

Productive Qualities of Imported Cows of Holstein Breed of Polish Selection in Uzbekistan

Ashirov Murodulla Eshonqulovich¹, Ibadullaeva Amina Saginbaevna²

¹Professor of Russian Natural Science Academy, Doctor Agricultural Science, Uzbek Livestock And Poultry Scientific Research Institute, Tashkent Region, Kibray district, Qizil Shalola Small Town

²Research Fellow, Uzbek Livestock and Poultry Scientific Research Institute, Tashkent region, Kibray district, Qizil Shalola Small Town
E-mail: alp.lentinus[at]gmail.com

Abstract: *The organization of cows increasing milking capacity under enlarged feeding level ensured their milk yield enhancement for the first 90 days of the I lactation for 162,4 kg, output of milk butter for 4,22 kg, 4% milk yield for 112,6 kg, contributed to improvement of udder's morph functional properties. Milk yield of dairy cows for the I lactation increased for 482,6 kg, they are characterized by enhanced milky coefficient and improved fodder payment by milk products. In the subsequent lactation dairy cows are also characterized by high indexes of dairy products output. Obtained results testified that imported polish cows of Holstein breed in a specific hot climate conditions maintain and demonstrate rather high genetic potential of milk productivity.*

Keywords: breed, Holstein, cow, milk, fodders, udder, productivity

1. Introduction

Employment of productivity's genetic potential of recognized races of world gene pool has an important practical significance in creation of new highly productive dairy and selection herds and in improvement of the main selection signs of cattle strains breeding. Holstein is one of such kind of breeds [1, 2]. Cows of this strain are characterized by exclusive high milk productivity, appropriateness of udder morph functional properties to the industrial technology conditions of milk production, high payment of fodder by milk products, high milky coefficient, high energy of young animals, growth and other valuable properties [3, 4].

Dairy cattle from leading European countries are imported into Uzbekistan from 2006 for creation of new highly valuable breed herd and obtaining of new progeny with high genetic potential of productivity.

The aim of this work is study and elicitation of milk productivity genetics potential of cows of Holstein strain imported from Poland.

2. Methods of research

In this work methods of research generally accepted in zootechnics were used.

3. Results and discussion

Productive properties of Holstein cows imported from Poland were studied. In cattle breeding farm "Urnak – nasl chorva" of Ellikqal'a district in Karakalpakstan, for experiment, on analogue principles, groups of cows were selected. The I group (n=15) of cows was fed on feeding norms, accepted in the farm, II- for 30% higher than norms, adopted in it. The keeping conditions of cows in both groups were similar.

The cows were fed with taking into consideration their live

mass, physiologic condition and productivity level. Productive indexes of cows were studies by methods generally accepted in zootechnics.

Cows milking capacity was increased by advanced feeding, udder massage and active airing (pasture).

For the first 90 days of the I lactation on average for one cow in one group 1707,3 and on the II - 1826,6 fodder units were consumed. Cows of experimental groups were characterized by milk productivity indexes which were given in table 1.

Table 1: Milk productivity of cows for the first 90 days

Index	Group			
	I		II	
	X±S _x	Cv, %	X±S _x	Cv, %
Milk yield, kg	1662,3±59,8	13,5	1824,7±38,6	7,92
Content of butter in milk, %	4,01±0,06	5,36	3,90±0,06	5,87
Output of milk butter, kg	66,66±2,04	11,52	70,88±1,17	6,19
Content of protein in milk, %	3,60±0,04	3,90	3,53±0,04	4,22
Output of milk protein, kg	59,72±1,88	11,8	66,41±1,17	6,78
4% milk yield, kg	1666,4±51,1	11,52	1779,0±29,3	6,19

Data analysis in table I show that cows of the II groups under enlarged feeding level better increased milking capacity. So, their milk yield during the period of increasing milking capacity was higher for 162,4 kg (9,77%), milk butter output for 4,22 kg (6,33%), milk protein for 6,69 kg (11,2%), 4% milk yield for 112,6 kg (6,76%) than in herd mates of the I group. Besides, cows - first heifers of the II group were characterized by more even flow of lactation. They also have improved morph functional properties of udder and better fodder payment

by milk products for the indicated period of lactation. So, for 1 kg of natural fatness milk production, cows of the I group consumed 1,03, II group – 1,00 fodder units, that is less for 2,9%.

All these testified to high efficiency of organization of increasing milking capacity of newly calved cows under enlarged feeding level.

