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APPROACH REGARDING SOME CONFORMATION AND MILK PRODUCTION TRAITS IN ROMANIAN SIMMENTAL CATTLE FORM HARGHITA AREA INCLUDED IN THE OFFICIAL CONTROLL

STUDIU PRIVIND UNELE ÎNSUŞIRI DE CONFORMAŢIE ŞI PRODUCŢIE DE LAPTE LA EFECTIVUL DE TAURINE DIN RASA BĂLŢATĂ ROMÂNEASCĂ DE TIP SIMMENTAL DIN JUDEŢUL HARGHITA CUPRINS ÎN CONTROLUL OFICIAL

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Analysis of performance data regarding the conformation traits (withers height, body weight, thoracic perimeter), including the traits that concur to milk production (total milk production per normal lactation, fat percent, total fat amount from milk), in mothers-cattle of bulls, candidate mothers-cattle of bulls and active population of Romanian Spotted Simmental breed from Harghita region, allow us to ascertain the followings:

The body weight of mothers-cattle of bulls, candidate mothers-cattle for bulls and also of those from the active population of Harghita region, prove the existence of a valuable genetic material with a high superiority of 30 kg of the mothers-cattle of bulls related the candidate mothers-cattle of bulls and of 50 kg related the active population; all of these emphasize the stringency of the selection performed. Analyzing the waistline of the three populations, it was possible to ascertain that the mothers-cattle of bulls values over class those of the candidate mothers-cattle of bulls and of the active population with 1 cm, respectively 4,1 cm. This difference indicates the researchers concern for raising the waistline in the Romanian Spotted Simmental breed from Harghita region. The thoracic perimeter values were adjacent those of the mothers-cattle of bulls and of the candidate mothers-cattle of bulls (200,00±3,70 cm respectively 199,30±1,24 cm and 185,70±0,61 cm in the active population). The values of circa 7000 kg milk realized in normal lactation of the mothers-cattle of bulls and candidate mothers-cattle of bulls, are showing a very good intensity of the selection, proved by the selection difference registered between the active population and the above two categories. These high milk productions registered for the mothers-cattle of bulls and candidate mothers-cattle of bulls are indicating a high productivity potential. The 250 kg of total milk fat achieved are showing a high potential of the Romanian Spotted Simmental breed as additive variation arrearage that can be used in selection for this trait.

The fat percent of milk registered in the three populations indicate their in-framing between the normal limits specific for the Romanian Spotted Simmental breed.
Keywords: Romanian Spotted Simmental breed, increased production performances, selection effect, additive variation.

Introduction

A large number of researches regarding the study of variability in populations and in cattle breeds related to the animal body conformation and constitution and also the ones related to the quantitative and qualitative milk production, were performed at global level and in Romania, too. Many Romanian researchers are relieving the fact that in the Romanian Spotted breed there is a high variability of milk production and also of the other aspects related to animal body conformation and constitution, which are presenting differences between regions and areas. This accentuated variability of the breed can be considered positive from the amelioration point of view, signaling that the selection difference used to choose the mothers-cattle of bulls and the candidate mothers-cattle of bulls, could reach high values, offering the possibility to obtain male reproducers of high biological value; these male reproducers can be used in cattle populations for achieving substantial genetic progress.

Considering the trend of the research theme at international level, regarding the advanced knowledge of variability and performances of Romanian Spotted cattle populations, the experimental hypothesis proposed in this study consists in identifying the potential differences between some conformation traits such as body weight, withers height, thoracic perimeter and some production milk traits such as quantitative milk production, total fat, fat percent in mothers-cattle of bulls (VMT), candidate mothers-cattle of bulls (CVMT) and active population (PA). The potential differences registered and proved by statistic analysis, can be considered to be a mirror of the genetic variability of Romanian Spotted Simmental populations, in the conditions of similar climatic differences and forage technologies. Considering the research hypothesis, the aim of this paper is to relieve the average of the performances analyzed and also of the dispersion indexes in order to emphasize the selection effect value in Harghita region, by performing the above study In Romanian Spotted Simmental populations.

