

PIG BREEDING IN UKRAINE: CURRENT STATE AND PROBLEM SOLVING

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Abstract. *The article deals with the issues of pig breeding production development in Ukraine as the basis for efficient and competitive functioning of commercial pig breeding.*

According to the study results, agricultural production reformation as well as changes in ownership patterns and other causes contributed to significant losses in swine industry, which also negatively affected the efficiency of breeding farms - breeding stock-rearing farms - and, in particular, the nucleus.

It has been established that a significant factor that caused the decline in pig breeding is the fact that most large-scale farms of the industry are oriented to purchase breeding stock of foreign selection.

It is proved that our state needs to change a number of aspects, ranging from the legislation to functions division (between the state and producers), in order to reach the world level with its own pedigree stock.

The priority directions of scientific support for the development of breeding and breeding work should be: conducting (realization) purposeful veterinary-protective activity, in particular developing the requirements to biosafety and the Ukrainian identification system that will be able to control swine breeding; development and improvement technology of breeding, industrial and small-scale growing and feeding of animals; amplification of pig breeding base by creating new meat production farms; improvement of pig breeds by using the world's best genetic resources, optimizing the variety of animals' breed of based on the best domestic and foreign breeds; providing productivity test with piglet; creation of new allowance and feeding technologies.

Key words: *pig breeding, export, import, Ukrainian pig breeders association.*

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Introduction

A balanced development of the pig products market can be ensured under the condition of comprehensive modernization of pigs breeding. The world experience proves the significance of the industry breeding base and the effective use of animals genetic characteristics for modern pig breeding, that should make the basis for developing a system of complex biological resources regulation. Organization of the system of breeding in pigs farming is based on the use of modern breeding methods and takes into account a number of key indicators that will make it possible to control the population genetic parameters, to assess the genetic potential of the lines, breeds or individual populations of animals and to determine the influence of various factors on the breeding efficiency. An adequate functioning of this system starts with the balance of the of pedigree products market, which will promote the increase of genetic potential, preservation and improvement of valuable breeds gene pool.

The issue of livestock market functioning, in particular pigs farming, is highlighted in the papers of I. Balanyuk, P. Berezivsky, R. Grabovsky, S. Dusanovsky, O. Mazurenko, V. Mesel-Veselyak, V. Mykytyuk, T. Mostenska, I. Yatskiv and other scientists.

The results of the conducted research indicate that the share of live pigs in pig production exceeds 30%. Therefore, the ways to increase pig farming competitiveness need grounding, and their development is based on resource-saving technologies and the use of innovative breeding developments, which enables commodity producers to reduce production costs and increase the economic efficiency of production significantly. The economic effect of selection is manifested in increasing the proceeds from the sale of additional production produced during the implementation of the appropriate breeding programs [1].

The organization of breeding work in pig farming involves the identification of the best animal in the herd, their further intensive and purposeful use for the improvement and consolidation of valuable breeding efficiency in the offspring. Breeding farms can reduce the cost price and increase pork production

through using the selection effect in the process of existing breeds improve as well as through creating new high-yielding breed groups, intra-breed types, lines and families [2].

Research Methodology

The experience of the efficient pig breeding industry development in Western Europe, as well as in America (USA, Canada, Brazil), proves that a reliable breeding base with intensive breeding aimed at pig yield and the meat quality improvement is one of the factors of the industry development provision. These countries introduce the latest methods of the animals breeding and productive qualities assessment into the breeding process, including DNA technologies, as well as innovative approaches to feeding and keeping pigs, which enables them to meet the growing needs of the population in meat products (the population in the leading countries consume 100 kg of meat and more *per capita*, including about 40% of pork) and form their export potential [3].

Pig industry organization in the abovementioned countries is worth noticing in the domestic practice. Indeed, nucleus (stuff farm) herds are a structural part of large national and transnational companies, which use rationally the breeding products primarily within the limits of a firm for a three-stage system: the nucleus herd (the nucleus form); a crossbred reproducer (ancestral form) and commercial herds (parent form). Mixed fodder factories and pork processing plants work in the structure of such firms and they form a complete agro-food chain in pig breeding with transparent and regulated relations among all its participants.

