

Markers of reproductive qualities of large white breed sows of different levels of adaptation and economic efficiency of their use

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The purpose of the work was to investigate the reproductive qualities of sows of large white breed of different levels of adaptation and to calculate the economic efficiency of their use.

The study was conducted in "Druzhba-Kaznacheyivka" LLC of Dnipropetrovsk region and the laboratory of livestock of the State Institution "Institute of Grain Crops NAAS". The work was performed according to the research program №30 "Pig breeding".

Evaluation of sows of the main herd on the indicators of reproductive qualities was carried out taking into account the following characteristics: farrowings obtained, n; total piglets obtained, n; live piglets obtained, n; multiple fertility, n; litter weight at weaning at the age of 28–30 days, kg. The life expectancy of sows was determined from birth to the last weaning of piglets, the duration of breeding use — from the beginning of the first gestation to the last weaning of piglets, months. The adaptation level index was calculated according to the method of V. S. Smirnov (2003), biometric analysis was performed according to the methods of G. F. Lakin (1990), economic efficiency — according to the generally accepted method. The distribution of sows into classes was carried out according to the adaptation level index. The deviation from the mean value of the index was $\pm 0.67 \times \sigma$.

It has been found that the life expectancy of sows of the main herd is 44.1 ± 1.97 months ($Cv=35.27\%$), the duration of breeding use — 32.8 ± 1.95 months ($Cv=46.91\%$), the adaptation level index — 11.87 ± 0.709 points ($Cv=47.02\%$). During the period of breeding use from sows of large white breed received 6.0 ± 0.36 farrowings ($Cv=47.11\%$), total piglets — 65.8 ± 4.41 ($Cv=52.80\%$), live piglets — 62.5 ± 4.17 ($Cv=52.55\%$). Multiplicity of sows per farrowing is equal to 10.1 ± 0.16 ($Cv=12.95\%$), the litter weight at the time of weaning at the age of 28–30 days was 77.0 ± 1.02 kg ($Cv=10.45\%$).

The results show that sows of class M⁻ in terms of life expectancy outperformed peers of class M⁺ by 32.1 months ($td=10.15$; $P<0.001$), in duration of breeding use — 35.1 months (13.65 ; $P<0.001$), adaptation level index — 14.27 points ($td=6.39$; $P<0.001$), farrowing received — 7.1 ($td=15.43$; $P<0.001$), total piglets obtained — 82.6 ($td=12.42$; $P<0.001$), live piglets — 79.4 ($td=13.05$; $P<0.001$). The difference between the groups in terms of fertility was 2.0 animals ($td=2.19$; $P<0.05$), the litter weight at the weaning at the age of 28–32 days — 3.5 kg ($td=1.47$; $P>0.05$). Higher safety of piglets before weaning was found in sows of class M⁺ (3.6%, $td=1.407$; $P>0.05$). It was found that the maximum increase in production was obtained from sows of class M⁻, namely +2.53%. Provided that the selling price of young pigs to processing enterprises in the region is 45.7 UAH. per. 1 kg of live weight, the cost of additional products obtained from 1 sow of class M⁻ is equal to 133.54 UAH.

It is established that the maximum indicators of the adaptation level (life expectancy, months; duration of breeding use, months) and reproductive qualities (farrowings obtained, total piglets obtained, multiplicity, litter weight at the time of weaning) are characterized by sows of large white breed with an adaptation level index of 6.55–8.08 points. The maximum increase in additional products (2.53%) and its value (133.54 UAH) was obtained from sows of class M⁻. We propose to introduce in agricultural formations of Dnipropetrovsk region and other regions of Ukraine in selection work with pigs of domestic selection and foreign origin assessment of animals on the level of adaptation and selection of repair pigs from sows — mothers with an index of 8.08 or less.