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Evaluation Perspective Directions To Improvement Selection Traits Dairy Cattle Of North Caucasus Ayrshire Breed.

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ABSTRACT

Breeding cattle of Ayrshire breed is one of the top directions for dairy business in Russia, because these animals rightfully belong to the best cultural dairy breeds in the world. The goal of research work is the estimation perspective directions to improvement selection traits dairy cattle of North Caucasian Ayrshire breed by conducting a linear estimation exterior of cows and milk quality in accordance with Russian regulatory requirements and with recommendations of International Committee for animal registration (ICAR). The results revealed that animals characterized, in general, a good body structure and productive longevity. Average milk yield for year from herd (n = 550 cows) is 6.0-6.2 thousand kg of milk, age of cows is in the range 3-8 years, the parturition period, as a rule, does not exceed 400 days. Conducting a linear estimation exterior of cows revealed that indicators of scores by essential groups of signs (volume of the body, the angularity of edges, quality of legs, quality of udder, general form of animal) were in the range from 5,00-5,90 (points). Indicators quality of milk, obtained based on averaged data of individual registration milk productivity cows, were: fat - 3.98 (g%), protein - 3.23 (g%), somatic cells - 285 thousand cells / ml, which is consistent breed characteristic of animals and Russian quality parameters of milk category "highest sort". A promising direction of selection is had defined to produce individual selection male cows to improve the group of indicators: the quality legs and quality udders.

Keywords: linear evaluation exterior of cows, milk quality, cattle of Ayrshirebreed, ICAR.

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INTRODUCTION

Over the last century, the herd of Ayrshire cattle in Russia increased to 90 thousand heads or 2.8% of the total number of dairy cattle. The average productivity of cows is about 5500 kg of milk of cow per year, with the level of fat - about 4%, and protein - more than 3.2%. In general, Ayrshire cow be inferior Holstein by total milk yield, but Ayrshire have higher rates on productive longevity. Thus, the lifetime productivity of cows often reach up to 150 thousand kg of milk [1, 2].

In recent years, consumers have increased demands to the quality of raw milk, in particular, to assess the level of somatic cells, which characterizes the general health of animal and the indicators of udder health [3-10]. As a result, there was a need to perform linear evaluation of exterior characteristics of lactating cows and to compare them with the quality of the milk.

The results of linear estimation group's indicators will allow carrying out planned and directed selection bulls of Ayrshire breed, according to their potential for improvements groups of traits related to productive longevity, and milk quality, it is condition of foot, dairy quality of udder. Selection male cows, estimated by quality posterity (milk production and conformation daughters) will allow gradually improving important breeding characteristics cattle of North-Caucasian Ayrshire breed [1, 2].

Thus, for linear evaluation exterior and quality of milk cattle will allow for effective management of genetic resources of the North Caucasian population of Ayrshire cattle.

MATERIALS AND METHODS

The object of the study served cattle (cows) of North Caucasus Ayrshire breed (n = 550), from which, based on analysis materials accounting primary veterinarian to conduct a linear evaluation of exterior were selected cows first lactation (n = 168).

Linear scores (0-9 points) exterior of cows by general group indicators was carrying out by estimates of standard parameters physique of animal:

- the volume of the torso – chest width, chest depth, rump length;
- the angularity of the ribs (dairy type) – angularity of the ribs;
- quality of legs – back legs, rear view; rear legs (side view); the angle of setting of hoofs; the state of the hock; the thickness of the metatarsus bones;
- the quality of udder attachment udder in front, mounting height udder width udder attachment, supporting ligament, depth, udder attachment, placement of the front teats, the front teats length, rear teat placement;
- general view of the animal – the angle of the sacrum, butt width in sciatic hillocks, growth, fleshing, fatness, characteristics of movement, temperament.

Sampling of raw milk was carried out individually from each cow (I, II and III lactations, n = 349) evaluation of milk quality was conducted on the basic parameters: fat, protein, somatic cells.