Milk productivity of cows for I lactation was studied. During the period of I lactation for 1 cow in the I group on average was expended 4908,1, on the II – 5276,1 fodder units. Under such kind of feeding level cows of experimental groups were characterized by indexes given in table 2.

Table 2: Milk productivity of cows for the I lactation

Index	Group	
	I	II
Milk yield, kg	4616,3±50,3	5098,9±46,0
Content of butter in milk, %	4,21±0,038	4,00±0,045
Output of milk butter, kg	194,3±4,4	203,9±1,06
Content of protein in milk, %	3,72±0,023	3,59±0,03
Output of milk protein, kg	171,7±4,61	183,6±0,94
4% milk yield, kg	4858,6±109,0	5098,9±26,8

As seen from data in table 2, increasing of milking capacity of imported cows contributed to the rise of their milking yield for the I lactation. Milk yield of the II group cows was reliably higher for 482,6 kg (10,45%), output of milk butter for 9,6 kg (4,94%), output of milk protein for 11,9 kg (6,93%), 4% milk yield for 240,3 kg (4,94%), than in the I group cows. Data analysis of the table also testified to that cows of both groups were characterized by rather high indexes of milk productivity, giving evidence to their high genetic potential productivity, full manifestation of which is significant precondition for creation of highly productive dairy herds and increase of milk production amount.

Output of milk and dairy products for 100 kg of live mass of experimental group cows was also investigated, the results of which were given in table 3.

Table 3: Output of milk and dairy products for 100 kg of live mass for the I lactation

Index	Group	
	I	II
Live mass, kg	494,9±5,03	506,7±4,53
Milky coefficient	933,7±20,1	1006,3±11,8
4% milk yield, kg	982,2±15,1	1006,3±11,8
Output of milk butter, kg	39,30±0,60	40,25±0,47
Output of milk protein, kg	35,61±0,57	36,23±0,34

It is seen from data of table 3 that live mass of the II group cows was higher for 12,3 kg (2,49%), milk-yield coefficient for 72,6 kg (7,77%), 4% milk yield for every 100 kg of live mass for 24,1 kg (2,45%), output of milk butter for 0,95 kg (2,41%), milk protein for 0,62 kg

(1,74%) than in herd mates of the I group.

Experimental group cows demonstrated high milk productivity for the II lactation too (Table 4).

Table 4: Cows productivity for the II lactation

Index	Group			
	I		II	
	X±S _x	Cv, %	X±S _x	Cv, %
Milk yield for 305 days of lactation, kg	5235,5±156,1	23,7	5772,8±69,2	4,10
Content of butter in milk, %	4,14±0,03	3,49	3,93±0,04	3,73
Content of protein in milk, %	3,66±0,04	4,70	3,50±0,03	3,78
Output of milk butter, kg	216,7±4,84	8,39	226,9±4,73	2,82
Output of milk protein, kg	191,1±4,12	8,43	202,0±9,37	6,24
4% milk yield, kg	5418,7±122,4	8,50	5671,8±61,3	4,03
Milky coefficient	978,7±21,9	8,41	1059,0±4,88	1,71
Live mass, kg	534,9±5,56	3,89	545,1±4,29	2,98

As seen from data of table 4, cows with increased milking capacity markedly surpassed herd mates of the I group on milk productivity level for the I lactation. So, milk yield of the II group cows higher for 537,3 kg (10,26%), milk butter output for 10,2 kg (4,71%), milk protein output for 10,9 kg (5,70%), 4% milk yield for 253,1 kg (4,67%), milk-yield coefficient for 80,3 kg (8,20%) than indexes of the I group herd mates. Such dominancy of the II group cows preserved for the III lactation too, milk yield of which was higher for 648,2 kg (11,62%), milk butter output for 16,5 kg (7,27%), milk protein for 14,6 kg (7,28%), 4% milk yield for 410,5 kg (7,23%), milk-yield coefficient for 97,9 kg (9,91%) than in adequate indexes of the I group herd mates. Low coefficient of milk yield variability of the II group cows evidenced to that this group cows were characterized by more level milk yield.

Such superiority of the II group cows also preserved for the III lactation (Table 5).

