Significance Of Their Genotypic Parameters In The Assessment Of Breeding Bulls Of The Holstein Breed Imported From Abroad

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ABSTRACT

The article describes the results of the evaluation of sperm donor bulls brought from abroad to the state enterprise "OZNASLCHILIK" according to their origin. The purpose of the study is to evaluate the degree of herd "Improving" effect of imported breeding bulls in order to use them in artificial insemination on a large scale.

Keywords: Breed, Bull, Holstein, Improver, Degrader, Productivity, Ancestor, Progeny, Maternal Productivity, Heredity, Lactation, Milk, Milk Fat, Milk Protein.

INTRODUCTION

One of the most important factors that ensure the development of the network in livestock, in particular in cattle breeding, is breeding. The basis of breeding is selection and mating work. The ultimate goal of selection work, on the other hand, is the results of a comprehensive assessment of bulls, in which the main directions – their Exeter, growth and development, in addition to fertility-also assume that the quality of their offspring will be in demand. However, the main direction that defines others within these evaluation directions is their origin, that is, the genotype. Because, the correlation relationship between parental and generational lineage value is on average 0.71, which means that offspring productivity indicators can be projected at 71% accuracy [1].

In order to achieve maximum productivity in the selection process, it is necessary to determine the value of offspring in young moles as early as possible. Therefore, even in the Republic of Uzbekistan, where the improvement of the herd of dairy cattle is gaining momentum, the question of the initial stage of assessment is currently important - the assessment on the productivity of ancestors. In the improvement of the skewbald breed, which has the largest share in the herd of Republican cattle, the Holstein breed is used, which is the most used in the world. Of course, artificial fertilization, which is a guarantee of large-scale selection and breeding work, occupied the main direction, and the main seed - producing organization for the implementation of this event in the Republic of Uzbekistan is the state-owned enterprise "self-breeding". The enterprise produces seeds from breeding bulls belonging to different lines and of different bloodlines.

In breeding farms, the main way to urinate cattle is through lines and families. However, due to the limitations of the scope of selection, the work of mating on the lines cannot always give the intended result. For this reason, it is necessary to assess the effectiveness of the use

of breeding bulls with different genotypes in order to improve mating styles by lines [2].

Most scientists try to find a connection between the signs that clearly appear on the surface at the youngest periods of animals and determine their future productivity. The most important factor for selection purposes is the general effect of genes for the formation of an additive, that is, a certain economic-useful sign, which is the basis of selection work.

A number of indices have been developed taking into account the influence of ancestors and lateral generation relatives at different levels, which make it possible to predict the future productivity of future generations. However, the quality of the offspring of breeding bulls is assessed in order to assess the breeding value of breeding animals as accurately as possible. In this case, the obtained daughter is compared with the indicators of generations of Tenors and their mothers, genealogies [4].

To compare the effectiveness of the pre-assessment, the coefficient of level correlation between some signs is determined [5].

The purpose of the study: to determine the genealogical value of breeding bulls belonging to the Holstein breed, bred at the state enterprise of the Republic of Uzbekistan.

Materials and methods: as the material of research, the data of the genealogical accounting, which was carried out at the state enterprise "self-ownership", was used. In the first stage, the breeding value of breeding bulls was determined in its highest lactation: the ancestral index of bulls (AM) is determined by the amount of milk, total fat in milk (TFM) and milk fat output (MFO). This is done using the following formula:

(2×M + MM+ FM) / 4,

In this: M – Mother's productivity index; MM and FM – mother's mother's and father's mother's productivity indicators.

In addition, the average index of bull ancestry (IBA) is determined between groups on the lines and bloodedness of Holstein Bulls.

From the Holstein breed, belonging to different lines and pedigree, groups were formed from the Daughters of breeding bulls who gave birth for the first time.

The results obtained and their analysis:

In the course of the study, breeding bulls were studied and evaluated individually and by the breed group as well. They were evaluated with each other primarily on their genotype, with groups of "tested" and "controlled" Bulls formed and compared among themselves (Table 1).

