

Productivity Characteristics of Red Desert Breed Cow Families Resistant to Hot Climate Conditions

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Abstract. Studies have shown that cows from the established families of the Red Desert breed have high milk production potential. Creating breeding groups of high-yielding cows and their widespread use in the process of breed improvement plays an important role in increasing milk production volumes and raising pedigree cattle with high hereditary potential in terms of productivity.

Keywords: cow, family, breed, milk, herd, productivity.

Red Desert cattle are widespread in the dry, hot climate regions of our republic. It ranks second among other breeds in terms of population size. Cattle of this breed have good milk productivity, high efficiency in converting feed to dairy products, and good adaptability to various climatic conditions. Therefore, this breed is well-suited for breeding in various regions.

We studied the productivity characteristics of Red Desert breed cows in the herd of the "Shuxrat" breeding farm in the Romitan district of Bukhara region. In the research, milk productivity indicators of cows were studied using generally accepted methods in animal husbandry.

Families created using highly productive cows are considered an integral part of each breed and are important for improving the productivity characteristics of breeds and increasing their breeding value. In the experimental herd, we established 10 new families of high-yielding Red Desert breed cows and studied the milk productivity of the family founders, the results of which are presented in Table 1.

Analysis of the table data shows that the founders of new families have high genetic potential in terms of milk productivity, especially in terms of milk fat content. The milk productivity of the cows in the new families ranged from 4812 to 7452 kg with a fat content of 4.2-4.8%. The milk productivity of some family founders, such as cows numbered 56329, 27102, 3605, 27075, and 27134, exceeded 6000 kg. This is considered a good indicator for Red Desert breed cows. Among these record-breaking cows, cow number 3605 had a milk yield exceeding the standard requirements for Red Desert breed cows in third and higher lactations by 3079 kg (99.3%), milk



A herd of Red Desert breed cows at the "Shuxrat" breeding farm in the Romitan district of Bukhara region

Table 1. Milk productivity of the Red Desert breed cow family founders

Family founder	Milk quantity, kg	Fat content in milk, %	Milk fat yield, kg	4% fat-corrected milk yield, kg	Live weight, kg	Milk yield coefficient, kg
1	6324	4.8	308.5	7688.8	565	1119.3
2	6179	4.6	284.2	7105.8	556	1111.3
3	7452	4.5	335.3	8383.5	574	1298.5
4	5200	4.2	218.4	5460.0	542	959.4
5	5895	4.3	253.5	6337.1	550	1071.8
6	5488	4.5	247.0	6174.0	544	1088.8
7	4812	4.7	226.2	5654.1	520	925.4
8	6023	4.6	277.0	6926.4	533	1130.0
9	5936	4.4	261.2	6529.6	518	1145.9
10	6008	4.2	252.3	6308.4	536	1120.9
Family average	5931.7±236.4 Cv=11.96	4.8±0.06 Cv=4.5	265.7±11.8 Cv=13.3	6643.5±11.8 Cv=13.3	543.8±6.0 Cv=3.3	1090.8±34.1 Cv=9.34

The fat content was 0.9% higher, the milk fat yield was 169.5 kg (2.5 times) higher, in cow No. 27075 these indicators were higher by 3224 kg (2.04 times), 1.1% and 193.8 kg (2.69 times), in cow No. 27134 by 4352 kg (2.40 times), 0.8% and 220.6 kg (2.92 times) respectively.

They also had high 4% fat-corrected milk yield and live weight. The average live weight of cows in the newly established families exceeded the standard requirements of the Red Steppe breed by 73.8 kg (15.7%), and the milk yield coefficient indicated that the founders of the families clearly exhibited a dairy type.

The creation of breeding groups of high-yielding cows is of great practical importance in increasing the rate of genetic improvement of each breed, in producing record-breaking cows and replacement heifers with high breeding value. During our research, we established a breeding group of high-yielding cows and studied their milk productivity (Table 2).

Table 2. Milk yield of Red Steppe breed cows in the breeding group

Indicators	Breeding groups			
	"nucleus herd"		"bull-producing group"	
	$\pm S$	Cv, %	$\pm S$	Cv, %
n	54		10	
Milk yield, kg	5355.7 \pm 176.8	13.8	5931.7 \pm 236.4	11.96
Milk fat content, %	4.32 \pm 0.03	2.17	4.48 \pm 0.06	4.5
Milk fat yield, kg	231.4 \pm 8.9	13.0	265.7 \pm 11.8	13.5
4% fat-corrected milk yield, kg	5784.1 \pm 32.6	12.5	6643.5 \pm 11.8	13.3
Milk production coefficient, kg	1010.3 \pm 33.2	10.3	1090.8 \pm 34.1	9.34
Live weight, kg	530.1 \pm 5.9	6.2	543.8 \pm 6.0	3.3

As evident from the table data, cows in the breeding groups demonstrate high genetic potential for milk production. Cows in the "bull-producing group" surpassed their counterparts in the "nucleus herd" group by 576 kg or 10.75% ($P>0.95$) in milk yield, 34.3 kg or 14.8% ($P>0.95$) in milk fat yield, 859.4 kg or 14.86% ($P>0.999$) in 4% fat-corrected milk yield, 80.5 kg or 7.97% in milk production coefficient, and 13.7 kg (2.58%) in live weight.

The milk yield of cows in the "nucleus herd" exceeded the breed standard for Red Steppe cows in their third or higher lactation by 2255.7 kg (72.8%), while cows in the "bull-producing group" exceeded it by 2831.7 kg (91.3%). Milk fat content was higher by 0.62 and 0.78%, milk fat yield by 116.7 kg (2.02 times) and 151 kg (2.32 times), and live weight by 60.1 kg (12.78%) and 73.8 kg (15.70%), respectively. These data indicate that a high-yielding breeding group of cows has been established in the experimental herd in terms of milk productivity.

CONCLUSIONS

1. Cows from the established families of the Red Steppe breed possess high milk production potential.
2. The creation of breeding groups of highly productive cows and their widespread use in the process of breed improvement has important scientific and practical significance in increasing milk production and raising pedigree cattle with high hereditary potential in terms of productivity.

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