Dairy productivity of cows of different ages

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Abstract. The article presents material on the comparative assessment of milk productivity of Holsteinized black-and-white cows. The age of cows is one of the important physiological factors affecting milk productivity. The purpose of the study is to determine the milk productivity of cows of different ages in JSC "Plemzavod" Dmitrievo "of the Kasimovsky district of the Ryazan Oblast. As a starting material for the research, the information of zootechnical registration was used, obtained in JSC "Plemzavod" Dmitrievo "of the Kasimovsky district of the Ryazan Oblast, where Holsteinized black-and-white cattle are bred. The studies were carried out by grouping animals for each of the studied factors, followed by mathematical processing of digital material. The data obtained on the milk productivity of Holsteinized black-and-white cows of different lactation ages indicate that the maximum milk yield in 305 days is observed in cows in the second lactation (6825 kg of milk, 4.05 and 3.36%), which is 452 kg of milk, 0.05% fat and 0.02% protein more than the average heifer. At the same time, lifelong indicators of milk productivity increase from 1 lactation to 6 lactation and, only 7 lactation, there is a decrease in milk productivity. The highest lifetime milk productivity is observed in cows with six lactations. There are cows in the herd that have milked more than 40 tons of milk. Thus, in JSC "Plemzavoda" Dmitrievo "Kasimovsky district of Ryazan Oblast, Holsteinized black-and-white cows will have the highest lifetime productivity at six lactations.

Keywords: milk yield, mass fraction of fat, mass fraction of protein, lactation, age of the cow, breed.

Introduction

Currently, the provision of the country's population with dairy products largely depends on the efficiency of dairy farming, the fullest use of its potential [5].

The age of cows is one of the important physiological factors affecting milk production [1,4,10]. The influence of the age of cows on milk production is determined by their individual

characteristics. With the general growth and development of the whole organism, especially the mammary gland, the milk production of animals increases. Upon reaching a certain maximum due to the subsequent aging of the body, it begins to fall.

The results of many studies indicate that Holsteinized black-and-white cows can maintain milk productivity at a high level with a long period of use [8, 9].

Purpose of the study - to determine the milk productivity of cows of different ages in JSC "Plemzavod" Dmitrievo "Kasimovsky district of Ryazan Oblast.

Research methods

As a starting material for the research, the information of zootechnical registration was used, obtained in JSC "Plemzavod" Dmitrievo "of the Kasimovsky district of Ryazan Oblast, where Holsteinized black-and-white cattle are bred.

The level of milk yield, mass fraction of fat and protein in milk was established according to the results of monthly control milking for two adjacent days. The milk yield per month was determined by multiplying the daily milk yield of the control milking by the number of days in a month, and the milk yield for 305 days of lactation by the total milk yield per months in accordance with the "Rules for assessing the milk productivity of dairy cows of dairy breeds SNPplem R-23-97".

The mass fraction of fat and protein in milk samples was determined according to the results of monthly control milking in a certified laboratory for selection control of milk quality.

The studies were carried out by grouping animals for each of the studied factors, followed by mathematical processing of digital material.

Research results and their discussion

Table 1 shows data on milk productivity of Holsteinized black-and-white cows of different ages for lactation. The maximum milk yield in 305 days with a high content of mass fractions of fat and protein is observed in cows in the second lactation (6825 kg of milk, 4.05 and 3.36%), which is 452 kg of milk, 0.05% of fat and 0.02% more protein than the average of first-calf cows.

Table 1. Milk productivity of cows of different ages

Lactation	Number of heads	Full milk yield, kg	Productivity in 305 days				
			milk yield, kg	fat		protein	
				%	kg	%	kg
1	306	6986	6373	4.00	280	3.34	233
2	242	7277	6825	4.05	296	3.36	245
3	122	7073	6773	4.02	285	3.35	237
4	88	7209	6788	4.02	293	3.34	243

5	30	6954	6456	4.00	278	3.34	231
6	23	6794	6167	4.02	274	3.35	228
7	5	6332	5249	4.02	253	3.35	211

When comparing the best indicators for 2 lactation with data for 7 lactation with the number of heads -5, then the milk yield in cows decreased by 1576 kg, the content of mass fractions of fat by 0.03% and protein by 0.01%.

