

STUDY OF PRODUCTIVE PERFORMANCES SPECIFIC TO DAIRY COWS BREEDED IN FARMS OF DIFFERENT SIZES IN BISTRITA NASAUD COUNTY

Gheorghe MURESAN¹, Eugen JURCO¹, Stefan CIRCU², Cecilia POP³

¹University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, 3-5 Calea Manastur, Cluj County, Romania, Phone: +40 0264/596384, Email: gmuresan2005@yahoo.com

²Agency for Payment and Intervention in Agriculture (APIA), Nasaud, 2, Grivitei, Phone: +40 0263/361340, Bistrita-Nasaud County, Romania

³ University of Agricultural Sciences and Veterinary Medicine, Iasi, Email: cicip@yahoo.com

Corresponding author: gmuresan2005@yahoo.com

Abstract

The research were made in farms of various capacities located in Bistrita-Năsăud on an effective by 1029 heads of cows, out of which 100 heads with 370 lactations in holdings with 15-30 heads, 168 heads with 638 lactations in holdings with 31-50 heads, 303 heads with 1068 lactations in holdings with 51-100 heads and 458 heads which produced 1692 lactations in holdings with over 100 heads. From data analysis results that all 15 analyzed holdings, achieved average productions over 4000 kg of milk on normal lactation and 7 holdings accomplished average productions over 5000 kg, with an average productions which varies between 3814 kg and 8668 kg of milk.

Key words: farm size, milk production, economic efficiency

INTRODUCTION

The optimum sizing for milk cows holdings constituted and constitutes a research topic, that during decades were dedicated extensive researches by many specialists: Zahiu and Otiman (1971), Samochis (1974) [4], Drăgănescu I.C. et al. (1976) [2], Iosif Gh. (1984) [3], Livia Vidu (2002), to optimize the economic and technical indicators.

Given the need for continuous improvement of the entire activity in animal husbandry, especially that the dimensional structure of animal farms from the private sector has a situation where over 95% from breeders have less than 2 cows, under 2 fattening steers, under 3 sows and under 17 birds [1], we considered it is appropriate to conduct a study on the evolution of milk production on farms of various sizes in Bistrita-Năsăud.

MATERIALS AND METHODS

The research were made in farms of various capacities located in Bistrita-Năsăud and took place during the years 2008-2012. The biological material studied is represented by

1029 heads of cows, exploited in intensive and semiintensive system, which produced a total number of 3768 lactations, out of which 100 heads with 370 lactations in holdings with 15-30 heads, 168 heads with 638 lactations in holdings with 31-50 heads, 303 heads with 1068 lactations in holdings with 51-100 heads and 458 heads which produced 1692 lactations in holdings with over 100 heads. On this population, individual and overall, were analyzed more aspects: productive performances during the exploitation period, the main reproduction indices, the milk index, the fat index and the protein one. Production and reproduction data were obtained from the official control databases, existing at UARZ units from Bistrita-Năsăud and there were statistically processed.

RESULTS AND DISCUSSIONS

From presented data analysis, results that all the analyzed holdings, reached average productions of over 4000 kg of milk on normal lactation, and 7 holdings reached average productions of over 5000 kg.

Table 1. Average values for production traits according to lactations, registered on farms

Traits Farms	n	Total lactation				Normal lactation			
		Lactation length	Milk	Fat	Protein	Lactation length	Milk	Fat	Protein
		(days)	(kg)	(%)	(%)	(days)	(kg)	(%)	(%)
Farms with 15-30 heads									
Babalau	15	322,83	4262,3	4,1	3,48	293,13	4102,6	4,0	3,40
Gatini Simion	25	325,24	4513,0	4,0	3,34	285,64	4165,0	4,0	3,33
Echim	30	389,25	5875,5	4,0	3,50	293,78	4980,5	4,0	3,43
Pop Ioan	30	330,44	4506,5	4,0	3,44	291,47	4156,6	4,0	3,37
Farms with 31-50 heads									
Moldovan	40	310,28	4510,4	3,9	3,45	289,69	4387,5	3,9	3,41
Platon	40	368,72	7371,7	4,1	3,49	297,40	6243,2	4,1	3,44
S.C. Carla	43	353,03	6353,7	4,0	3,38	287,06	5328,1	4,0	3,37
Dobrican	45	278,08	4061,2	4,0	3,41	257,90	3814,0	4,0	3,40
Farms with 51-100 heads									
Ciorba Calin	62	317,33	5903,4	4,0	3,50	273,50	5466,0	4,0	3,48
Peica	70	337,31	7125,8	4,1	3,51	290,64	6397,1	4,1	3,47
Onoai	76	362,9	10136,	4,1	3,54	294,22	8668,4	4,1	3,48
Pasca Traian	95	315,46	4681,3	4,0	3,37	285,87	4392,6	4,0	3,36
Farms over 100 heads									
S.C. Centana	140	342,35	8642,7	4,0	3,43	287,25	8076,6	3,9	3,43
S.C. Carmolact	158	397,07	8519,9	4,1	3,45	300,26	7220,5	4,0	3,42
Galea	160	352,09	4648,3	4,0	3,46	292,78	4099,4	4,0	3,43