It is also necessary to consider the system for organizing pigs assessment for their phenotype and genotype used in foreign pig breeding. Thus, artificial insemination method has been fully implemented in each of the herd categories in Denmark, which contributes to maximizing the use of the best boars, evaluated for the phenotype and genotype, in the conditions of the test station. All the information on the pigs assessment obtained in the conditions of the nucleus herds (breeding stock for reproductive qualities) and the test station (fattening and meat quality) entered the electronic data bank of the Dan-Brad Company, that calculates the corresponding indices (BLUP method), which are transmitted to nucleus herds for practical use. This approach to running the breeding programs in Denmark contributes to the fact that nearly 80% of high-quality pork, as well as breeding pigs, is exported to other countries including Ukraine [4].

Currently, 11 breeds of pigs are bred in Ukraine, among which the largest (90% of the livestock) are Large White, Poltava Pork breed and Ukrainian Pork meat. However, the non-compliance with the requirements on the technology of pigs farming, especially as regards the sow preparation to the farrowing, causes significant losses of young livestock and, results in imperfect use of potential opportunities for the commodity offer formation in the pig products market [5].

Violation of the production-technological chain caused changes in the existing system of introducing young breeding animals [breeder' stock](#) in commercial farms and complexes from the breeding plant and the reproducer to the farm and the which resulted in a significant reduction in the use of genetic potential. As a result, there was a need for animals of different breeds and hybrids import. This situation in domestic pigs breeding is conditioned, on the one hand, by organizational and economic factors, and on the other hand, by lagging of the breeding base on the basic productivity parameters due to the imperfect organization of the livestock breeding, the unconsidered approach to improving the genetic potential and obtaining new breeding achievements.

Effective management of breeding work in livestock based on the good interaction of all structural elements of the breeding scheme is one of the main conditions for pig market stable functioning. Organizations that coordinate, serve, and are directly engaged in the reproduction of breeding genetic resources must be identified with indicating their functions and working principles. Currently, the breeding service in Ukraine operates on two levels, namely state and production ones. Organizations and departments that are subordinated to various authorities and financed from the budgets of all levels are the state structures.

At the national level, the Department of the Ministry of Agrarian Policy and Food of Ukraine is the central body of state management in the field of livestock breeding. It controls partially the state of livestock

breeding, coordinates the actions of all services and breeding farms. In addition, the Department is to consolidate the work of associations and other livestock breeding institutions that function at the national level (Fig. 1).

It is established that the current state management of the livestock breeding is in a critical condition, due to a number of bureaucratic restrictions, constant staff reduction of civil servants and unsatisfactory financing. All these do not provide the opportunity to set up sterling units for livestock breeding in state bodies which fulfill all functions provided by legislative documents. In this regard, some of these powers were transferred to state unitary livestock breeding enterprises, which are widely represented in the regions of the country.

In addition, too small amounts of financial support for research institutes of the National Academy of Agrarian Sciences of Ukraine make it impossible to conduct scientific research on the genotypes and breeds of pigs in Ukraine. As is known, genetic breeding centers, which function as a separate structural subdivision of specialized research institutes, also have a low level of technical and financial support and, in fact, have been inefficient for 3-4 years. The main coordination centre for livestock breeding is the National Association for Livestock Breeding "Ukrplemob'yednannya", which is currently in the liquidation stage. Thus, the activity of the national vertical organizational structure is suspended, while it must provide high-quality breeding material to agricultural enterprises and households - producers of pig products - and to monitor the quality of breeding products and the compliance with the requirements of the functioning of breeding plants and breeding reproducers.

The Ukrainian Association of Pig Breeders performs only an advisory function in terms of providing pedigree product to agricultural enterprises, which are only members of this professional association. As noted above, the Ministry of Agrarian Policy and Food of Ukraine carries out only administrative supervision of pig breeders activity. In 2015, these functions were performed only partially, and since early 2016, the breeding enterprises of the corporate sector do not report on the established statistical forms of the industry reporting (Fig. 1).