The objective of the present study consists in: establishing the average of the animal performances, including the dispersion factors in the three categories-mothers-cattle of bulls, candidate mothers-cattle bulls and active population of Harghita region, of some conformation traits and quantitative and qualitative milk production, testing the differences and relieving of the significances between the mothers-cattle of bulls, candidate-mothers of bulls and active population, being in the first lactation.

Materials and Methods

The biologic material that was the objective of the performed researches was obtained exclusively by directional artificial inseminations from O.A.R.Z. of Harghita region, being represented by VMT, CVMT and PA.

The working methodologies were classified according to the study objective. During the period required for the experimental proceedings, body weight, waistline, thoracic perimeter measurements were performed, respectively prediction by check-up of quantitative and qualitative milk production.

The instruments used for performing the body measurements were: the zoometer, the bow compass and the balance, and for completing the data genealogic evidences of O.A.R.Z. Harghita were utilized. Variability measures, represented by average, (X), variance (s^2), standard deviation (s), standard error of the average (s_X) and variation coefficient (V%) for each category mothers-cattle of bulls, candidate mothers-cattle of bulls and active population, were comprised in the statistic analysis performed. The differences (d) were determined by comparing the previously obtained results, showing the significations between the three categories, which represent the objective of the present study; its signification was assessed using the student test (t).

Results and Discussions

There is a strict independence between the conformation-constitution and the production capacity of an animal, which must be identified by the animal improvement specialists, to direct this complex process towards a substantial genetic progress.

The animal body development is a secondary criterion to estimate the value of the milk cows, but it is necessary to use it, considering the positive correlation between certain limits of the breed, with the milk production. Animal body conformation and constitution are a source of valuable information regarding the general biological traits of an animal (vitality, resistance, adaptation capacity, longevity, temper, etc.).

The estimation based on animal conformation and constitution are getting a maximum importance for the mothers-cattle of bulls, as some external defects could be the expression of a loss in constitution, existing the risk of increasing in descendants and manifestation of them in a severe phenotypic state in the males descendants.

Table 1

Average values and dispersion indexes of body weight in Romanian Spotted Simmental breed

SPECIFICATION	n	$X \pm s_x$	s	V%
Mothers-cattle of bulls	24	683,00±7,84	38,34	5,61
Candidate mothers-cattle of bulls	56	653,00±5,24	39,24	6,00
Active population	285	623,00±2,37	40,11	6,43

Table 2

Differences between the average values of the three categories for body weight

SPECIFICATION	V.M.T.	C.V.M.T.	P.A.
Mothers-cattle of bulls		d =30 sd =9,42 t=3,18 **	d =50 sd =8,17 t=6,11 ***
Candidate mothers-cattle of bulls			d =30 sd =5,75 t=5,21 ***

Table 3

Average values and dispersion indexes of waistline in Romanian Spotted **Simmental breed**

SPECIFICATION	n	$X \pm s_x$	s	V%
Mothers-cattle of bulls	24	139,00±0,37	1,81	1,29
Candidate mothers-cattle of bulls	56	138,00±0,17	1,34	0,97
Active population	285	133,90±0,09	1,53	1,41

Table 4

Differences between the average values of the three categories for waistline

SPECIFICATION	V.M.T.	C.V.M.T.	P.A.
Mothers-cattle of bulls		d =1 sd =0,41 t=2,43 *	d =4,1 sd =0,38 t=10,78 ***
Candidate mothers-cattle of bulls			d =5,1 sd =0,28 t=18,21 ***

Table 5

Average values and dispersion indexes of thoracic perimeter in Romanian Spotted Simmental breed

SPECIFICATION	n	$X \pm s_x$	s	V%
Mothers-cattle of bulls	24	200,00±3,70	8,25	4,13
Candidate mothers-cattle of bulls	56	199,30±1,24	9,30	7,79
Active population	285	185,70±0,61	10,40	5,6

Table 6

Differences between the average values of the three categories for thoracic perimeter

