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CHARACTERIZATION OF GENETIC MATERIAL OF BULLS, WHICH IS KEPT IN THE BANK OF ANIMALS OF GENETIC RESOURCES OF IABG NAAS

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Analysis of the quantitative composition of genetic material of bulls 30 breeds Bank of animal of genetic resources of Institute of Animals Breeding and Genetics of NAAS was conducted.

Key words: *sire, semen, cattle, breed, of animals genetic resources*

INTRODUCTION. The efficiency of production of the industry of livestock breeding is closely connected with the preservation of the biological diversity of farm animals and poultry. Market conditions determine the present intensifying competitive animal breeds, which leads to a systematic decrease in size or disappearance of a whole local native breeds [3]. Updating the introduction of integrated monitoring of animal genetic resources caused by the prospect of using its results for the organization of control, forecasting and implementation of criteria and develop ways to preserve genetic diversity [4, 7].

One of the instrumental approach to rational using gene pool of local, minority and indigenous breeds of animals is forming banks long-term storage of biological material [1]. In 1976, at the Ukrainian Research Institute breeding and Artificial insemination of cattle created Republican gene pool bank of sperms. As part of his priorities include: purposeful storage and use in the selection and breeding work most valuable semen of bulls-improvers, founders and successors of the main lines, developing new software applications lines, types and breeds of livestock, provision of pure breeding in closed populations [3]. Cabinet of Ministers of Ukraine of 19 August 2002 p. № 472-r Bank Animals of Genetic Resources of Institute of Animals Breeding and Genetics of NAAS included in the

State register of scientific objects of national heritage. The basis of its operation is the systematic replenishment of samples of biological material for a comprehensive assessment of the quality and implementation of automated data from open access to be able to use biological material that is designed for long-term storage in the practical work of the species and breeds of animals for scientific implementation platforms [6].

When completed the tasks of optimization of creating breeds process in Ukraine and cattle breeding programs, often carried out using semen sires dairy and beef breeds inherent in the Bank of animal genetic resources of the Institute of Animals of Breeding and Genetics of NAAS.

PURPOSE OF RESEARCH – the characteristic of bulls, genetic material which is on long-term conservation of animal genetic resources bank IABG.

MATERIAL AND METHODS. Information from tribal forms of accounting (1-mol and 1-meat) and certificates of origin analysis conducted genealogical pedigree sires (n = 232) of cattle, semen which is deposited in the bank of Animals Genetic Resources Institute of Animals Breeding and Genetics of NAAS. Analyzed the shelf life of bull semen frozen depending on dates.

RESULTS AND DISCUSSION. Information from inventory as of September 1, 2014 at Bank of animals genetic resources of IABG in storage is 145,7 thousand sperm doses of sires 232 from bulls of 30 breeds of domestic and foreign selection.

Table 1 shows the number of sires and dairy cattle breeds and the number of sperm stored in sperm bank of Institute. Among the breeds of dairy productivity trend largest share of sperm production which is deposited is of the bulls of Holstein breed and has 36.19 thousand doses from 43 sires 22 lines. Genetic material of this breed sires used for breeding and improvement of the newly created local dairy breeds. On the bank of the Institute laid bull sperm Holstein breed Elbrus 897 – founder factory line of Ukrainian Black-and-White Dairy cattle.

1. The presence in the bank of animals of genetic resources of IABG NAAS semen bulls of dairy breeds

№	Breed	The number of bulls, heads	Number of lines	Number of sperm, thousand doses
1	Ukrainian Whiteheaded	8	4	4,69
2	Lebedyn	6	5	1,92
3	Carpathian Brown	13	9	3,49
4	Ukrainian Red-and-White Dairy	17	8	13,56
5	Ukrainian Black-and-White Dairy	10	5	11,88
6	Ukrainian Red Dairy	3	3	1,45
7	Red Steppe	2	2	0,95
8	Ukrainian Brown Dairy	1	1	0,18
9	Simmental	25	12	17,06
10	Holstein	43	19	36,19
11	Angler	7	5	3,34
12	Pintsgow	3	2	1,14
13	Jersey	2	2	1,05
14	Montbéliarde	1	1	0,22
15	Red Danish	1	1	0,48
16	Swiss	1	1	0,13

Stored in a bank of genetic resources of animals IABG bulls semen of domestic breeds: Ukrainian Black-and-White Dairy from 10 sires 5 lines, Ukrainian Red-and-White Dairy of 17 sires 8 lines and Ukrainian Red Dairy from 3 sires different lines. The genetic material of Ukrainian Brown Dairy cattle is in banks sperm other bull in the number of 182 doses.