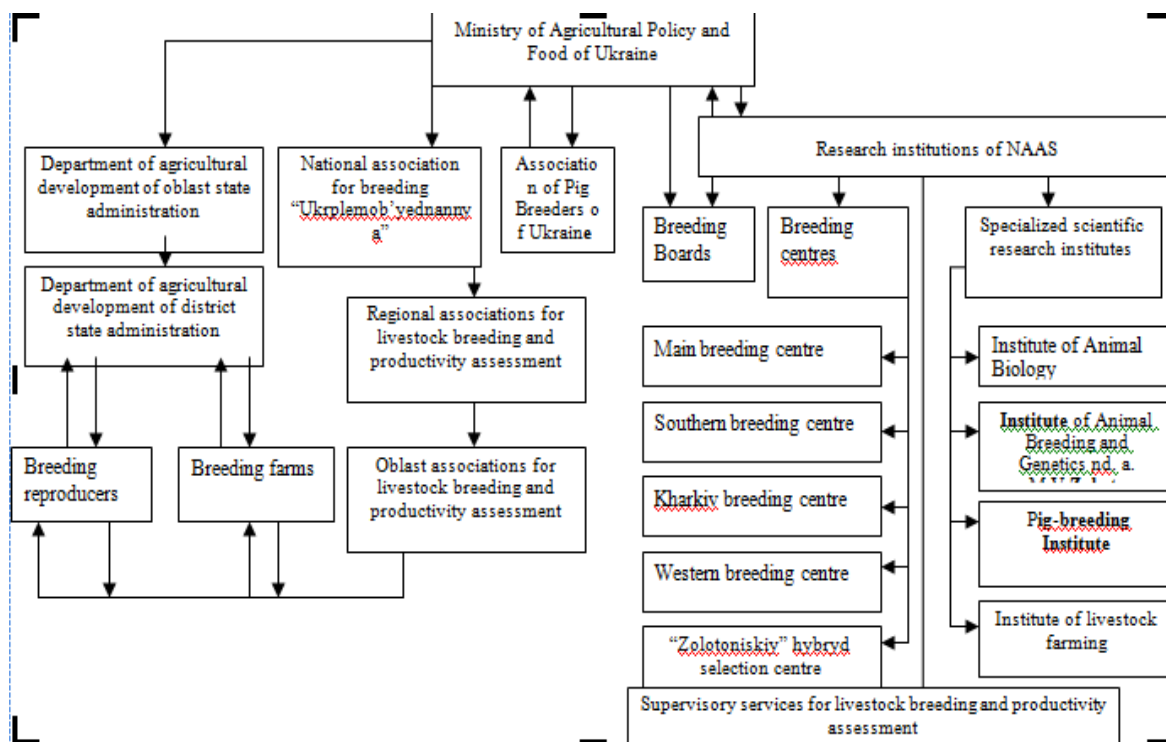


Figure 1. The reporting scheme of breeding industry

Source: developed by the authors

Yet, the program "State support of the livestock sector", which provides partial reimbursement of the pedigree animals cost, has a positive effect on the development of pig breeding. Thus, 50% (2400 UAH per animal) reimbursement of the cost of animals was paid on an irrevocable basis to the business entities for the purchase of animals bought from October 2014 to October 2015, including pedigree male and female of domestic origin ("elite" class) of Myrhorod, Large Black, Ukrainian Spotted Steppe and Ukrainian White Steppe, Ukrainian Meat, Red White-Rumped breeds from breeding farms plants and breeding reproducers.

According to the 2016 passport of the CPCE 2801540 "State support of the livestock sector" budget program, approved by the order of the Ministry of Agrarian Policy and Food of Ukraine and the Ministry of Finance of Ukraine dated March 4, 2016, No. 80/319, the general fund is expected to pay 50 million UAH. In accordance with this program, the cost (up to 50%) of purchased heifers, cows of domestic origin and pedigree heifers, dairy cows, meat and dairy, meat cows, pedigree male and female pigs ("elite" class), pedigree sheep breed, rams, young ewes will be partially reimbursed on irrecoverable basis to the enterprises for the animals purchased during October, 2015 - October 2016.