SPECIFICATION	V.M.T.	C.V.M.T.	P.A.
Mothers-cattle of bulls		d =0,7 sd =2,002 t=0,34 *	d =14,3 sd =1,79 t=7,98 ***
Candidate mothers-cattle of bulls			d =13,6 sd =1,38 t=9,85 ***

The animal exterior and constitution are representing elements which are reflecting the interior of the animal, compiling traits that can increase or decrease the milk production. As any production trait, milk is a product which is the result of the conjugate interaction between the internal factors, characterizing each individual from population and the environmental external factors and the exploitation technology used. A large number of factors are influencing the individual milk production; those factors action is more or less decisive, representing an essential condition for obtaining increased production performances, but in almost all the cases, it is important to identify and to direct them.

Table 7

Average values and dispersion indexes of total milk production, first lactation **in** Romanian Spotted Simmental breed

SPECIFICATION	n	$X \pm s_x$	s	V%
Mothers-cattle of bulls	5	6678±93,52	208	3,12
Candidate mothers-cattle of bulls	29	6982±144,03	774	11,09
Active population	285	3970±28,13	475	11,96

Table 8

Differences between the average values of the three categories for milk production, first lactation

SPECIFICATION	V.M.T.	C.V.M.T.	P.A.
Mothers-cattle of bulls		d =304 sd =171,2 t=1,77 *	d =2708 sd =97,18 t=27,86 ***
Candidate mothers-cattle of bulls			d =3012 sd =56,09 t=53,69 ***

Table 9

Average values and dispersion indexes of total milk fat, first lactation in Romanian Spotted Simmental breed

SPECIFICATION	n	$X \pm s_x$	s	V%
Mothers-cattle of bulls	5	254,00±2,56	5,72	2,25
Candidate mothers-cattle of bulls	29	276,00±6,35	34,1	12,3
Active population	2,85	148,08±1,76	29,8	20,12

Table 10

Differences between the average values of the three categories for total milk fat, first lactation

SPECIFICATION	V.M.T.	C.V.M.T.	P.A.
Mothers-cattle of bulls		d =22 sd =6,82 t=3,22 **	d =105,92 sd =3,10 t=34,16 ***
Candidate mothers-cattle of bulls			d =127,92 sd =2,67 t=47,83 ***

Table 11

Average values and dispersion indexes of milk fat percent, first lactation in Romanian Spotted Simmental breed

SPECIFICATION	n	$X \pm s_x$	S	V%
Mothers-cattle of bulls	5	3,81±0,059	0,132	3,46
Candidate mothers-cattle of bulls	29	3,95±0,020	0,110	3,02
Active population	285	3,73±0,020	0,260	6,97

Table 12

Differences between the average values of the three categories for milk fat percent, first lactation

SPECIFICATION	V.M.T.	C.V.M.T.	P.A.
Mothers-cattle of bulls		d =0,14 sd =0,062 t=2,24 *	d =0,08 sd =0,061 t=1,31 n.s.
Candidate mothers-cattle of bulls			d =0,22 sd =0,02 t=8,6 ***

The variability of the traits that care concurring to milk production in the animal effectives studied are showing a high uniformity degree and a sufficient genetic pool, too, that can be further used with good results in animal selection and controlled mating.

Conclusions

The conformation traits analyzed in the studied animal effectives, are allowing to assert that one of the major concern of the specialists consist in rising the massively of the animal effectives, hereby realizing the basis for exteriorize further potential productions.

The average values circa 7000 kg milk realized in normal lactation by mothers-cattle of bulls and candidate mothers-cattle of bulls, are indicating a good selection intensity, proved by the selection difference between the active population and the categories mentioned before.

These increased milk production of the mothers-cattle of bulls and candidate mothers-cattle of bulls are showing a high productive potential.

Analysis of the differences between mothers-cattle of bulls, candidate mothers-cattle of bulls and active population, regarding the milk production, the total fat amount of milk, is proving the superiority of the mothers-cattle of bulls and candidate mothers-cattle of bulls related to the active population.

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