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PERFORMANCE ANALYSIS OF PRODUCTION ACHIEVED BY THE ACTIVE POPULATION OF DAIRY COWS FROM SC AGROZOOTEHNICA COMISANI

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Abstract

Milk is an animal product, the socio-economic strategic important, indispensable for intellectual and physical development, and keeping normal health of any nation, which constitutes a complete with food, nutritional value and digestibility high. The objective of the work is the analysis of production performance of milk cows from the farm. The research was conducted on a group of 84 Holstein Friesian cows. The primary data on production and reproduction parameters were collected from farm records. From the analysis, it is found that the total lactation progressively increased over the years, so to come in 2012 in 361 days. The amount of per total lactation milk on the farm Comisani registered a significant increase from year to year. Active population of cattle analyzed is characterized by high productive performance: total lactation duration both L1, L2 and L3 recorded an upward dynamic in the period analyzed. The amount of milk obtained in SC Agrozootehnica SRL Comisani had an upward dynamic in both per total lactation and per normal lactation, in period studied.

Keywords: total lactation, normal lactation, cows

1. INTRODUCTION

By high share they hold in livestock species, cattle will occupy a priority position in breeding strategy in Romania.
Taking into account, the needs of population consumption, of creating export availabilities and having regard to the conditions of the natural, economic and social, as well as the existing tradition, is expected in 2015 compared to 1993, an increase of cattle by 35 - 40%.
Providing high-quality green fodder, feeding rules, constitutes one of the main ways to increase milk production, thus at the same time reducing the cost price of milk.
Most attention will be paid to increasing average production, milk, primarily through genetic improvement of livestock, the process can be accelerated by the introduction of widespread artificial insemination, as well as through qualitative and quantitative improvement of feeding as well as the conditions of growth and development of cattle's.
Milk is an animal product, the socio-economic strategic important, indispensable for intellectual and physical development, and keeping normal health of any nation, which constitutes a complete with food, nutritional value and digestibility high. (Georgescu Gh. 1995)
Of the total production of milk currently achieved in the world, over 96% is provided of cattle.
The main objectives of the breeders that exploits milk cows consisted of:
-increasing the quantity of milk per milk cow and increase the number of cows;
-improving the quantity of milk production by increasing the content of fat in milk and getting a milk without impurities and pathogens and with low acidity;
- increase economic efficiency by reducing expenses and exploitation of profitable milk production.
The objective of the work is the analysis of production performance of milk cows from the farm SC Agrozootehnica Comisani.

2. MATERIALS AND METHODS

The research was conducted on a group of 84 Holstein Friesian cows.
The primary data on production and reproduction parameters were collected from farm records. The primary data collected were processed and interpreted statistical data have targeted the following parameters:
-The duration of total lactation.
-The duration of normal lactation.
-The quantity of milk per total lactation.
-The quantity of milk per normal lactation.

3. RESULTS AND DISCUSSION

High performance of milk production can be achieved only if the research carried out by many researchers, will be implemented in production, knowing that "science is the primary factor of progress".

Duration of lactation

Represents the time, in which cows produce milk and it starts with parturition, ending at weaning. It is considered that lactation is normal when lasts (305 days), but in most cases is shorter than 305 days, or admitting variability between 9-11 months.
Adjusting duration of lactation is one of the important problems, in the growth of dairy cows and is made only in accordance with the reproduction.

During a period of lactation, milk production is not constant, it increases during the first 2-3 months after that maintain relative for 3-4 months, and in the last 3-4 months gradually decreases until weaning. This variability is explained by the changing state of maintenance and installation of a new gestation, after fertilization.
On the farm SC Agrozootehnica SRL Comisani, cows analyzed, total lactation is shown in table 1.