Simmental is represented at the bank the Institute by sperm of 26 bulls 12 lines mainly domestic selection, in addition to three foreign sires: Plandi 15344431 (Germany), B. Szinvonalas 3200801402 (Hungary) and Furst 6790008066 (France). Semen of Simmental bulls mainly was laid in the bank of the Institute in 80–90s of the last century when the breed was made directed selection and breeding work.

Genetic material of the Angler breed is stored in bank sperm of Institute from 7 sires 5 lines, Pintsgow breed – from three sires two lines. Sperm of Red Steppe and of Jersey breeds is on maintaining two bulls of each breed different lines. Sperm of Red Danish, Swiss and Montbéliarde breeds is stored in the bank of animal genetic resources of IABG in one bull.

To implement the program "Conservation of the gene pool" in the bank's animal genetic resources is stored and used genetic material from 27 bulls of three local breeds: Ukrainian Whiteheaded, Carpathian Brown and Lebedyn.

Sperm Lebedyn breed is kept of 6 bulls 5 lines: Laka 964, Balcona 1799 Maketa 4307, Hilla 107915 and 4281 Chutkoho.

Ukrainian Whiteheaded breed at the bank of the Institute presented the sperm of 8 sires 4 lines: Zharguna 157, Marta 171, Ozona 417 and Ryezvoho 33. The total number of this breed is concentrated in only one farm of Khmelnitsky region of "Podilsky Gospodar" and has 596 heads, including the 300 cows. In 2011, for the maintenance and preservation of genealogical structure gene pool herd of Ukrainian Whiteheaded breed was isolated from Bank Institute semen from 3 bulls lines: Ozone 417, Marta 171 and Zharhuna 157.

The genetic material of Brown Carpathian breed Institute is stored in a bank of 13 bulls 9 lines: Distinkshna 159523, Lutogo 1433, Eleganta 148551, Eleyma 110327, Pyshty 10, Raneta 584, Sokola 1811, Stretcha 1436612 and Fitsko 33. Breeding stock of this breed bred only in households. In the future breeding work should be done to restore under control livestock Carpathian Brown breed in breeding farms.

The bank of animals genetic resources of IABG is stored sperm to 14 beef breeds foreign and domestic breeding (tabl. 2).

2. The presence in the bank of animals of genetic resources of IABG NAAS semen bulls of meat breeds

№	Breed	The number of bulls, heads	Number of lines	Number of sperm, thousand doses
1	Ukrainian Grey	12	2	9,36
2	Ukarainian Beef	23	14	12,28
3	Volinian Beef	13	5	6,23
4	Polissian Beef	3	3	1,44
5	Southern Beef	2	1	0,95
6	Chianina	4	3	2,50
7	Blonde d'Aquitaine	3	3	0,77
8	Charolais	3	3	3,65
9	Gascon	2	2	0,46
10	Limousin	5	4	1,54
11	Simmental Beef	6	2	3,00
12	Hereford	4	4	2,00
13	Piedmontese	6	5	2,00
14	Maine-Anjou	1	1	0,22

The bank of the Institute of available semen sires pioneers related groups, which are used in the output Ukarainian Beef breed: Eoiziano 81, Eymo 2317, Desanta 274 and Eufemio 382 of Chianina breed and Junckera 5203, Zheriko 8574103527 of Charolais breed. Sperm Ukarainian Beef breed sires maintained from 23 bulls factory lines 5 and 9 related groups.

Located on preserving semen from 13 bulls Volinian Beef breed 5 factory lines: Sonnogo 3307 – Cactusa 9828, Yamba 3066, Krasavhika 3004, Buynoho 3042 and Tsebryka 3888.

Available in the bank of semen from 3 bulls Znamensk type of Polissian Beef breed different lines from two Southern Beef breed sires lines Idola 42763. Semen bulls Blonde d'Aquitaine breed saved from three sires, genealogically related to each other are not.

This year, semen sires of beef breeds SFE "Golovniy Selekciyniy Centr of Ukraine" Kyiv region: Hereford (n = 4), Piemontese (n = 6), Limousin (n = 2) and

Simmental Beef (n = 6) have deposited to the Bank of animal genetic resources IABG.

The genetic material of Ukrainian Grey, that is stored in a bank of the Institute in the number of 9,4 thousand doses of sperm from 12 bulls 2 lines of Shamrina HU-41 and Petushka U-191, related groups: of Tabuna 2617, Ulana 3331, Zaporozhtsya 1260 – Chudovoho 1276, Zaytsya 1531 – Zoologa 641and Hryfa 4181 – Inzhyra 7927. last year, the Institute has been funded bank sperm from bulls with 7 SE "Dnipropetorvsk regional enterprise for livestock breeding "Oblplempidpryemstva" in the amount of 5,4 thousand doses.

