RESEARCH REGARDING PRODUCTIVE AND REPRODUCTIVE PERFORMANCE IN NINE FARMS FROM ALBA COUNTY

E. Jurco[1*], Gh. Mureşan[1], A. Avram[1]

[1]*University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, Romania*

Abstract

The research were made in nine farms of various capacities located in Alba county having a total number of lactating cows of 1091 structured on a number of 402 heads Romanian Spotted breed and 689 heads Romanian Black Spotted. Regarding the productive performances, the limits of quantitative production averages of milk are between 4491 kg at "Vitis Augusta" and 8597 kg at "Biotera" in case of total lactation and between 4165 kg and 7390 kg at the same farms in case of standard (normal) lactation. Maximum lactations are observed in first and second lactation in case of farms that have into exploitation animals from Romanian Black Spotted breed and in second and third lactation in case of farms with animals from Romanian Spotted breed and their crossbreeds.

Key words: farms, milk production, reproductive indices

INTRODUCTION

The milk production development, in order to ensure consumer needs, requires investigation and solution of dairy farms activity [1]. For obtaining maximum production performances it's absolutely necessary to know the phenotypical characteristics for the desired production of cattle population, the growth and exploitation technologies and the social and economical conditions where the animals are exploited.

The milk production level and the development rhythm of technical and material base is the main source of growing the units size of production and raising the economical efficiency [2].

MATERIAL AND METHOD

For the analysis of milk productions the researches were made at nine reprezentative holdings from the county (SC. Biotera SRL; SC. Goldenprod SRL; PFA Scheau Cristina; SC. Stazoo SRL; PFA Moldovan Ioan; SC. Vitis Augusta SRL; PFA Munteanu Cornel; S.C. Zooagro SRL; S.C. Agrolact SRL)

From the data supplied by the Oficial Control of Production with direct agreement from farmers was made the statistical analysis of the total number of 4079 consecutive lactations.

The next milk production indices were followed: the lactation period, milk quantity, fat quantity, protein quantity, the percent of fat and protein on normal and total lactation. For studying the phenotypical parameters regarding reproduction, data were taken from U.A.R.Z. - Alba and with the help of Excel software the main indices for reproduction were calculated for the number of milk cows.

RESULTS AND DISCUSSIONS

Regarding the productive performances, the studied cattle populations are containing cores with high genetic value, result of the applied exploiting technologies, of a pretty wise management knowing the social and economical conditions from this country, of the used breeders and of the favorable environmental conditions influence, populations that are suitable to be exploited for milk production under the maintenance conditions from Alba county and our country, in case of Romanian Black Spotted breed and for mixed production in case of Romanian Spotted breed.

*Corresponding author: jurco_eugen@yagoo.com
The manuscript was received: 18.03.2013
Accepted for publication: 17.08.2013

Table 1 Mean and variability indices of milk production for normal lactation

Farms	N	Normal Lactation					
		Length days	Milk kg	Fat Kg.	Fat %	Protein Kg.	Protein %
S.C Stazoo SRL	379	298.25±0.77	5831,34±52,17	226,97±2,08	3,89±0,01	191,52±1,77	3,28±0,01
S.C Vitis Augusta SRL	366	291.17±1.08	4165,52±40,65	161,89±1,62	3,89±0,01	135,43±1,35	3,25±0,01
S.C Biotera SRL	1451	296.84±0.48	7390,43±67,26	296,38±2,70	4,01±0,01	243,28±2,40	3,26±0,01
S.C Goldenprod SRL	209	295.57±1.23	4923,92±48,76	193,68±2,14	3,93±0,01	161,03±1,71	3,27±0,01
S.C Zooagro SRL	53	297,15±2,94	4553,89±61,42	173,68±2,19	3,82±0,02	148,60±2,25	3,26±0,01
PFA Munteanu Cornel	73	299.25±1.09	5187.55±53.28	203.73±2.44	3.92±0.02	172.74±1.91	3.33±0.01
PFA Moldovan Ioan	36	298.08±2.21	5183.19±130.39	201.94±5.13	3.90±0.02	171.14±4.28	3.30±0.01
PFA Scheau Cristina	97	301.54±1.86	5890,65±100,19	229,25±4,02	3,89±0,01	193,27±3,54	3,28±0,01
S.C Agrolact SRL	1415	298.18±0.42	5180.09±27.93	204.62±1.09	3.95±0.01	166.79±0.98	3.21±0.01