Table 1

Skewbald Holstein breed bulls father a table of comparison of their daughters to their peers on milk productivity

Breeding bull		Father nickname	The difference of the father's daughters in relation to their peers		
Nickname	INV №		Milking, kg	Milk fat, kg	Milk protein, kg
"Controlled" Bulls					
Uris	657335	Dijon	+1261	+56	+54
Ursel	657372	Dijon	+1261	+56	+54
Ursa	657353	Board	+1404	+52	+53
Uriel	657319	Board	+1404	+52	+53
Ursinus	695673	Supermal	+1391	+60	+48
Ulfilas	657309	Jetset	+887	+49	+49
Uralu	633203	Elogient	+679	+60	+44

X±S			1183,8±104,6	55,0±7,3	50,7±8,3
C_v, %			23,4	1,5	1,6
"Testing" Bulls					
Unit	236951	Loghinvag	+40	+10	-8
Uralo	633141	Breket	+764	+44	+48
Ursola	195697	Artist	+1038	+49	+32
Ursin	322727	Rados	+1497	+24	+50
Urmas	657342	Roladi	+909	+23	+28
Uros	657347	Dragester	+617	+36	+33
Urika	657333	Korivall	+1290	+17	+28
Urim	657334	Korivall	+1290	+17	+28
Urali	633610	Dragester	+617	+36	+33
X±S			895,8±140,5	28,4±47,0	32±36,3
C_v, %			47,1	4,5	3,9

Selected according to their father's genotype, "controlled" bulls are 288 kilograms more than "tested" Bulls' dairy priority, 30.6 kg of milk fat and 24.5 kilograms more milk protein. However, all bulls in two groups have "testing" qualities. Their fathers ' daughters had their own equal in milk productivity (milk yield, fat and protein levels) higher than those of other bullfights.

The individual assessment of each breeding bull and their comparison with each other found that the urn and Ursel and the bull fathers "Dijon" and "Board" Bulls, nicknamed Ursa and Uriel, had the highest rates. In the first, the priority of their daughters on milk is 1261 kg, in milk fat – 56 kg, and in milk protein – 54 kg. while the second Bulls had 1,404, 52 and 53 kilograms respectively. Similar indicators are observed in the Daughters of the fathers of bulls nicknamed Ursinus and Uralu.

The fathers of the Bulls, nicknamed ursin, Ursola and Urim in the groups of "testing" Bulls, said that although the daughters had a priority of 1038-1497 kilograms in terms of milk yield, at a low level of fat and protein in milk, milk fat was 17-49 kg and milk protein was 28-50 kilograms. Some bull fathers prioritized all milk productivity indicators (milk yield, fat, and protein content) of their daughters over those of equinoxes. In particular, in the Daughters of the Bulls of Dijon, Supermal, they have a dairy priority of 1261 and 1391 kilograms, respectively, with a fat content of 0.06 and 0.05%, 0.08 and 0.05%, respectively. Cow's milk serum increases milk fat. The amount of protein is also of this nature. The fact that "controlled" Bulls have 2.25 times the milk fat compared to "tested" Bulls and 1.94 times the milk fat depends on the heredity of the cows.

In the group of "testing" Bulls, the lowest indicator is observed in the Daughters of the bull father, nicknamed Unit. They were 40 kilograms behind their dairy counterparts and 10 kilograms behind their milk protein counterparts in terms of milk fat (-8 kg). Such bulls can be transferred to neutral Bulls.

In some bull genotype fathers ' daughters, milk protein is in priority indicators compared to milk fat. In particular, in the group of "testing" Bulls, the Daughters of the bull's father,

nicknamed ursin, left their equinoxes behind by 24 kilograms in milk fat, while in milk protein- by 50 kilograms, by 2.08 times more. Such differences were observed in the Daughters of the fathers of several (Uriki, Urim, Urmas, Uralo) Bulls.

In addition to assessing the productivity of their daughters in the bull paternal ancestral genotype, we also evaluated them individually and grouped according to the productivity, procreation, body structure, milk storage, quality index, somatic cells, and urination and survival indexes of their fathers (Table 2).

The fathers of the skewbald Holstein breed of bulls in the experiment were highly rated productivity and selection indices. In particular, productivity (RZM), genealogy (RZG) and externer (RZE) indices are high. In particular, "controlled" Bulls had 136, 144 and 125% equal, respectively, while "tested" Bulls had 121, 135 and 125% respectively. The priority of somatic properties in milk was relatively low manifestation (110%), the index of mating properties (RZN) was 119-122%, while the index of survival and economic use was 99-110%. It is known that the increased productivity of cows negatively affects the indicators of their urination and survival. In particular, fathers of "controlled" Bulls have a mating index of 119% in their daughters (relatively high productivity) and a survival index of 99%, while fathers of "tested" Bulls have 122% and 110% respectively.