Head of Ukrainian Grey breed is throwed by two farms SE «RF «Polyvanivka» Dnipropetrovsk and SE «RF «Markeyevo» Kherson regions and is 928 chapters, including cows – 351. Analysis shelf life bull semen frozen depending on the dates is shown in table 3.

3. The duration of storage sperm of bulls in bank of animals of genetic resources IABG NAAS

Years	The number of bulls, heads	Number of sperm	
		thousand of doses	%
41 >	9	4,41	3,04
36 – 40	14	6,40	4,41
31 – 35	18	6,91	4,76
26 – 30	33	25,67	17,69
21 – 25	71	49,54	34,15
16 – 20	64	38,88	26,80
10 – 15	23	13,28	9,16
Total	**231**	**145,09**	**100,00**

More than 41 year in the bank's animals genetic resources for IABG is stored semen from 8 bulls breeds: of Carpathian Brown – Radista 1305, of Ukrainian Whiteheaded – Neapolya 561, of Ukrainian Gray – Ingyra 7927 and Barvinka 8242, the Ukarainian Beef – Losya 987 and pioneers related groups Chianina breed: Eoziano 81, Eufemio 382 and Eymo 2317.

From 36 to 40 years stored in banks of animals of genetic resources IABG semen from 14 bulls in amount of 6,4 thousand doses that is 4,41 %. The greatest number of sperm is deposited between 16 and 30 years and is 114,1 thousand doses, which is 78,64 %. From 10 to 15 in the bank of Institute stored semen from 23 bulls, that is 9,16 %.

In addition to sperm of cattle in bank of animals genetic resources IABG employee of Institute of Animals Breeding and Genetics of NAAS and other scientific institutions in the system of the National Academy of Agricultural Sciences of Ukraine performs the replenishment of genetic material (semen, embryos and somatic cells) other species of farm animals, including such local, endangered and minority species: pigs Ukrayinska Stepova Bila, Ukrayinska Stepova Ryaba, Myrgorodska breeds, sheep Sokil'ska and Ukrainian Girskokarpatska breeds and chickens Borky Color and Poltavska glynyasta breeds.

CONCLUSIONS. Characterization of genetic material sires of 30 breeds of cattle, located on the bank maintaining animal genetic resources of the Institute of Animals Breeding and Genetics of NAAS has done.

The analysis of the shelf life of bull semen frozen depending on dates. More than 40 years stored semen from 8 bulls breeds: Carpathian Brown, Ukrainian Whiteheaded, Ukrainian Gray, Ukarainian Beef and Chianina.

The Institute continues to work on the formation of the bank gene pool genetic material of different species of farm animals. To enhance its role in the management of genetic resources and the preservation of biodiversity in the future of its formation must be based on the basis that from commercial breeds of farm animals lay biological material only from the greatest of their representatives, and for indigenous, local and endangered species – representatives from the widest possible range of different genealogical structure that will characterize the entire population.

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ХАРАКТЕРИСТИКА ГЕНЕТИЧНОГО МАТЕРІАЛУ ПЛІДНИКІВ ВЕЛИКОЇ РОГАТОЇ ХУДОБИ, ЯКИЙ ЗБЕРІГАЄТЬСЯ У БАНКУ ГЕНЕТИЧНИХ РЕСУРСІВ ТВАРИН ІРГТ НААН

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Проведено аналіз кількісного складу генетичного матеріалу плідників 30 порід великої рогатої худоби банку генетичних ресурсів тварин Інституту розведення і генетики тварин НААН.

Ключові слова: плідник, сперма, велика рогата худоба, порода, генетичні ресурси тварин

ХАРАКТЕРИСТИКА ГЕНЕТИЧЕСКОГО МАТЕРИАЛА ПРОИЗВОДИТЕЛЕЙ КРУПНОГО РОГАТОГО СКОТА, КОТОРЫЙ СОХРАНЯЕТСЯ В БАНКЕ ГЕНЕТИЧЕСКИХ РЕСУРСОВ ЖИВОТНЫХ ИРГЖ НААН

Е.В. Сидоренко

Проведен анализ количественного состава генетического материала производителей 30 пород крупного рогатого скота банка генетических ресурсов животных Института разведения и генетики животных НААН.

Ключевые слова: производитель, сперма, крупный рогатый скот, порода, генетические ресурсы животных