Table 1. The evolution of the total lactation herd analyzed

Year	Lactation	n	$\bar{x} \pm S\ \bar{x}$	S	V%
2010	L1	84	358.6±57.47	61.07	17.5
	L2	84	360.9±55.26	69.43	18.9
	L3	84	359.7±54.89	65.46	20.8
2011	L1	84	359.1±54.95	70.07	19.5
	L2	84	360.6±55.54	69.56	18.8
	L3	84	360.2±56.97	59.01	19.6
2012	L1	84	361.0±48.09	64.50	20.8
	L2	84	360.8±55.1	67.46	20.1
	L3	84	361.8±56.61	68.09	19.7

It was found that the herd of 84 cows analyzed in SC Agrozootehnica SRL Comisani in 2010 first lactation, lactation total was 358.6 days, with standard deviation of 61.07 and coefficient of variation of 17.5, and in 2012 the first lactation, there was increase in the duration total lactation about 3 days, with a significant difference in coefficient of variation. Second lactation, in 2010, total lactation was 360 days, with standard deviation of 69.43, and in 2012 is 360.8 days with a standard deviation of 67.46. Third lactation, in 2010, total lactation was 359.7 days, with a standard deviation of 65.46 and coefficient of variation of 20.8, and in year 2012 the third lactation was 361.8 days with standard deviation 68.09 and coefficient of variability 19.7.
From the analysis, it is found that the total lactation progressively increased over the years, so to come in 2012 in 361 days.

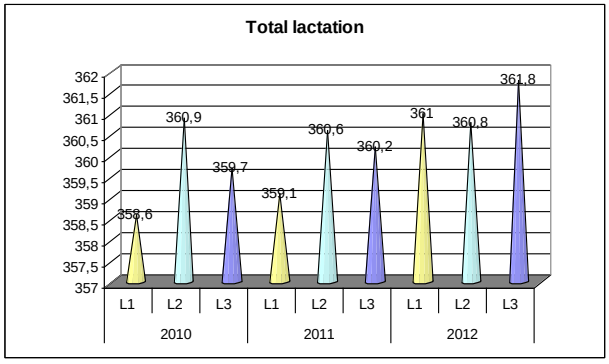

Fig. 1. The dynamics of total lactation herd analyzed

About the total lactation, literature mentions a period of 357.9 days with an average error of 0.66, standard deviation 101.39 and coefficient of variability 28.33%.
By comparing these data, observe that in farm SC Agrozootehnica SRL Comisani, total lactation is higher by about three days.

Table 2. The evolution of the normal lactation herd analyzed

Year	Lactation	n	$\bar{x} \pm S\ \bar{x}$	S	V%
2010	L1	84	300.1±4.43	10.2	3.4
	L2	84	298.9±8.81	11.36	3.9
	L3	84	299.7±3.21	11.70	4.1
2011	L1	84	303.1±6.66	14.56	4.8
	L2	84	302.4±4.43	12.52	4.5
	L3	84	303.5±4.15	13.48	4.9
2012	L1	84	303.5±2.5	11.88	3.91
	L2	84	302.7±0.55	11.91	3.83
	L3	84	303.2±1.77	12.05	4

From the table above analysis, it is found that the effective of analyzed from SC Agrozootehnica SRL Comisani, in year 2010, the first lactation was achieved normal lactation duration of 300.1 days, standard deviation 10.2 and coefficient of variation of 3.4, and in year 2012, in first lactation, there was a growth of normal lactation period with 2.5 days, a coefficient of variation less than about 2%. Second lactation, in year 2010 was carried a normal lactation period of 298.9 days, standard deviation 11.36 and coefficient of variability 3.9%; in year 2012 observed of a growth of normal lactation period about 3.5 days and a coefficient of variation less than about 0.1%. Third lactation, in year 2010, was carried a normal lactation period of 299.7 days, with standard deviation of 11.7 and coefficient of variation 4.1%; in year 2012 and third lactation, observed an increase of normal lactation period about 4 days and a coefficient of variation less than about 0.1%. These results are presented eloquently in figure no. 2.