Organization of effective work of the breeding service on the industrial level has become rather important nowadays. The use of selected and improved genotypes taking into account the breeding value of pigs of intensive breeds and types, the use of the best breed types and lines in production, as well as the selection process orientation to animals stress resistance and their resistance to diseases is a characteristic feature of the modern stage of development of the selection process in pig breeding. Also, an active work on the development of comprehensive methods for intensifying and assessment of the breeding value of pigs for reproductive, fattening and meat qualities is carried out. However, the systematic importation of a significant number of pedigree animals into commodity farms can not provide the desired increase or maintenance of the necessary level of pigs productivity without a well-established system of best animals selection and on-site high productivity results consolidation.

At the same time, due to the devaluation of the national currency and the tense epizootic situation in a number of countries, pedigree animals import from European genetic companies has been suspended. The experience of using foreign selection pigs reveal some problems in the imported breeds, since an important requirement of animal breeding - separate production use - is violated in the production conditions. Also, improper farming and feeding conditions affect negatively animal productivity, resource intensity and economic industry efficiency.

In addition, foreign breeding companies do not always sell their best genetic resources or impose restrictions on their use in contracts, which significantly reduces the possibility of productive selection and affects adversely the development of the breeding industry. In this regard, the need to invest significant financial resources, high competition in the global market for genetic resources and the availability of foreign breeding material for pigs are obstacles to the domestic breeding base development. It is obvious that the violation of the state vertical in the control and coordination of state livestock breeding institutions, insufficient financing for research and state selection centers, as well as Ukrainian breeding activity focus on imported genetic resources can significantly reduce the domestic gene pool, leave an industry without resources for further improvement and without valuable animal population adapted to local conditions. We believe that state run public authorities must pay special attention to the development of a set of measures to support enterprises that are engaged in intensive work on improving genetic resources and the breeding industry base development. In particular, they are to provide full financing of specialized research institutions, breeding and genetic centers.

Aim of the article

A comprehensive analysis of Ukrainian breeding enterprises and reproducers development makes it possible to distinguish two periods in the development of the economic players operation during 2001-2014: the period of intensive development (2001-2007) and the crisis period (2008 – present). Thus, 39.8% increase in the number of breeding plants and 64.5% in the number of breeding reproducers was observed

in the first period. A slight increase in the number of pigs in all categories should be noted during the period of intensive development along with increased funding for scientific research in the field of pig breeding.

As for the second stage, 42 breeding plants and 248 reproducers were discontinued during this period. One of the reasons for this situation was the reduction in livestock breeding funding. In fact, during 2012-2013, the level of financing covered only two-thirds of the need. In particular, in 2014, no funding was provided for the budget programs "Breeding in livestock and poultry farming in agricultural enterprises" (CPEC-2801190) and "Breeding in livestock and poultry farming in research and development farms" (CPEC-6591080).

Obviously, a rapid decrease in the number of breeding reproducers causes a decrease in pigs number. The number decreased by almost 82 thousand animals during 2001-2014.

However, despite the decrease in the number of breeding plants, the number of farm animals increased during this period by almost 90 thousand animals. This situation can be explained by the fact that the status of breeding plant was given to separate legal entities of vertically integrated structures which specialize in pig products production, processing and marketing.

It is obvious that ensuring the intensive development of pig breeding on the basis of breeding youngsters number increase and its productivity growth is possible due to the organization of an efficient reproduction system of the herd. That is why the study of the pig stock turnover in breeding farms depending on sex is an important direction of the pedigree base development.

The quality of genetic material is one of the factors providing the competitiveness of the pedigree pig breeding industry. According to some scholars, the decline of domestic pig breeding was caused by low quality of the products [6]. However, according to the data of the Ministry of Agrarian Policy and Food of Ukraine, the share of the main boars of "elite-record" and "elite" exceeds 90%, the sows number exceeds 85%.