One of the main features affecting the breeding process, the quantitative and qualitative growth of the herd, life-long milk yield and economic indicators of the dairy farming industry is the duration of the economic use of cows. The economic life of individual animals under the same conditions of feeding and keeping varies within very wide limits. Some animals reduce fertility and productivity early and, for this reason, are culled from the herd at a relatively young age. At the same time, many animals retain their economic qualities at a high level for a long period and remain in the herd for a long time. Lifetime performance indicators are presented in table 2.

Table 2. Lifetime indicators of milk production

Lactation	Number of heads	Period of productive use, days	Lifetime productivity on average for 1 head, kg			
			full milk yield	milk yield in 305 days	milk fat	milk protein
1	148	434	7446	6449	298	248
2	130	819	14195	12985	569	480
3	75	1195	20385	19254	811	685
4	63	1593	28625	26925	1149	953
5	19	2001	31259	29292	1249	1029
6	18	2423	39280	37119	1607	1298
7	4	2939	37552	35216	1539	1230

Table 2 shows that lifelong indicators of milk productivity increase from 1st lactation to 6th lactation, and only 7th lactation leads to a decrease in milk productivity. The highest lifetime milk productivity is observed in cows with six lactations. This is consistent with the studies carried out by I.P. Baranova [2], N.D. Vinogradova [3], M.V. Kukina [6] and K.S. Mekhtiyeva [7].

There are cows in the herd that have produced more than 40 tons of milk (tab. 3). For example, the cow Sputnik 175 for 5 lactations produced 63897 kg of milk, 2553 kg of milk fat and 2087 kg of milk protein. It should be noted that the milk yield of a younger cow Svetlitsa 2230 for three lactations was 40645 kg of milk, 1569 and 1349 kg of milk fat and protein. Among the best cows in terms of lifelong productivity are mainly daughters of Leningrad breeding bulls Bubenchik 712 bred in "Petrovsky" breeding farm, Peach 3601 bred in "Lesnoye" breeding farm.

Table 3. The best cows in terms of lifetime productivity

Name and № of the cow	Date of birth	Name and № of the father	Age in lact.	Lifetime productivity, kg		
				Milk yield, kg	Fat, kg	Protein, kg
1	2	3	4	5	6	7
808 Murzilka	24.02.07	Graf 4742	5	40413	1649	1326
2230 Svetlitsa	09.02.10	Bubencik712	3	40645	1569	1349
8555 Acacia Ax	08.08.10	Fels 462090	4	40835	1601	1360
100 Nalyvka	10.02.07	Peach 3601	6	41158	1708	1354
2113 Gospozha	07.11.09	Bubencik 712712	4	41192	1664	1368
603 Vyatka	30.11.08	Peach 3601	6	41331	1662	1360
763 Zhdanka	28.01.06	Lazurit 632844	7	41401	1689	1354
2069 Gubka	17.07.09	Drozd 889	5	42710	1696	1409
2158 Cherry	08.12.09	Bubencik 712	4	42788	1699	1421
856 Volzhanka	19.06.06	Lazurit 632844	7	43371	1822	1418
373 Prima	02.03.08	Peach 3601	6	44245	1827	1482
9001 Chrysanthemum	05.05.06	Lazurit 632844	6	44866	1898	1463
235 Rosynka	01.03.08	Peach 3601	6	45056	1793	1496
1608 Zorka	03.10.09	Lombardo 61740360	5	46471	1826	1533
487 Ulovka	05.04.08	Peach 3601	6	47422	1973	1598
31 Mozaika	10.12.07	Peach 3601	6	53479	2177	1760
900 Metelica	29.04.06	Lazurit 632844	6	56846	2410	1876
175 Sputnitsa	03.04.08	Peach 3601	5	63827	2553	2087

Thus, in order to improve the economic indicators of the establishment, it is necessary to increase the milk yield not only for lactation, but also for the entire period of the productive life of animals. A high lifetime milk yield characterizes the strength of the constitution, the health and longevity of cows.

Conclusions

Thus, in JSC "Plemzavoda" Dmitrievo "Kasimovsky district of Ryazan Oblast, Holsteinized black-and-white cows will have the highest lifetime productivity at six lactations.

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