Table 2 Mean and variability indices of milk production for total lactation

Farms	N	Total lactation					
		Length days	Milk kg	Fat Kg.	Fat %	Protein Kg.	Protein %
S.C Stazoo SRL	379	343,00±3,05	6393,67±69,34	249,15±2,76	3,90±0,01	209,16±2,41	3,27±0,01
S.C Vitis Augusta SRL	366	328,64±3,62	4491,68±54,96	174,82±2,17	3,89±0,01	146,22±1,84	3,29±0,02
S.C Biotera SRL	1451	364,69±2,26	8597,56±90,66	345,16±3,61	4,02±0,01	283,40±3,16	3,27±0,01
S.C Goldenprod SRL	209	353,24±5,60	5708,56±88,10	224,23±3,53	3,93±0,01	186,53±2,97	3,26±0,01
S.C Zooagro SRL	53	332,57±6,87	4971,83±95,70	190,08±3,41	3,83±0,02	161,91±3,31	3,25±0,01
PFA Munteanu Cornel	73	323.78±4.83	5496.81±83.78	215.64±3.55	3.92±0.02	183.37±2.89	3.34±0.01
PFA Moldovan Ioan	36	344.75±11.35	5783.75±235.15	225.56±9.10	3.90±0.02	188.64±8.15	3.26±0.05
PFA Scheau Cristina	97	366,72±7,73	6908,69±167,40	269,20±6,62	3,89±0,01	227,14±5,76	3,28±0,01
S.C Agrolact SRL	1415	371.76±2.32	6026.81±44.24	238.48±2,46	3,95±0.01	194.70±1.51	3.22±0.01

The limits of quantitative production averages of milk are between 4491 kg at "Vitis Augusta" and 8597 kg at "Biotera" in case of total lactation and between 4165 kg and 7390 kg at the same farms in case of standard (normal) lactation.

The individual production variations shows minimum limits of 1314 kg of milk and maximum of 20119 kg at the same farm SC Biotera SRL which is actually the most representative farm from the county for the Romanian Black Spotted breed livestock.

If we make a comparison with what is followed at each of these two studied breeds through the national program of improvement, related to milk production, we can say that the studied biological material from this county it's on the right track, in SC Biotera SRL farm and SC Stazoo SRL the desired productions for Romanian Black Spotted and its crossbreeds being achieved, and in PFA Moldovan Ioan, PFA Scheau Cristina, PFA Munteanu Cornel, SC Agrolact SRL farms the desired yields for Romanian Spotted breed and its crossbreeds also have been achieved.

Maximum lactations are observed in first and second lactation in case of farms that have into exploitation animals from Romanian Black Spotted breed and in second and third lactation in case of farms with animals from Romanian Spotted breed and combination between these two breeds and their crossbreeds.

Reflecting on the most important indices of milk's quality namely the fat percent and protein percent, they are varied as limits, but the averages are above state standard with values between 3.83% and 4.02% fat in case of total lactation and between 3.82% and 4.01% fat in case of normal lactations. The protein percentages, their average on farms varies between 3.25% and 3.29% in case of total lactation, with similar values also for normal lactation.

If we analyze the comparison between farms regarding the quantity of milk for normal lactation, we see that the most significant differences are recorded between SC Biotera SRL and the rest of the farms, the differences being favorable to SC Biotera SRL as: 2202.88 kg of milk more than PFA Munteanu Cornel, 3426 kg more than SC Zooagro SRL, 3815.2 kg more than SC Vitis Augusta SRL.

Insignificant differences of milk's quantity on normal lactation are recorded between SC Agrolact SRL with PFA Munteanu Cornel, PFA Moldovan, SC Zooagro SRL, SC Goldenprod Impex SRL farms; between PFA Moldovan farm with PFA Munteanu, SC Zooagro SRL, SC Stănescu SRL and PFA Scheau C. etc.

Analyzing the averages of reproduction indices from all the farms taken into study, we see that the best results are in general in SC Stazoo SRL, SC Agrolact SRL and SC Biotera SRL farms, mentioning that in the last one the dry period has high values because the animals exploited here have better milk productions compared with the cows exploited in the other farms.

