X±Sx*	171,9±1,46	178,3±0,88
	Cv±Scv, %	2,41±0,539	2,89±0,361
Thickness of fatback at the level of 6-7 thoracic vertebrae, mm	*X±Sx*	19,7±1,06	21,0±0,33
	Cv±Scv, %	15,27±3,416	9,33±1,166
O. Wangen index, points	*X±Sx*	37,76±2,977	36,54±1,240
	Cv±Scv, %	22,29±4,986	19,78±2,472
Length of chilled carcass, cm	*n*	*3*	21
	X±Sx	96,8±1,00	95,7±0,37
	Cv±Scv, %	1,78±0,729	1,80±0,277
Length of the bacon side of chilled half carcass, cm	*X±Sx*	85,3±1,67	83,4±0,53
	Cv±Scv, %	3,37±1,381	2,92±0,450

It was established that young pigs from group I exceeded peers from group II in average daily live weight gain during the control period of fattening by 18.2 g (td = 2.11; P <0.05); in age of achievement of live weight of 100 kg by 6.4 days (td = 3.76; P <0.001); in thickness of fatback at the level of 6-7 thoracic vertebrae by 0.2 mm (td = 0.33; P> 0.05); in O. Wangen index by 1.28 points (td = 0.50; P> 0.05). The difference between the groups in the length of the chilled carcass is 1.1 cm (td = 1.03; P> 0.05); in the length of the bacon side of the chilled carcass is 1.9 cm (td = 1.09; P> 0.05).

The calculation of the economic efficiency of the research results shows that the maximum increase in additional products was obtained from Large White young pigs of English origin (+1.86%), and its value received from the sale of 1 head is +89.87 hryvnias (*Table 2*).

Table 2. Economic efficiency of research results

Group	Average daily gain in live weight during the control fattening period, g	Increase in additional products, %	The cost of additional products hryvnia / head
Total sample	780,4±5,91	-	-
II	777,0±6,59	-0,43	-21,30
I	795,2±12,95	+1,86	+89,87

*Note: * - the selling price of young pigs at the time of the study is 47.50 hryvnias per 1 kg of live weight.*

Conclusions:

1. It is established that Large White young pigs from controlled population in the age of 100 kg, in thickness of fatback at the level of 6-7 thoracic vertebrae and in the length of chilled carcass exceed the minimum requirements of the elite class by 13.85% on average.

2. Significant differences between animals of different origins were found in the average daily gain in live weight of animals during the period of control fattening (18.2 g; td = 2.11; P <0.05) and in the age of achievement of live weight of 100 kg (6.4 days; td = 3.76, P <0.001). The difference between the groups in the thickness of the fatback 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 carcass varied from 2.85 to 6.19%.

3. The maximum increase in additional products was obtained from the sale of one head of Large White young pigs of English origin (+1.86%), and its value is 89.87 hryvnias.

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HEREDITABILITY AND CORRELATIVE VARIABILITY OF LINEAR TRAITS OF THE CONFORMATION OF COWS OF UKRAINIAN BLACK-AND-WHITE DAIRY BREED

The level of variability of population-genetic parameters of linear traits that characterize the body structure of dairy cows will significantly affect the effectiveness of selection aimed at genetic improvement of animal populations by conformation type [8; 11; 12]. The degree of variability of one of the main population and genetic