The work was carrying out in accordance with Russian regulatory requirements and taking into account the recommendations of the International Committee for animal registration (ICAR) [3 - 10].

RESULTS AND DISCUSSION

Analysis the results of linear evaluation exterior of cows by general group indicators reveals (table 1) that groups of signs "the quality of the legs and quality udders" have average values in the assessment of animals on 9-point scale (5,00 - 5,30). It shows substantial reserves for breeding to improve conformation characteristics of cows for optimal breeding and technological models of highly productive cows in the North Caucasus.

To improve these quality parameters of the legs and udder should produce the selection of sires with proponents the possibility of improvement of these signs are not less than 10-20%, on a scale of assessment Ayrshire breed Association [1, 2].

The analysis of groups of signs of the "the volume of the torso" and "General view of the animal" shows that the existing numerical score (and 5,90 5,40), in General, shows the desirable direction of selection of ayrshires in the North Caucasus. So, adult cows in the herd are characterized by a fairly high milk yield is 6.0-6.2 thousand kg of milk/year (numerical score of the parameter "angular ribs" - 5,40), a good strong Constitution and a rather pronounced productive longevity in the population are 7-8 cows after calving. The duration of the parturition period does not exceed 400 days.

Mature animals have an average live weight, the cows is 550-600 kg, bulls – kg 650-700 Direction of selection to maintain the specified group indicators in the existing limits should be carrying out selection of sires with proponents the ability to maintain this group of symptoms or improve by 10%.

Table 1: Parameters group indicators linear evaluation of exterior and quality milk of cows

No	Indicators	Numeric value, $\bar{X} \pm Sx$
Group indicators line arassessment of cows body, n=168		
1	The volume of the trunk	5,90 ± 0,967
2	The angularity of the ribs (milk type)	5,66 ± 1,096
3	Quality leg	5,30 ± 0,735
4	The quality of the udder	5,00 ± 0,835
5	General view of the animal	5,40 ± 0,438
Evaluation of milk quality, n=349		
6	Fat, %	3,98
7	Protein, %	3,23
8	Somaticcells, thous. Pcs. / ml	285

Quality evaluation of milk showed that the fat and protein indices correspond to the parameters of pedigree Ayrshire breed and indicate overall satisfactory direction of selection on these traits. The level of somatic cells shows a sufficiently high culture of milk production in this herd in the North Caucasus that allows, taking into account the set of indicators to characterize the studied raw milk in accordance with the Russian standards, as the highest-sort milk.

CONCLUSION

The main direction of improving indicators herd of dairy cattle of North Caucasus Ayrshire breed is use male cows with prepotent ability to improve the group of linear features - "quality of feet" and "quality of the udder" is not less than 10-20%.

REFERENCES

- [1] <http://www.faba.fi/ru>
- [2] <http://opr.lenagro.org/info/poroda/p2.php>
- [3] <http://www.rg.ru/2011/02/03/uchet-skotovod-site-dok.html>
- [4] <http://base.garant.ru/10107888/>
- [5] <http://www.icar.org/>
- [6] [http://webportalsrv.gost.ru/portal/GostNews.nsf/acaf7051ec840948c22571290059c78f/9fe752e7e38cc18e44257bde0024e7d4/\\$FILE/TR_TS_021-2011_text.pdf](http://webportalsrv.gost.ru/portal/GostNews.nsf/acaf7051ec840948c22571290059c78f/9fe752e7e38cc18e44257bde0024e7d4/$FILE/TR_TS_021-2011_text.pdf)
- [7] <http://docs.cntd.ru/document/gost-3624-92>
- [8] <http://docs.cntd.ru/document/gost-r-iso-2446-201>
- [9] <http://docs.cntd.ru/document/gost-23327-98?block=1>
- [10] <http://docs.cntd.ru/document/gost-r-54077-2010?block=6>