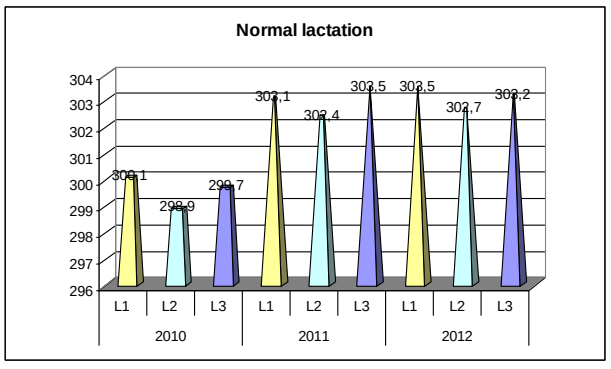

Fig. 2. The dynamics of normal lactation herd analyzed

Quantity of milk

Quantitative control seeks to establish the quantity of milk produced by an animal for a period of lactation.

Cow milk production is hereditary characteristics manifested under conditions of life and heredity depends 30% and 70% of environmental conditions. In the farm was analyzed quantity of milk per normal lactation, in the first lactation, in year 2010, was obtained a yield of 7523.4 kg, standard deviation 1379.3 kg and coefficient of variation of 26.4%. In year 2011 was obtained a quantity of 7623.7 kg, with a standard deviation of 1471 kg and a coefficient of variation of 26.8% and in 2012 is an increase in production of 827 kg, respectively 15% to 2010.

Table 3. Evolution of milk (kg) normal lactation herd analyzed

Year	Lactation	n	$\bar{x} \pm S\ \bar{x}$	S	V%
2010	L1	84	7523.4±1099.6	1379.3	26.4
	L2	84	7780.5±1114.2	1471.8	25.5
	L3	84	7810.3±1123.1	1325.7	25
2011	L1	84	7623.7±1307.1	1471.1	26.8
	L2	84	7810.5±1307.1	1612.7	26
	L3	84	7719.1±1313.1	1513.7	24
2012	L1	84	8350.5±1216.3	1505.3	24.5
	L2	84	8590.4±1242.6	1447.1	19.9
	L3	84	8680±1239.9	1479.1	20

The analysis table number three, it shows, a normal lactation, milk production in second lactation in 2010 to 7780.5 kg, standard deviation 1471.85 kg and coefficient of variability 25.5%, in 2011 is an increase in production of 30 kg of milk per normal lactation and in 2012 the difference from 2010 is 810 Kg respectively 14.5% milk, per normal lactation. In 2010, milk production per normal lactation, lactation third is 7810.3 kg with a standard deviation of 1325.7 kg and the coefficient of variation of 25%; in 2011 there was a decrease in production of 91 kg of milk per normal lactation, and in 2012 increased to 8680 kg with a standard deviation of 1479.17 kg and coefficient of variation of 20%. In 2012 the difference from 2010 is which 20% of 870 kg milk per lactation normal.

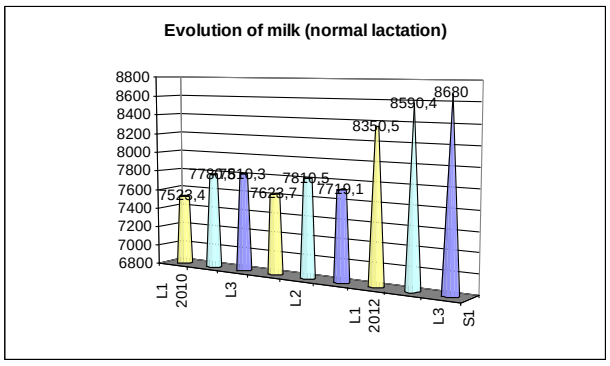

Fig. 3. Evolution of milk production

Comparing these data with those in the literature, we observe that the results found by us are superior both lactation first and second lactation (Georgescu 1988 in 3740 kg milk).