Table 5: Productive indexes of cows for the III lactation

Index	Group			
	I		II	
	X±S _x	Cv, %	X±S _x	Cv, %
Milk yield for 305 days of lactation, kg	5578,7±168,3	11,3	6226,9±50,3	3,05
Content of butter in milk, %	4,07±0,036	3,34	3,91±0,042	4,00
Content of	3,60±0,036	3,74	3,46±0,030	3,08

protein in milk, %				
Output of milk butter, kg	227,0±5,28	8,67	243,5±2,33	3,67
Output of milk protein, kg	200,8±4,58	8,54	215,4±1,94	3,37
4% milk yield, kg	5676,3±121,5	8,30	6086,8±59,6	3,67
Milky coefficient	988,1±21,9	8,38	1086,0±4,16	1,45
Live mass, kg	564,6±6,34	4,20	578,9±5,04	3,25

Data analysis of table 5 shows that cows with increased milking capacity also demonstrate high productivity in the subsequent lactations. Predominance in milk yield of the II group cows over the I group herd mates for the III lactation made 648,2 kg, milk butter output of the II group cows was higher for 16,5 kg, milk protein for 14,6 kg, 4% milk for 410,5 kg, milk-yield coefficient for 97,9 kg than in the I group herd mates. Milk yield of the II group cows for the II lactation increased rapidly for 619,8 kg (13,4%), for the III-for 1128 kg (22,1%) in comparison with the I lactation.

These data evidenced that in increasing milking capacity potential possibilities of cows are revealed most fully and they well adapted to local breeding conditions.

Increasing milking capacity for the first 90 days of lactation allow to reveal potential possibilities of cows milk productivity, contribute to proportional development of udder, improve fodder payment by dairy products, being the guaranty of creation of highly productive dairy herds.

The most productive cows were picked out into selection group, five of them were chosen to the group of "bull producing cows" with the purpose of their further increasing milking capacity and more full manifestation of their genetic potential of milk productivity to subsequent obtaining from them remount bulls (Table 6).

Table 6: Milk productivity and live mass of selection group cows

Index	Selection group of cows	
	«plemyadro»	«bull producing group»
Number of cows	83	5
Milk yield, kg	5932,8±57,5	6858,0±45,7
Content of butter in milk, %	3,98±0,02	4,10±0,06
Content of protein in milk, %	3,45±0,019	3,46±0,040
Output of milk butter, kg	236,1±5,01	281,0±7,61
Output of milk protein, kg	204,7±4,66	237,3±5,10
4% milk yield, kg	5903,1±71,4	6675,6±129,2
Milky coefficient	1025,7±6,8	1159,2±12,4
Live mass, kg	578,4±3,92	591,6±7,41

Data analysis of table 6 showed that selection group cows are characterized by high genetic potential of productivity.

Milk yield of "bull producing group" cows for 925,2 kg (P, milk butter output for 44,9 kg (19,0%), milk protein for 32,6 kg, 4% milk yield for 772,5 kg (13,1%), milky coefficient for 133,5 kg (13%)reliably exceed(surpass) analogical indexes of herd mates of "plemyadro group". Besides, these indexes markedly higher than standard requirements of Holstein breed and live mass indexes testified to good development of cows` body.

So, research works showed that imported European Holstein cattle rather good adapted to specific soil-climatic extremal conditions of Karakalpakstan, one of Northern regions of Uzbekistan, confirming the level of cows` milk productivity. Creation of proper feeding and keeping conditions is the guarantee of full demonstration of genetic- potential productivity and formation of highly productive dairy and selection herds.

4. Conclusions

1. Cows of Holstein breed of polish selection are characterized by high genetic potential of milk productivity, possess by proportionally developed constitution, expressed dairy type.
2. Holstein cows of polish selection in specific conditions of hot climate during three lactations preserve and manifest high potential productivity, well increased milking capacity and fodder payment by dairy products which testified to their high adaptive development in new breeding conditions.

References

- [1] Ashirov M.I., Ibadullaeva A.S. Increase milking capacity- guarantee of cows productivity rising. "Zooveterinary", №8, 2013, p. 28-29.
- [2] Dunin I.M., Amerkhanov H.A. Selection – technologic aspects of dairy cattle development in Russia. J. "Zootechny", № 6, 2017, p. 2-8.
- [3] Ernst L.K., Zhigachyov A.I., Kudryavtsev V.A. Monitoring of genetic load in black – motley, Holstein and Airshire strains of cattle. J. "Zootechny", № 5, 2007, p. 5-10.
- [4] Yanchukov I., Tutukova D. Comparison estimation of pedigree qualities of Airshire strain bulls on breeding and regional management level. J. "Milk and meat cattle-breeding", № 3, 2010, p. 4-6