Table 2
Selection indices of bulls fathers of the skewbald Holstein breed

Breeding bulls		Productivity and selection indexes of their father, %					
Nickname	INV №	Productivity (RZM)	Genealogy (RZG)	Eksterer (RZE)	Somatic cells (RZS)	Mating (RZN)	Bucking (RZR)
"Controlled" Bulls							
Uris	657335	137	146	129	104	121	106
Ursel	657372	137	146	129	104	121	106
Ursa	657353	137	147	126	116	120	103
Уриел	657319	137	147	126	116	120	103
Ursinus	695673	135	136	118	112	112	88
Ulfilas	657309	135	150	137	131	127	92
Uralu	633203	134	133	108	97	113	95
X±S		136±0,,6	144±2,4	125±3,3	111±3,9	119±1,8	99±3,0
C_v, %		1,1	4,5	7,0	9,3	4,1	7,9
"Testing" Bulls							
Unit	236951	96	116	118	100	131	116
Uralo	633141	134	149	125	111	127	118
Ursola	195697	125	136	130	99	118	112
Ursin	322727	131	139	108	105	121	115
Urmas	657342	118	122	108	106	114	99
Uros	657347	124	136	133	118	117	102
Urika	657333	118	137	133	117	127	112
Urim	657334	118	137	133	117	127	112
Urali	633610	124	136	133	118	117	102

X±S	212±3,6	135±3,2	125±3,3	110±2,5	122±2,3	110±2,3
C_v, %	8,9	7,1	8,1	6,7	5,7	6,3

When the Bulls are assessed individually and compared, the offspring of "tested" fathers have the highest productivity index, i.e., (RZM) of 135-137%, observed in 6 head Bulls. At 135-150%, this was estimated at 13 head Bulls. The Shape of the body structure of animals, that is, with great attention to the extender, separate selection-selection work is carried out. There were also large positive results on this indicator, with the highest indicators of the eksterer (RZE) index (125-137%) typical of 10 head Bulls, observed in the fathers of bulls nicknamed Uros, Uriki, Urin, Urali, Ulfilas.

Oxen fathers nicknamed Ursinus, Ulfilas and Uralu have a productivity index of 135%, compared to 88-95 for those who live them and the index specific to the duration of their use in the farm. The bull horse, nicknamed "Unit", had a productivity index (RZM) of 96% and a pedigree index of 116%, while the propagating (RZN) and livability (RZR)indexes in them had risen to 131 and 116% respectively. Even in these indicators, the bull nicknamed Unit has low indicators and belongs to the category of neutral bull.

It is known that the assessment of bulls on selection indices is important in modern selection work, which gives quick positive results in the improvement of breeds and herds. Imported skewbald Holstein breed bulls are derived from ancestors assessed by selection indexes, with high breeding indicators characteristic of the category of "tested" Bulls. The potential indicators of high productivity and procreation of their ancestors go to their heredity, and reliable results are manifested.

Productivity indices of the maternal ancestors of bulls of the skewbald Holstein breed

It is known that the breed of bulls and its productivity indicators are influenced by the productivity index potential of the paternal ancestors, as well as the productivity of the maternal ancestors. It is known that while paternal hereditary traits are passed down to more female offspring, educated offspring are more affected by maternal heredity. For this reason, in selection experiments aimed at obtaining fertile offspring, groups of bull-giving breeding cows are formed, to which bulls that are particularly popular are used in "ordered mating". Then no less bulls are obtained from their father in terms of productivity, which has an extremely high pedigree. The qualities of productivity and procreation of maternal ancestors are also important in obtaining such bulls and are widely used in modern selection programs. Therefore, during our studies, we also studied the productivity index of maternal ancestors and used it in selection work (Table 4).