Table 4. Evolution of milk (kg) total lactation herd analyzed

Year	Lactation	n	$\bar{x} \pm S\ \bar{x}$	S	V%
2010	L1	84	8150.6±1427.3	1863.23	32
	L2	84	8270.1±1412.5	1899.2	30.2
	L3	84	8300.2±1419.4	1870.3	32.9
2011	L1	84	8250.6±1561.0	2020.02	31
	L2	84	8310.9±1307.1	2070.68	30.5
	L3	84	8380.1±1690.4	2010.4	30
2012	L1	84	8973.4±1728.8	2170.21	31
	L2	84	9058.3±1561.1	1937.48	24
	L3	84	9180.3±1815.3	1970.5	23

The amount of per total lactation milk on the farm Comisani registered a significant increase from year to year as follows: in 2010 the first lactation was realised 8150.6 kg milk with a mean error of 1427.34 kg, with a standard deviation of 1863.23 kg and a coefficient of variation of 32%; in year 2012 the first lactation was realised 9000.4 Kg milk with a mean error of 1728.8 Kg; with a standard deviation of 2170.21 Kg and a coefficient of variation of 31% recorded a difference of about 850 kg of milk, an increase of approximately 15%. In year 2010 in second lactation was realised 8270.1 kg milk with a mean error of 1412.5 Kg, with standard deviation 1899.2 Kg and a coefficient of variation of 30.2%; in year 2012 in second lactation was realised 9058.3 Kg milk with a mean error of 1561.1 Kg with a standard deviation of 1937.48 and coefficient of variation 24%; registering a difference of about 788 kg of milk, an increase of approximately 13%; in year 2010 lactation third is 8300.2 Kg milk with a mean error of 1419.4 Kg, with a standard deviation of 1870,3 Kg and coefficient on variation 31%; in 2012 lactation third was realised 9180.3 Kg milk with a mean error of 1815.3 Kg, with standard deviation of 1970.5 Kg and coefficient of variation 23%; registering a difference of about 880 kg of milk, an increase of approximately 30%.

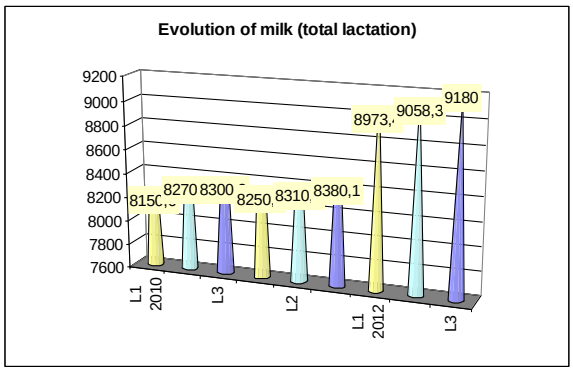

Fig. 4. Evolution of milk production (total lactation)

Considering its output in the farm of 9180.3 liters of milk in 2012, it seeks to approach the average yields of active populations in other countries such as Denmark, the Netherlands, France, Germany.

4. CONCLUSIONS

Active population of cattle analyzed is characterized by high productive performance: total lactation duration both L1, L2 and L3 recorded an upward dynamic in the period analyzed (2010-2012) recorded values of 361.0 ± 48.09 days in L1, 360.8 ± 55.16 days in L2 and 361.8 ± 56.61 days at L3 in 2012.; Normal lactation, also has an upward dynamic, realizing during year 2012 values 303.5 ± 2.5 days at L1, 302.7 ± 0.55 days in L2 and 303.2 ± 1.77 days in L3.

The amount of milk obtained in SC Agrozootehnica SRL Comisani had an upward dynamic in both per total lactation and per normal lactation, in period studied. Achieved in the year 2012, a production of 9000.4 ± 1728.8 kg milk in L1, 9058.3 ± 1561.1 in L2, 9180 ± 1815.3 kg milk in L3 per total lactation and 6146.5 ± 1216.3 kg milk in L1, 8590.4 ± 1242.6 kg milk in L2; 8680 ± 1239.9 kg milk in L3 per normal lactation.

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