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**THE AGE OF FARROW IN PIGLETS AND ITS EFFECT ON THE
COMPARATIVE CHARACTERISTICS OF HEMATOLOGICAL,
BIOCHEMICAL INDICES AND AVERAGE DAILY GROWTH.**

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Piglets are weaned gradually, on the first day of weaning the piglets are only allowed to suckle 5 times, on the 2nd day 4 times, on the 3rd day 3 times and on the 4th day 2 times, and in 5th and 6th days only once. On the 6th day after weaning, the sows are removed from the pens and moved to another place, the weaned piglets being left in the pen where they grew for a few days. If the piglets are taken out of the pen on the same day as the sow, they become very agitated, often losing their appetite, with corresponding negative consequences. For efficiency in breeding sows, piglets at 21-28 days or even younger are also often weaned. The study of hematological and biochemical blood indices showed an increase in the amount of erythrocytes. The average daily gain was higher in piglets that were kept in smaller numbers in pens. The participation of the Great White, Durok and Landrace breeds in the given complex plays a very important role in fattening. No abnormalities, illnesses or deaths were reported.

Key words: *Weaning, Hematological, Erythrocytes, Biochemical blood, Great White.*

Introduction. In commercial pig production, the weaning-to-weaning transition is the most critical period for piglet health. When piglets are weaned, they are suddenly separated from their sow and their ration is changed from an easily digestible milk-based one to a more complex plant seed-based one (starter pellets). The risk of developing health problems is increased as piglets are subjected to stress as a result of mixing with

other unfamiliar piglets, handling and separation from the sow (1). This stress frequently leads to reduced feed intake immediately after weaning, which negatively affects growth performance (2). Consequently, newly weaned piglets frequently develop diarrhea after weaning, leading to significant economic losses due to morbidity, mortality and associated treatment in piglets (3). The weaning periods vary, in the given complex the piglets are weaned at 5-8 weeks. Earlier weaning ages allow for a greater number of piglets weaned per sow per year and may also decrease the risk of transmission of certain pathogens from sow to piglets. However, piglets that are weaned relatively early may be more susceptible to disease and other complications (4).

Material and method. The researches were carried out at the "Carneval" SRL "Fattening Pig Complex", Șoldănești district. In order to carry out the study of weaned piglets, 4 experimental groups of animals were formed according to the analogous principle, taking into account the origin, age and body weight of the pigs, thus group I, II and III consisted of young pigs aged 21- 28 days, and group IV aged 14-19 days. All piglets are obtained by crossing Great White sows with Landrace, Durok boars. In the growth process at the age of 3 months, blood was collected from the piglets in the number of 4 heads. In the stabilized blood, the amount of erythrocytes, leukocytes, hemoglobin was determined, using the Hitachi - 902 and Falcor - 300 analyzers. The general blood analysis was performed on the KX-21 Sysmex hematological analyzer in the Diagnostic Center. Protein fractions in the "Paragon" electrophoresis system Effect of weaning age on pig performance. As expected, all pigs gained less weight during the 7-day period after weaning (Fig. 1). From day 35, pigs in all weaning age groups grew at the same rate. There was also no association with weaning age and removal of a pig from the study due to antimicrobial treatment or death ($P > 0.05$). From day 35, pigs in all weaning age groups grew at the same rate. There was also no association with weaning age and removal of a pig from the study due to antimicrobial treatment or death ($P > 0.05$). From day 35, pigs in all weaning age groups grew at the same rate. There was also no association with weaning age and removal of a pig from the study due to antimicrobial treatment or death ($P > 0.05$).

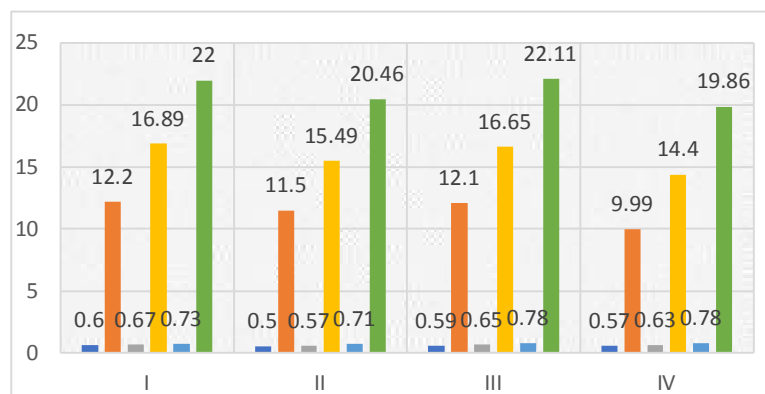


Fig 1 Average daily gain in kilograms in pigs by weaning age within each weighing period.