Table 4
Indicators of milk productivity of mothers of bulls of the skewbald Holstein breed

Breeding bull		Productivity of their mothers				
Nickname	INV №	Milking, kg	Fat content, %	Protein content, %	Milk fat, kg	Milk protein, kg
"Controlled" Bulls						
Ursel	657372	12327	3,61	3,31	445	413
Ursin	322727	14239	4,04	3,13	575	445
Urmas	657342	10738	4,57	3,96	491	425
Ursinus	695673	12304	4,12	3,18	507	391
Ulfilas	657309	12039	3,26	3,44	425	448
Uris	657335	12225	3,30	3,31	403	405
Uriel	657319	11831	3,50	3,38	414	400

Uralu	633203	12758	3,76	3,16	480	403
X±S		12307,6±323,6	3,77±0,1	3,36±0,1	467,5±19,3	416,3±7,1
C_v, %		7,4	11,2	7,4	11,7	4,7
"Testing" Bulls						
Unit	236951	11040	3,86	3,42	426	378
Ursola	195697	11804	3,09	3,19	365	376
Urika	657333	11165	3,63	3,36	405	375
Urim	657334	9998	4,14	3,59	414	359
Uralo	633141	13384	3,12	2,81	417	376
Ursa	657353	10967	3,66	3,39	401	372
Uros	657347	11848	3,28	3,18	389	377
Urali	633610	11361	3,71	3,31	422	376
X±S		11445,9±323,1	3,56±0,1	3,29±0,1	404,9±7,4	373,6±2,1
C_v, %		8,0	10,6	6,6	5,2	1,6

From their data in the table, it can be seen that imported skewbald Holstein breed bulls are obtained from cows that give an average of 10,000-14,240 kg of milk. The milk yield of mothers of "controlled" bulls is 12433 kg, milk fat is 467.5 kg and milk protein is 417 kg. whereas the mothers of "testing" bulls weigh 10,196 kg, 401.9 and 373.6 respectively kg.ga is equal to. That is, in these indicators, the leader Bulls took priority. In general, the relatively low fat content of milk is a characteristic sign of the Holstein breed. Although high in milk yield, its fat content averages 3.56% and 3.77% in groups. Some cows have a milk fat content of 3.09-3.50%, while others have an increase of 4.0-4.57%.

In the group of "testing" Bulls, the mother of the bull, nicknamed "Uralo", gave 13,384 kg of milk, with a fat content of 3.12 and a protein content of 2.81%. In addition to giving a lot of milk, mothers of some bulls are also characterized by high fat and protein levels in their milk.

The milk yield of bull mothers, nicknamed "Ursin", was 14,239 kilograms, with a milk fat content of 4.04% and protein content of 3.13%, milk fat of 575 kg and milk protein of 445 kilograms. Such a high figure was also observed in mothers of Ursinus, Uris, Urali, Urmas and other bulls. For example, the mother of the bull, nicknamed Ulfilas, showed 13,039 kg, 425 and 448 kg, respectively, and Uralin 12,758 kg, 480 and 403 kg.

Bulls with this level of maternal productivity are considered extremely important in improving herds under the selection program. Because, their genetic potential for productivity is passed on to offspring.

Bulls nicknamed Ursola and Uros, whose productivity is the lowest of their mothers, obtained by experience, can also be used in the improvement of personal farms and commodity - farm herds. In this case, bulls from cows that produce milk with a milk yield of 10,000 kg, 3.6% fat and 3.3% protein also give a good result, transferring their "tested" qualities to the offspring in low-yielding herds. Bulls from cows that give 12,000 kg of milk and higher, with 450-600 kg of milk fat and 400-450 kg of milk protein, are able to improve the herd of breeding farms. Therefore, "testing" and "controlled" bulls should be used as much and high-quality as possible to fertilize and make good use of breeding cows of breeders and commodity farms in an artificial insemination system. For breeds with a skewbald tint, the skewbald Holstein breed is considered a "testing" breed.

We also evaluated the imported skewbald Holstein breed of bulls in the productivity index of their maternal ancestors in a new modern way. In this way, two times the indicators of productivity of their mothers and one time the indicators of their mother's mother and father's mother are combined into four:

(2*M+MM+FM): 4

calculated (Table 4).