The presence inside the numbers of cows taken into study of some individuals with values of reproduction indices reaching exaggerated minimum and maximum limits, is due to some management mistakes of reproduction function from the farmers, but also some collecting or storing data errors from UARZ. However most of the dairy cows which have negatively exaggerated limit values of reproduction indices, are animals with weak productions and sick animals.

Overall from the analyze of reproduction indices realised into the studied farms, we can say that dairy herds exploited in these farms show pretty good reproduction indices, if we consider the general situation from our country, but if we are reporting to the wanted optimal values, there are some drawbacks, and here we are reffering at the interval between calving wich exceeds at most of the farms the average of 400 days and therefore at service period wich exceeds at most of the farms the average of 100 days while the ideal would be 31-82 days [3].

Table 3 The significance of differences between farms of milk quantity for normal lactation

Farms	Agrolact	Biotera	Vitis Augusta	Golden prod	Moldovan	Zooagro	Scheau	Stanescu
Munteanu	7,46^{ns}	2202,88***	1022,0***	263,63^{ns}	4,354^{ns}	633,66^{ns}	703,10^{ns}	643,79*
Stanescu	651,25***	2149,3***	1665,8***	907,42***	684,14^{ns}	1277,4***	59,312^{ns}	
Scheau	710,56***	2090,0***	1725,1***	966,73***	707,45^{ns}	1336,8***		
Zooagro	626,20^{ns}	3426***	388,36^{ns}	370,03^{ns}	629,31^{ns}			
Moldovan	3,10^{ns}	2797,5***	1017,7**	259,27^{ns}				
Golden prod	256,17^{ns}	3056,8***	758,40					
Vitis Augusta	1014,57***	3815,2***						
Biotera	2210,34***							

ns – p>0,05; * - p<0,05; ** - p<0,01; *** - p<0,001

Table 4 Average value of reproductive indices on cattle from the sudied farms

Farms	Reproductions indices			
	Age of first calving	Calving interval	Mamar repose	Service period
SC. Stazoo SRL	935.3 ± 8.32	403.23 ± 3.45	64.91 ± 1.51	103.31 ± 2.31
SC. Vitis Augusta SRL	947.17 ± 14.00	415.37 ± 4.37	68.63 ± 1.44	107.62 ± 2.75
SC. Biotera SRL	900.2 ± 4.47	396.5± 1.65	68.66 ± 0.76	96.75 ± 1.06
SC. Goldenprod SRL	942.2 ± 8.14	413.55 ± 4.78	62.07 ± 1.68	107.79 ± 3.23
S.C. Zooagro SRL	970.84 ± 17.33	430.46 ± 14.21	50.67 ± 2.32	118.43 ± 10.28
PFA Munteanu Cornel	994.76 ± 24.05	406.5± 6.95	54.84 ± 2.25	108.31 ± 5.89
PFA Moldovan Ioan	972.05 ± 26.59	408.94 ± 8.53	65.49 ± 3.43	114.2 ± 7.18
PFA Scheau Cristina	1014.39 ± 22.30	428.99 ± 7.14	55.81 ± 1.80	119.93 ± 5.15
SC Agrolact SRL	894.59±5.84	396.00±1.86	74.72±1.03	99.02±1.12

CONCLUSIONS

The large variability of productive characteristic offers increased possibilities for genetic improvement using the modern methods and criteria currently known. To increase the genetic productive potential it's necessary to intense act through the genetic value bulls wich is the main source of genetic progress in cattle population.

Summarizing the results of researches conducted on populations of cattle farms taken into study it can be concluded that they are well adapted to specific environmental conditions of the area and if there are ensured operational and management conditions closed to the optimum, the dairy cows can respond through productive performances closed to the real genetic potential.

REFERENCES

[1] Iosif Gheorghe, Letitia Zahiu, Gheorghe Fratila, 1984: Economia si organizarea productiei de lapte. Ceres Publishing house, Bucuresti.

[2] Samochis B., 1974: Dimensionarea optima a fermelor de vaci. Ceres Publishing house, Bucuresti.

[3] Velea Constantin, Gheorghe Marginean, 2012: Tratat de cresterea bovinelor. Vol. I. pag. 586 Risoprint Publishing house, Cluj-Napoca.