Thus, a multidirectional change was found in the stock of main hogs and sows of the "elite-record" and "elite" classes during 2001-2014. It should be noted that in 2014 the hogs stock decreased by 59% along with 53.5% increase in sows. A qualitative change can be considered a positive moment - an increase in the share of the main herd of the "elite-record" and "elite" class hog stock structure at 5.56 pp, and in the sows - by 13.56 pp

Consequently, the presence of a negative tendency to reduce the pedigree stock will result in the problems in ensuring a balanced development of the pig products market. Domestic pig production is distinguished with shortage of breeding resources and specialized breeds of meat and bacon productivity, and the problem of domestic genetic resources quality remains unresolved. We have found out that most pig breeders are oriented towards using their own genetic resources to improve their quality. Thus, during 2001-2014, the breeding farms reduced significantly the amount of boars purchased - by 6.4 times, the gilts - by 4 times and sperm production by more than 10 times (Table 1).

The situation is obviously conditioned by difficulties in the in pig breeders economic activities financing as well as their low efficiency indicators, in particular the genetic material quality. Indeed, positive trends in the industry can provide an increase in agricultural producers demand for pedigree products. However, according to the Ministry of Agrarian Policy and Food of Ukraine, breeding farms have significantly reduced the volume of pedigree products sales.

Table 1. Dynamics of boars, gilts and genetic resources purchased by Ukrainian breeding farms

| Year | Boars | | Gilts | | Pedigree (genetic) resources purchases | |
|------|---------|-----------|---------|-----------|--|-----------|
| | animals | % to 2001 | animals | % to 2001 | sperm doses | % to 2001 |
| 2001 | 8741 | 100,00 | 23072 | 100,00 | 1215 | 100,00 |
| 2002 | 7156 | 81,87 | 21284 | 92,25 | 1299 | 106,91 |
| 2003 | 5343 | 61,13 | 15452 | 66,97 | 1052 | 86,58 |
| 2004 | 5792 | 66,26 | 17644 | 76,47 | 1220 | 100,41 |
| 2005 | 6453 | 73,82 | 20223 | 87,65 | 1950 | 160,49 |

| | | | | | | |
|------|------|-------|-------|--------|------|--------|
| 2006 | 6931 | 79,29 | 24156 | 104,70 | 1693 | 139,34 |
| 2007 | 4642 | 53,11 | 20210 | 87,60 | 1250 | 102,88 |
| 2008 | 5168 | 59,12 | 18737 | 81,21 | 1237 | 101,81 |
| 2009 | 4118 | 47,11 | 16881 | 73,17 | 950 | 78,19 |
| 2010 | 3139 | 35,91 | 15043 | 65,20 | 669 | 55,06 |
| 2011 | 3040 | 34,78 | 11760 | 50,97 | 902 | 74,24 |
| 2012 | 2398 | 27,43 | 9337 | 40,47 | 452 | 37,20 |
| 2013 | 1810 | 20,71 | 6247 | 27,08 | 269 | 22,14 |
| 2014 | 1365 | 15,62 | 5769 | 25,00 | 170 | 13,99 |

Source: developed and calculated according to the data of the Ministry of Agrarian Policy and Food of Ukraine

The data of Table 1 testify that during 2001-2014, breeding farms reduced the boars livestock sale amount by almost 5 times, sows – by 4 times, and domestic reproducers - reduced the amount, respectively, by 5 and 4.2 times. This tendency can be explained by both limited financial resources of independent agricultural enterprises and the legislative barriers for selling breeding animals to private farms.

Meanwhile, economic changes in the country resulted in the breakdown of most production and technological chains. Also, the breeding stock of the best foreign breeding companies began to outperform significantly the domestic breeds due to inadequate acquisition of the domestic commodity enterprises with cross-bred young animals and lack of significant selection achievements in domestic pig breeding within the last 2 decades. Most large-scale farms of the corporate sector of the agrarian economy are known to be oriented towards the purchase of pedigree pigs of foreign selection for 100% compensation for the purchase of animals for breeding farms and 50% compensation for non-breeding ones, which stimulated genetic resources import.

It should be noted that the largest volumes of breeding pigs arrivals to farm enterprises of the corporate sector from abroad was observed during 2006-2008 and in 2012 when the state program for the farm animals selection support ran.