Results and discussion. To obtain an appropriate average daily gain in weaned piglets, it is necessary to identify the most optimal age that would satisfy the requirements of the farmer and the reproduction of sows, regarding the number of live weaned piglets. In the formation of groups of piglets, their physiological parameters (age, weight) undoubtedly influence them. For the study of the hematological and biochemical indexes, blood was collected from the young pig at the age of three months, in which the amount of erythrocytes, leukocytes, hemoglobin, and protein fractions were determined. Until 3 months of age, weaned piglets received the same ration and were maintained in the nursery area. Group I of piglets, at the time of weaning, were transferred to groups of 28-30 piglets depending on weight. Group II, were transferred to the nursery room in groups of 28-30 piglets without taking into account the weight. Group III piglets were transferred in groups of 24-26 piglets without considering weight. Group IV of piglets were transferred to the nursery room in groups of 20-22 piglets per pen, taking into account the weight. Within 3 days of weaning, the light in groups I, III and IV was on continuously except for group II where the light day duration was 16 h. Pigs weaned in the week of 14-19 days had a weight that was significantly different from that of pigs that were weaned at 21-28 days of age. Group IV of piglets were transferred to the nursery room in groups of 20-22 piglets per pen, taking into account the weight. Within 3 days of weaning, the light in groups I, III and IV was on continuously except for group II where the light day duration was 16 h. Pigs weaned in the week of 14-19 days had a weight that was significantly different from that of pigs that were weaned at 21-28 days of age. Group IV of piglets were transferred to the nursery room in groups of 20-22 piglets per pen, taking into account the weight. Within 3 days of weaning, the light in groups I, III and IV was on continuously except for group II where the light day duration was 16 h. Pigs weaned in the week of 14-19 days had a weight that was significantly different from that of pigs that were weaned at 21-28 days of age.

Table 1. Blood hematological indices according to the period of weaning

lot	Erythrocytes, 10¹²/l	Leukocytes, 10⁹/l	Hemoglobin, gl
I	7.19±0.31	25.8±2.39	115±4.38
II	6.66±0.19	27.8±2.19	109±1.94
III	6.91±0.25	35.6±0.45**	115±4.26
IV	7.70±0.40	26.6±3.19	122.3±4.60