Table 4

Productivity indices of the maternal ancestors of bulls of the skewbald Holstein breed

Breeding bull		Maternal ancestry productivity index				
Nickname	INV №	Milking, kg	Fat, %	Protein, %	Milk fat, kg	Milk protein, kg
"Testing" Bulls						
Ursel	657372	12279	3,87	3,28	475	403
Ursin	322727	13628	4,01	3,28	547	447
Urmas	657342	12783	3,75	3,82	475	461
Ursinus	695673	13399	4,11	3,19	551	428
Ulfilas	657309	12003	3,62	3,57	415	424
Uris	657335	11670	3,73	3,32	435	388
Uriel	657319	11247	3,79	3,38	426	380
Uralu	633203	11497	3,82	3,34	439	354
X±S		12313,3±291,9	3,84±0,1	3,40±0,1	470,4±10,6	411±12,2
C_v, %		6,7	3,9	6,0	17,6	8,4
"Testing" Bulls						
Unit	236951	12374	3,78	3,26	468	404
Ursola	195697	11811	4,00	3,43	472	405
Urika	657333	11849	3,97	3,38	470	400
Urim	657334	12003	3,69	3,22	443	387
Uralo	633141	11970	3,55	2,98	421	356
Ursa	657353	10965	3,85	3,38	422	371
Uros	657347	12061	3,36	3,38	405	408
Urali	633610	11497	3,82	3,34	439	354
X±S		11816,3±140,6	3,75±0,1	3,30±0,1	443±8,5	386±7,4
C_v, %		3,4	5,6	4,8	5,5	5,4

In the productivity index of maternal ancestors, Bulls provide information on how productive their paternal maternal and paternal grandparents were. While mothers of "controlled" Bulls milked their grandmothers, they were slightly behind in the amount of fat and protein in milk. In the "testing" group of Bulls, their mothers 'milk productivity has decreased compared to that of their grandmothers, which means that in maternal cows from the next mating, the genetic potential of parental productivity has shifted to full heredity. In fact, in individual or ordered mating, the genetic potential of their productivity in parent pairs is higher and is "tested" on the rates of their offspring, while new offspring should be more productive compared to their mothers. This is mainly due to the prepotence of proband Bulls. When comparing "controlled" and "tested" Bulls by maternal ancestral productivity index, the priority of the leader Bulls in dairy productivity indicators is observed. In particular, "controlled" Bulls have an average milk yield of 12,433 kg for their maternal ancestors, milk fat content of 3.77%, protein of 3.38%, milk fat of 467.5 kg, milk protein of 417.0 kg, "tested" Bulls of 10,196 kg, 3.56%, 3.29%, 404.9 kg, 373.6 kg.ga are equal.

Priority in the individual assessment of bulls on the maternal ancestry productivity index is the Ursin, Ursinus, a host to bulls nicknamed Urmas. The milk yield of their maternal ancestors is 12-14 thousand kg.ga the fat content in milk was 4.0-4.6%, and milk fat was 490-575 kg. The Grandmothers of these bulls were as prolific as their mothers. The mating events that took place had their positive effect.

Conclusions And Suggestions

Analyzing the results of our studies, the following conclusions were formed:

1. In dairy cattle breeding, the origin of the breeding bull is of particular importance, since it cannot be assessed according to its own signs, and information about the productivity of its ancestors acts as the main guiding factor;

2. When evaluating animals by Origin, it should be remembered that this assessment is a preliminary, data-driven prediction. The final, complex assessment is issued only after the quality of its descendants has been studied;

3. Mothers of "controlled" Bulls had a milking priority over their grandmothers, while they were slightly behind in milk fat and protein content. In the "testing" group of bulls, the milk productivity of their mothers has decreased compared to that of grandmothers, which means that in maternal cows from the next mating, the genetic potential of parental productivity has shifted to full heredity;

4. When "controlled" and "tested" bulls are cross-analyzed on the maternal ancestral productivity index, the priority of the leader Bulls in dairy productivity indicators is observed. In particular, "controlled" Bulls have an average milk yield of 12,433 kg for their maternal ancestors, milk fat content of 3.77%, protein of 3.38%, milk fat of 467.5 kg, milk protein of 417.0 kg, "tested" Bulls of 10,196 kg, 3.56%, 3.29%, 404.9 kg, 373.6 kg. are equal.

5. Priority in the individual assessment of bulls on the maternal ancestry productivity index is the Ursin, Ursinus, a host to bulls nicknamed Urmas. The milk yield of their maternal ancestors is 12-14 thousand kg.ga the fat content in milk was 4.0-4.6%, and milk fat was 490-575 kg. The Grandmothers of these bulls were as prolific as their mothers. The mating events that took place had their positive effect;

6.In terms of analytical data, it can be concluded that by selecting "tested" Bulls by complex signs at the state enterprise "inbreeding", selecting Bull-giving cows from productive cows, as well as the widespread introduction of ordered mating methods, productive offspring are obtained and improvement of the herd and breed is achieved.

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