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Rationale for improving pigs feeding standarts of different direction of productivity

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The article presents the main features of the formation of productive traits of pigs of different directions of productivity in ontogenesis - universal meat and sebaceous, specialized beef, bacon and lard.

Significant differences of main features between meat in embryonic and post-embryonic period are established. The necessity of the development and usage of differentiated detailed rules for feeding pigs in order to realize their full genetic potential within the direction of productivity is demonstrated.

Pigs, breeds, productive direction, feeding rate, ontogeny, protein, fat, growth and development, dry matter

In accordance with results of stock test significant differences are found in hog industry both for reproductive, fattening, physical and chemical indicators of meat quality and for ethological, hematological, physiological stress stable rates between 7 the most common species of different direction of productivity. The degree of emotionality and resistance to environmental changes was established for each species. All this demonstrates the essential need for differential approach not only in accordance with the standards of feeding, but also with regard to the maintenance of microclimate, norms of easel areas, veterinary support.

The aim of our study was to elucidate the rules of metabolism and to determine the need of essential nutrients for pigs of different sex and age groups for multipurpose meat, greasy meat, greasy and bacon direction of productivity.

It was established that stocks have different physiological development and different speed of development. These differences can easily be obseved in early embryogeny. Piglets of Landrace breed, as ontogenetically less mature than Large White breed and Mirgorod breed, in particular, are born at stages that Mirgorod embryos species pass off in 100 days. In furtile period hematopoiesis of Mirgorod breed pigs undergoes faster than hematopoiesis of Large White breed and especially Landrace. In this connection, Mirgorod breed piglets have by nature a "mature" blood, while the Landrace breed blood still has quite a lot of young

cells and red blood cells with nucleus. The first lymphocytes appear in foetus of Landrace breed 15 days later than in foetus of Mirgorod breed. By nature, Mirgorod breed piglets have twice as bigger leukocytes. It is noted that all breeds of greasy direction of productivity being physiologically more precocious, complete their growth at about 2.5 years, but meat type animals grow up to 3 or more years. If to take into account the formation of meat quality of pigs of various productive direction, the interaction of muscle and adipose tissue growth curves are clearly displayed.

Pigs of Mirgorod breed have their intensive growth of muscle tissue up to 4-4.5 months. In this age curves of growth of muscle and adipose tissue are crossed. Then, adipose tissue is growing more rapidly from 6 to 7 months, the carcass is more fat (meat content in carcass – 49.3%). Muscles of Landrace breed are growing rapidly over a longer period, slaughtered carcasses contain 62.8% of meat. The advantage in increase of fat composition over a muscle tissue is shown in Landrace breed and their hybrids up to 1.5% a bit later. Pigs of meat type, because of their ontogenetic features require a higher level of protein feeding. Meat type pigs have significantly different complex of features – nature of ontogeny, type of body structure, exterior, constitution and direction of nitrogen metabolism, meat and other performance indicators. Comparative study of nitrogen metabolism of young pigs of different breeds of different direction of productivity: meat, meat and tallow and tallow types showed that differences by using nitrogen are only 7-15% of deposition of output in feed protein. This difference at the age of 6-7 months between Landrace and Mirgorod breed youngsters was up to 15% and between Landrace and Large White breeds was 8-10%.

Based on these data total body laying of dry matter, protein and fat was determined. Using differences of nutrients consumed with food and deferred in body, the nitrogen transformation ratio was determined, it was 6.3% in young Mirgorod breed, 7.4% in Large White, 8.5% in Landrace breed. At the age of 3 months and live weight of 25 kg the amount of protein in Landrace breed pigs was 2.965 kg, large white - 2.704 kg, that is to say 9.6% lesser. The same pattern was

observed in other age periods. So, at the age of 5 months and live weight of 60 kg the amount of protein in Landrace breed pigs was7.890 kg, Large White - 6.980 kg, that is to say 13.0% lesser. At the age of 7 months and live weight of 100 kg the difference in protein content was 15% in favor of pigs of Landrace breed. Thus, in due course the protein in the body of Landrace breed pig increased. The content of dry matter and fat in the body of young Large White stock in all age periods surpassed Landrace breed.