The largest suppliers of live pigs to Ukraine in 2014 were Germany (71% in the overall structure), Denmark (8.2%) and France (8.2%). The largest share ranks Large White breed - 48%, Landrace - 19, Yorkshire - 10, Large White of import selection - 15, Duroc – 6; other breeds account for 2%. Consequently, in the pig products market, there is a steady tendency to exclude a number of domestic breeds with their subsequent substitution by imported genetic resources.

Currently, there is a large number of world-known genetic companies on the domestic market, however, it is rather difficult to determine the amount of the breeding stock imported to Ukraine as the remount young animals are often imported under the guise of feeder pigs to reduce the cost of all the related procedures [7]. This precludes an objective assessment of the real situation regarding Ukrainian pig breeders dependence on foreign genetic resources import.

Hermitage Genetics (63.6%) and Breeders of Denmark (23.9%) occupy the largest share in the pure-breeding youngsters supply chain in 2014. At the same time, the volumes of pure-breeding stock are considerably inferior to the supply of hybrids. Also, the acquisition of the progenitor livestock allows to receive the remount material with appropriate qualitative figures, on condition of proper compliance with the requirements for the proper organization of the genetic process of the herd on their own.

Research results

It has been found out that currently the domestic producers of pig products do not use the breeding products of the world leader in pig breeding, i.e. the United States of America, though Asian countries, in which the development of pig breeding is growing rapidly, import actively pedigree young animals from this country. One of the obstacles to importing genetic resources from the US is the discrepancy between veterinary certificates of the countries.

To solve this situation, some genetic companies, which have repeatedly faced the problems related to the transportation of genetic material across the border and the imperfection of Ukrainian legislation, start to open their own representative offices on the territory of Ukraine. Thus, the world-renowned Dutch genetic company Nurog BV, a member of the Hendrix Genetics group, established its representative office - Servolyuks-Genetik Ltd. (engaged in growing and selling Landrace and Big White maternal pure-bred remount pigs) - in the Orativsky district of Vinnytsia region at the beginning of 2010 [8]. PIC (Pig Improvement Company), the world leader in pig genetics improvement, plans to work up the Ukrainian market according to this approach.

The low efficiency of pig production in commodity farms is partly caused by poor quality of the breeding resources and the violation of integration ties between breeding farms and agricultural enterprises. Thus, the reproductive qualities of sows, including remount ones, for all breeds used in the farms were as follows: litter number - 12.0 animals, number of piglets in 30 days - 10.9 animals, the litter weight in 30 days - 87.6 kg, the weight of a 30 days old pig - 8.0 kg, that is, they correspond to the level of the elite class and the first class. In breeding plants and breed reproducers reproductive capacity of sows in all breeds was as follows: litter number - 12.1 and 11.8 animals, number of piglets in 30 days - 10.8 and 10.0 g., the litter weight in 30 days - 89.0 and 85.6 kg, the weight of a 30 days old pig - 8.2 and 7.8 kg, respectively [9].

The scientists research results prove that according to reproductive qualities the main domestic "maternal" breed of pigs - Large White – is inferior to the best world breeds. Consequently, taking into account the indicators of pig breeding efficiency in Ukraine, we can conclude that the genetic capabilities of domestic and imported genetic resources are not fully realized due to the imperfect organization of technological processes, especially the shortcomings in labor organization, inappropriate use of methods of cross-breeding and hybridization, insufficient and unbalanced nutrition, poor material, technical and production facilities [10].

According to the results of our research, we have systematized the factors of the crisis situation in the development of pig breeding, namely: low demand for breeding production in the agricultural producers; pig production and production means price disparity, feed, medicine and other products and services; violation of integration ties in the breeding products production and sale; reducing the level of state support for the development of scientific and technological progress of the industry; deterioration of the system of organizational and economic conditions in agricultural enterprises, etc.

We believe that one of the factors supporting the revival of pig breeding in Ukraine should be the effective economic regulation of the product market. However, the measures of state support to the agricultural sector and economic regulation levers are often controversial and not concerted with the real practice. The limitations of the state budget resulted in a dramatic reduction in centralized investments that were not timely transferred, which, in turn, affected the accumulation of public debt and devalued these payments. Meanwhile, the inaccessibility of loan funds and the decline in the profitability of pig enterprises have deprived them of the opportunity to upgrade their technological equipment, to complete construction of the facilities started as well as to carry out reconstruction and technical re-equipment.