**B≤ 0.99

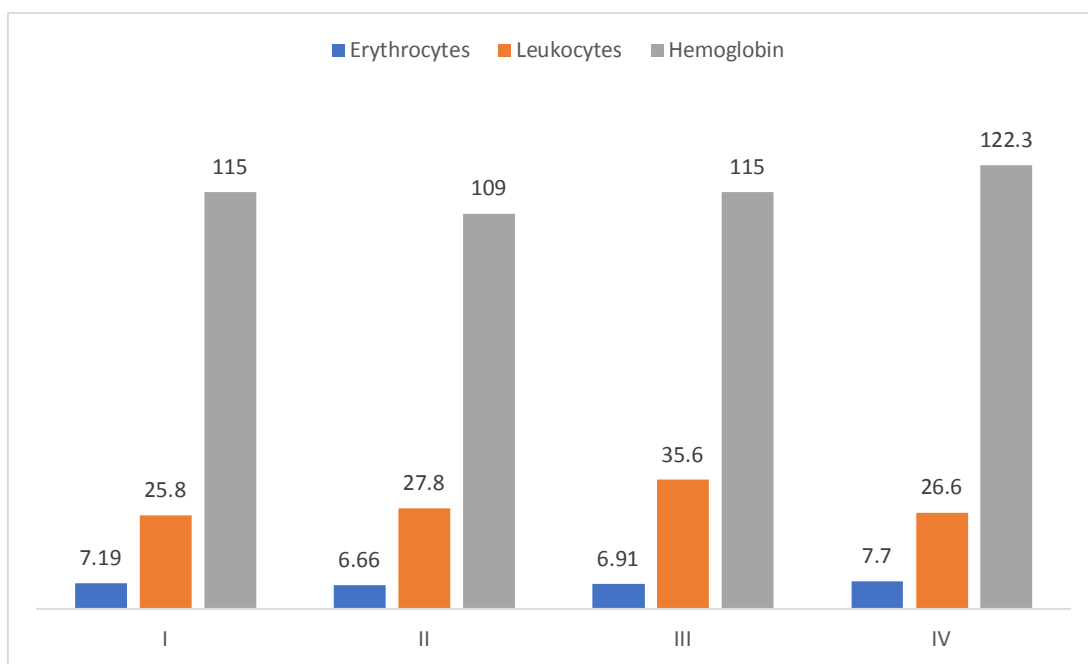


Fig. 2 Characteristic of hematological indices of blood depending on the genotype of the pigs.

The results presented in the table demonstrate that genuine differences regarding the content of erythrocytes in the blood were not reported. A tendency to increase this index was observed in groups I and IV, thus the content in erythrocytes varied from 6.66 to $7.70 \times 10^{12}/l$ depending on the genotype. The amount of leukocytes in the blood of the experimental pig youth equaled 25.8 in group I, and 35.6 in group III, the difference being $9.9 \times 10^{12}/l$ ($B \leq 0.99$). Significant differences between batches I and II; I and III were not reported.

The hemoglobin content in the experimental groups varied from 109 g/l in group I to 122.3 g/l in experimental group IV. The difference is: 13.3 g/l ($B \leq 0.90$). No other significant differences were recorded in the groups of piglets.

Table 2. Blood biochemical indices according to the weaning group

lot	ALT u/l	ASAT u/l	Total protein, g/l	Albumin, g/l	Glucose, mmol/l	Calcium mmol/l
I	65.5 ± 4.97	86.0 ± 5.0	84.6 ± 6.51	30.6 ± 1.16	6.86 ± 0.97	2.95 ± 0.08
II	106.0 ± 16.5	89.5 ± 11.6	73.2 ± 2.57	36.2 ± 0.99	6.70 ± 1.25	3.01 ± 0.09
III	79.6 ± 4.05	91.2 ± 12.7	68.5 ± 2.64	36.0 ± 1.71	6.48 ± 1.02	2.99 ± 0.12
IV	83.5 ± 4.26	85.9 ± 12.3	66.7 ± 3.49	33.9 ± 2.17	6.77 ± 1.0	2.82 ± 0.10