In due course, the redistribution of protein is observed in bodies of two breeds of pigs and its mass fraction in muscle fibers increases, especially at the age of 3-5 months. In subsequent periods its relative number of muscle fibers in pigs of Large White breed is stabilized, while Landrace breed muscle fibres continue to grow. Therefore Landrace breed pigs and their hybrids maintain a higher proportion of protein in muscle fibers. Feeding Standards include 28 indicators: energy interchange, feed units, dry matter, crude and digestible protein, including food born protein, three amino acids, mineral microelements, seven microelements, carotene, 9 vitamins.

Conclusions. Growth and development of swine embryos of different direction of productivy is uneven, species and age peculiarities are established. Embryos of Landrace breed are ontogenetically less mature than meat and sebaceous, sebaceous breeds. They are born at stages that embryos of sebaceous breeds undergo within 100 days. Hematopoiesis of embryos of Mirgorod breed runs faster than meat breeds. In all periods of embryogenesis blood tissues of embryos of Landrace breeds are at earlier stages of development. They have their first lymphocytes and leukocytes 15 days later than sebaceous breeds. By nature Mirgorod breed piglets have twice as bigger leukocytes. Differences in growth and development of embryos are preserved in postembryonic period. The period of active growth of pigs of meat direction of productivity is extended up to 8 - month, 1 month less for sebaceous breeds. The regularities of growth, development and productiveness of pigs of different direction of productivity, dynamics of

accumulation of dry matter, protein, fat, protein distribution in body of pigs can be used for the development of detailed rules of feeding pigs.

References

1. Богданов Г. О. Рекомендації з нормативної годівлі свиней / [Г. О. Богданов, Є. В. Руденко, В. М. Кандиба та ін.] – Харків.: Інститут тваринництва, 2011. –105 с.
2. Войтенко С. Л. Генеалогічна структура та якість племінних свиней України / С. Л. Войтенко, Л. В. Вишневський, М. Г. Порхун. – Київ, 2009. – 44 с.
3. Кравченко О. І. Вітчизняні генотипи свиней у сучасному виробництві свинини в Україні / О. І. Кравченко, А. А. Гетя, Н. В. Кудрявська // Тваринництво сьогодні, 2013. – № 9. – С. 32-41.
4. Крупномасштабная селекція в животноводства / [Н. З. Басовский, В. П. Буркат, В. И. Власов, В. П. Коваленко]. – К.: Ассциация “Украина”, 1994. – 274 с.
5. Медведев В. А. Методика изучения морфогенеза крови свиней в эмбриональный период / В. А. Медведев. Я. Я. Яцун // Наука – с.-х. производству: Тр. НИИ животноводства ЦЧЗ. – Белгород.: 1973. – С. 83.
6. Медведев В. А. Убойные качества свиней разного направления продуктивности / В. А. Медведев, В. Н. Юрченко // Свиноводство. – 1971. – № 1. – С.25–28.
7. Нормы и рационы кормления сельськохозяйствен-ных животных / А. П. Калашников, Н. И. Клейменко, В. Н. Баканов и др. – М.: Агропромиздат, 1985. – 352 с.
8. ОСТ 10–2–86. Метод оценки ремонтного молодняка по собственной продуктивности / Система стандартов в свиноводстве.– Москва, 1986. – 4 с.
9. ОСТ 10–3–86. Метод контрольного откорма. – Москва, 1986. – 6 с.
10. Плохинский Н. А. Биометрия. / Н. А. Плохинский. – Новосибирск.: Изд.-во Сибирского отдел. АН СССР, 1961. – 364 с.
11. Результати породовипробування у свинарстві / [В. П. Рибалко, Ю. Ф. Мельник, В. М. Нагаєвич та ін.] // Вісник аграрної науки. – 2004. – № 6. – С. 34-40.
12. Рибалко В. П. Методика оцінки кнурів і свиноматок в умовах спеціалізованих контрольно-випробувальних станцій / В. П. Рибалко, М. Д. Березовський, І. В. Хатько // Сучасні методики досліджень у свинарстві. – Полтава, 2005. – С. 26–31.
13. Рибалко В. П. Селекція та гібридизація у свинарстві / В. П. Рибалко, В. П. Буркат. – К.: БМТ, 1996. – 144 с.
14. Ensminger M. E. Swine science / M. E. Ensminger, R. O. Parker, Lanvill, 1945. – 568 с.