It has been established that state support for leasing is important for livestock breeding development. Due to the complication of the financial situation of rural commodity producers, a new form of assistance to breeding farms in the implementation of breeding products for lease has been introduced since 1995, and agricultural enterprises-buyers have the opportunity to buy in installments and thus support the genetic potential and productivity of pig herds.

The processes of buying and selling pedigree animals got more active with allocating the lease fund money for breeding animals purchase. According to the State Statistics Service of Ukraine, the share of the pedigree animals purchase at the expense of the lease fund exceeds 10%. The practice of lease means use for the acquisition of breeding animals shows the low efficiency of the loans repayment mechanism. It is the loans repayment that needs to be amended under the current procedure in terms of increasing the duration of lease use and reducing the size of the down payment, as well as reducing the number of intermediaries in the lease system, which can have a positive effect in the agroindustrial chain. At the same

time, the funds of the lease fund must be distributed among those who are ready to bear responsibility for their property, which will contribute to loans return through lease (Fig. 2).

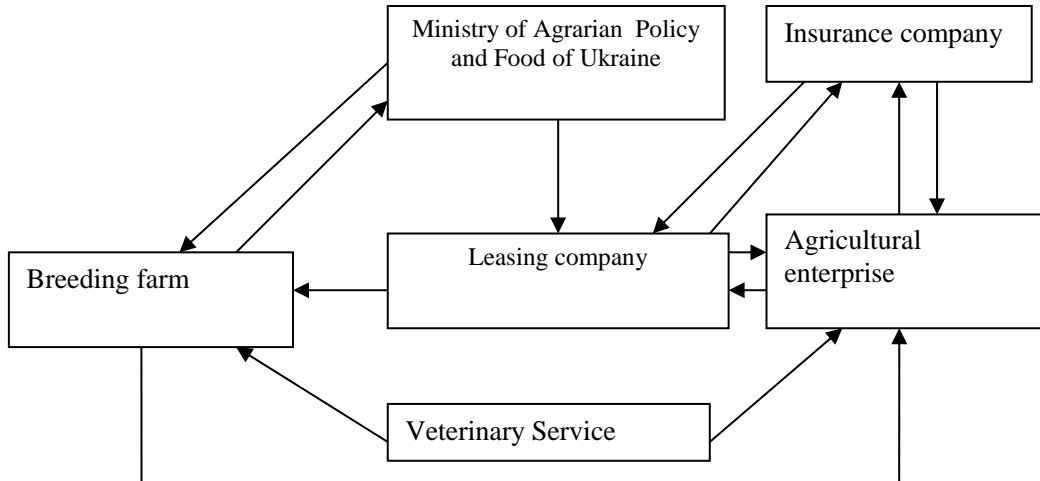


Fig. 2. Suggested scheme of breeding pigs lease

Source: developed by the authors

Lease operations accord with the current legislation, in particular, the Law of Ukraine "On Leasing", which specifies that farm animals are the objects of lease relations. We believe that the legal regulation requires clarification of the subjects of leasing relations in breeding stock purchase, namely the involvement of the following participants: agricultural enterprises registered as subjects of the breeding which have the certificate; a leasing company - financial intermediary; Ministry of Agrarian Policy and Food of Ukraine - an authority that controls the compliance of the status of a breeding plant or a reproducer and a financial manager of budget funds that must compensate the cost of purchased pigs due to a certain financial transaction in the amount of up to 2,400 UAH / animal; insurance company - a business entity that takes, for the relevant fee, the risks during the transport of pigs from the breeding farm to the agricultural enterprise-pig breeder and during their farming until the end of the lease agreement; veterinary service - a body that controls the conditions for pigs farming in a breeding farm, in an agricultural enterprise and during transportation; an agricultural enterprise - lessee.

Having summarized the results of the conducted research on pig breeding development, we systematized the economic and organizational tools and measures, which can provide its intensive development.

We believe that the system of taxation for pig breeding companies needs to be modernized, especially as regards the application of a single tax to group 4 of tax payers and the gradual introduction of the sales profit tax, which will enable the purchase of modern technologies for the agrarian sector, and, which is the most important, to ensure the competitiveness of pig products on the domestic and foreign markets.