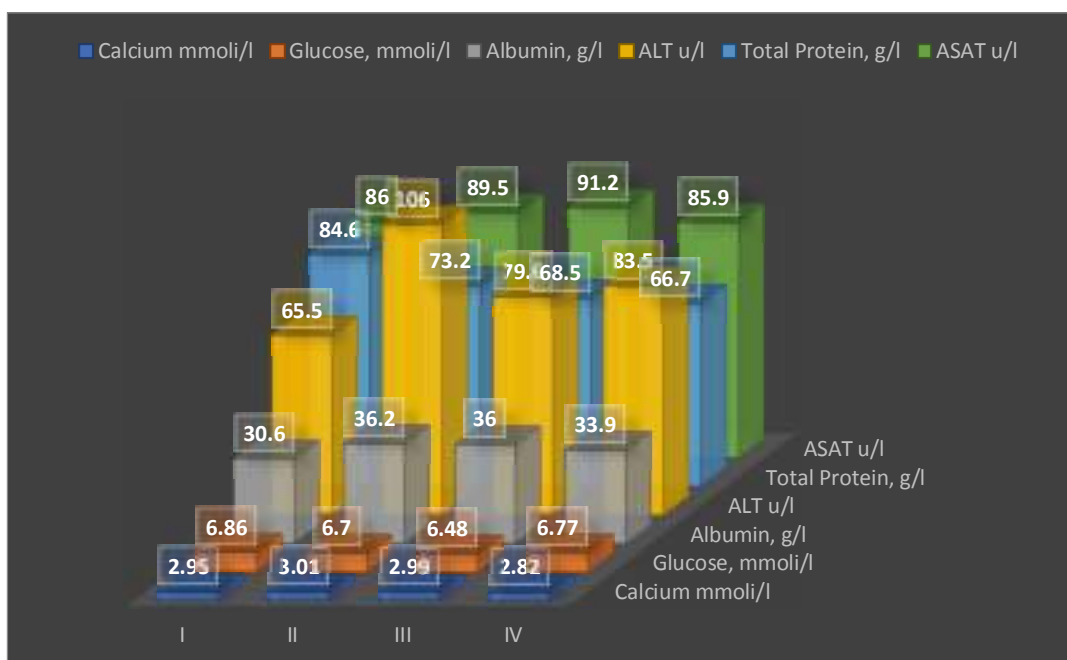


Fig. 3 Characteristic of blood biochemical indices depending on the genotype of the pigs

The biochemical analysis of the blood demonstrates that the protein content in group I was 84.6 g/l, and in other experimental groups (II, III, IV) it varied from 66.7 (IV) to 73.2 (II). The difference between batch I and III - equaled 16.1 g/l ($B \leq 0.90$). The glucose content was 6.48-6.86 mmol/l in all the experimental groups, but no significant differences between the groups of piglets were recorded. The amount of albumin proved to be within the limits of 30.6 (group I) and 36.2 (group II). The difference equaled 5.6 g/l, being significant ($B \leq 0.95$). The authenticity of the differences between batches I and III was confirmed ($B \leq 0.95$), and between batches I and IV the differences were not significant.

Table 3. The average growth at different periods and the average weight of a piglet.

lot	Post-weaning period:					
	Spore at 7 days	Growth after 14 days	Growth at 28 days	Weight at 7 days	Weight at 14 days	Weight at 28 days
I	0.60±0.03	0.67±0.05	0.73±0.05	12.2±1.12	16.89±1.52	22±1.65
II	0.50±0.03	0.57±0.05	0.71±1.51	11.5±1.12	15.49±1.52	20.46±1.65
III	0.59±0.03	0.65±0.05	0.78±0.26	12.1±1.12	26.65±1.52	22.11±1.65
IV	0.57±0.03	0.63±0.05	0.78±0.05	9.99±1.12	14.4±1.52	19.86±1.65

The results of the research presented in the table reveal that the average daily increase in the formed groups is a result of the stress they obtained at the time of the transfer performed at weaning. During the maintenance of piglets in stalls, I observed that an important role is played by the number of pigs and the difference in weight, as well as the weaning period.

An important role in the weaning of piglets is played by their adaptation to the new place. For this reason, during the first days, it is mandatory that the light in the room be turned on continuously so that the piglets study their new environment in detail.

Conclusions:

1. Significant differences regarding the content of erythrocytes in the blood of the animals were not reported; However, a tendency to increase this index was observed in groups I and IV, thus the content in erythrocytes varied from 6.56 to 7.60×10^{12} depending on the age of weaning. The amount of leukocytes in the blood of the experimental pig youth equaled 25.7 in group I, and 35.5×10^9 (l) in group III. Significant differences between batches I and II; I and III were not reported. The hemoglobin content in the experimental groups varied from 108g/l in group II to 121.3 g/l in experimental group IV. The difference is 13.3 g/l.

2. The protein content in batch I was 84.6g/l, and in other experimental batches (II, III, IV) it varied from 66.7 (IV) to 73.2 g/l (II). The difference between batch I and III-16.1 g/l. The glucose content was 6.48-6.86 mmol/l in all the experimental groups, but no significant differences between the groups of piglets were reported. The amount of albumin proved to be within the limits of 30.6 (group I) and 36.2 g/l (group II). The difference equaled 5.6 g/l, being significant. The authenticity of the differences between batches I and III was confirmed ($B > 0.95$).

3. Significant differences regarding the average daily gain of piglets were not reported; However, a tendency to increase this index was observed starting from the 14th day after weaning, thus the average daily increase varying from 0.58 to 0.65 depending on the batch. If in the first week insignificant increases were observed due to stress, then starting from the 28th day after weaning all weight gains equalize. Significant differences in group I and II were not reported, in group III the average increase was lower compared to I and II. The average daily gain of batch IV is more evident due to the fact that the number of piglets in the stalls is smaller. Similarly, an important factor is the equivalent weight between the piglets, so aggression is sometimes absent in the herd of animals.

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