Thus, pig breeding revival requires improvement of the regulatory and legal framework, as well as the distribution of functions (between the state and producers). Highly productive animals provide extra profits, therefore, agricultural producers interested in pedigree pig breeding should be concerned with it. However, in a real-world conditions, they are suspended from such work, due to their "legislative elimination" (Fig. 3).

Thus, the current legislation does not mention a private sector (personal peasant farms) among the subjects of livestock breeding while in Europe, they came to the conclusion that involvement of the state in breeding work slows down the process of introducing breeding innovations, and therefore, these issues are the prerogative of commodity producers and profile associations. The state is to perform only two functions, namely legislative initiative and control, namely to train veterinary, technology maintenance,

feeding and breeding specialists. All these tasks should be discussed extensively with all the specialists of the Association member companies.

Special attention in breeding work, at the present stage of development of domestic pig breeding, should be paid to the commodity enterprises planned supply with remount cross-bred young animals with high productive and adaptive qualities. Thus, the establishment of breeding and genetic centers in pig breeding is the most important condition for the implementation of hybridization and breeding programs for pigs on a three-level scheme [11].

According to the above-mentioned algorithm for the establishment of a pig breeding system at Level 1, pure breeding of specialized lines of meat breeds based on Large White, Yorkshire, Landrace, Durok, Pietrene, etc. should be carried out. It is obvious that 3-4 breeding herds with 4-5% of breeding stock as a part of the breeding system must be in the upper part of the breeding pyramid. The remount youngsters fanning should be carried out on **elevers** with the yield assessment conducted using population genetics methods.

Level 2 is the maternal lines reproduction and obtaining several lines of cross-bred youngsters for the purpose of assembling commodity herds, which should make 12-11% of the breeding stock that are part of the breeding system.

Level 3 - the production of a three- and four-line hybrid livestock.

Selection Genetic Centers (SGCs) are to become the basis of the organizational structure of pig breeding in Ukraine. The breeding work of the SGC should be aimed primarily at the selection and improvement of the pedigree stock of pig maternal and paternal specialized combined lines by the method of closed linear pure-bred selection and obtaining cross-bred youngsters. It is necessary to ensure uninterrupted reproduction of breeding and cross-bred youngsters for breeding and commodity enterprises located in the zone of regional and interregional pig breeding system. Moreover, the obligatory conditions for breeding and selection genetic centers functioning are as follows: availability of at least three specialized maternal and paternal lines consolidated on reproductive, fattening, meat quality and appearance features, in breeding and selection genetic centers; the number of livestock must ensure its own reproduction in each herd to support breeding lines in a number of generations; remount youngsters assessment by their own productivity; automated zootechnical records with a data bank for breeding herds.

Conclusions

Forage base is an important element in the development of pig breeding as it can not only ensure quality feeds for pig stock but to reduce significantly the products cost. To solve this problem it is necessary to provide measures on forages protein and energy content increase, to increase the production volumes of forages with protein-vitamin and functional additives, to increase the production of extruded, dry forages, fodder soy concentrate for starter fodder, comprehensive improvement of liquid feed preparation directly on pig farms, etc.

Priority directions of scientific support for the development of breeding and breeding work should be: provision of feed in full to the needs; conducting purposeful veterinary and protective activities, in particular, development of requirements for biosafety and creation of an all-Ukrainian identification system, which will enable to control the safety of pig breeding; development and improvement of technology of breeding, industrial and small-scale raising and fattening of animals; expansion of the pedigree base of pigs by creating new farms of meat production direction; improvement of pig breeds by using the best world genetic resources, optimizing the composition of the rock based on the best domestic and foreign breeds; provision of organization of young pigs testing of by their yield performance; creation of new diets and feeding technologies. We believe that the functioning of the regional and the creation of an interregional system of pig breeding in the medium dated prospect based on the organization and operation of new types of enterprises - breeding and genetic centers - will enable the creation of a domestic competitive breeding base and the production of highly productive hybrid fattening youngsters.

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