Table 2. Average values of reproductive traits on the entire population of cows

Farms	n	Age of first calving	Calving interval	Mamar repouse	Service period
		Days	Days	Days	Days
Farms with 15-30 heads					
Babalau	15	1122,92	386,96	62,14	96,43
Gatini Simion	25	1124,70	389,23	59,36	109,79
Echim	30	1041,87	447,69	75,04	158,32
Pop Ioan	30	1043,44	382,72	56,04	105,78
Farms with 31-50 heads					
Moldovan	40	964,61	363,09	62,52	86,41
Platon	40	960,09	441,72	65,02	157,72
S.C. Carla	43	959,37	405,45	48,32	118,62
Dobrican	45	989,86	347,07	77,74	77,81
Farms with 51-100 heads					
Ciorba Calin	62	1021,88	383,48	49,70	109,71
Peica	70	1124,37	406,28	66,49	128,25
Onoai	76	980,98	416,31	54,67	145,20
Pasca Traian	95	988,78	381,15	65,83	96,23
Farms over 100 heads					
S.C. Centana	140	899,86	403,75	50,65	133,07
S.C. Carmolact	158	824,88	459,88	65,33	175,88
Galea	160	1025,08	400,61	54,53	117,77

The weakest productions were realised in the group of holdings with 15-30 heads with an average productions which varies between 4102 kg and 4980 kg of milk.

Regarding the productive performances of Romanian Spotted breed, which is raised in 13 holdings from the total of 15 farms, varies between 3803 kg of milk with 4.06% fat at a normal lactation length of 292 days (Galea

Cristian's farm) and 5588 kg with 4.11% fat at a period of 290 days (Peica Liviu), compared with those from the Romanian Black Spotted breed, raised in 8 holdings, from the total of 15 farms, which realised productions varying between 4118.22 kg of milk with 4.10% fat at a normal lactation length of 300 days (Galea) and 8516.92 with 3.99% fat related to a period of 292 days (S.C. Centana).

Table 3. Average values of reproductive traits on Romanian Yellow Spotted breed population

Farms	n	Age of first calving	Calving interval	Mamar repose	Service period
		Days	Days	Days	Days
Babalau Grigore	9	1362,00	382,41	59,24	98,41
Gatini Simion	20	1194,50	387,15	59,95	107,88
Echim Ioan	15	1028,64	430,07	76,15	156,88
Pop Ioan	20	1193,25	385,21	55,69	106,65
Moldovan Flaviu	30	1182,88	377,30	62,88	93,30
Platon Prodilact	26	992,80	404,30	40,83	120,30
S.C. Carla	17	1079,82	408,23	48,95	122,29
Dobrican Teodor	19	1093,75	382,31	85,13	99,29
Ciorba Calin	34	1211,33	383,65	45,27	111,90
Peica	30	1203,92	426,57	68,63	149,55
Pasca Traian	50	1127,25	393,88	66,14	103,62
S.C. Centana	28	1034,50	416,93	48,46	175,91
Galea Cristian	45	1197,97	387,42	57,13	107,74

Table 4. Average values of productive traits on Romanian Yellow Spotted breed population

Farm	n	Lenght of normal lactation	Quantity of milk	Quantity of fat	Fat content	Lenght of total lactation	Quantity of milk	Quantity of fat	Fat content
		Days	Kg	kg	%	Days	Kg	Kg	%
Babalau Grigore	9	294,29	4123,66	167,91	4,08	322,23	4335,01	179,62	4,16
Gatini Simion	20	284,87	4211,03	170,84	4,06	322,52	4516,81	185,01	4,09
Echim Ioan	15	295,33	5210,28	206,61	3,96	368,69	5929,26	239,22	4,02
Pop Ioan	20	291,25	4198,36	167,84	4,00	329,28	4542,90	185,41	4,09
Moldovan Flaviu	30	289,86	4216,70	167,19	3,98	314,93	4398,53	176,82	4,04
Platon Prodilact	26	294,62	5407,58	220,28	4,02	360,12	6141,15	254,14	4,09
S.C. Carla	17	293,45	5526,08	221,70	4,01	359,49	6634,94	266,65	4,01
Dobrican Teodor	19	263,28	3966,14	162,88	4,12	298,39	4448,35	181,79	4,11
Ciorba Calin	34	274,09	4978,70	203,26	4,08	334,09	5764,92	236,05	4,08
Peica	30	290,00	5588,64	231,25	4,11	349,22	6431,37	269,78	4,18
Pasca Traian	50	285,55	4406,97	178,75	4,05	325,76	4887,61	198,02	4,04
S.C. Centana	28	264,81	4707,44	185,40	3,95	344,00	5348,24	213,56	3,98
Galea Cristian	45	292,49	3803,16	154,46	4,06	340,28	4216,83	171,98	4,07

CONCLUSIONS

The main zoo-economical indices that are obtained in the cattle holdings for milk production, are varying in Bistrita-Năsăud county conditions, these being influenced mainly by the functional parameter setting of

the breeders, by the geoclimatic zone in which are placed, by the owner's level of training and knowledge in the field.

Comparing the main attributes in milk production direction of those four population structures results significant differences in most of the cases, but whose evolution is

almost strictly similar mentioning that in most cases the numbers in groups of 50 heads meet better indicators.

From data analysis results that all 15 analyzed holdings, achieved average productions over 4000 kg of milk on normal lactation and 7

holdings accomplished average productions over 5000 kg. The weakest productions were realized in the group with 15-30 heads with average productions between 4102 kg and 4980 kg of milk.

Table 5. Average values of reproductive traits on Romanian black and White breed population

Farm	n	Age of first calving	Calving interval	Mamar repose	Service period
		Days	Days	Days	Days
S.C. Carla	9	1090,25	393,71	48,38	87,20
Ciorba Calin	19	1139,71	336,92	65,67	62,36
Peica	20	1306,91	421,60	87,67	137,60
Onoaie	57	945,50	402,33	63,02	124,43
Pasca Traian	30	925,33	380,43	73,17	91,61
S.C. Centana	57	892,39	409,24	53,87	137,42
S.C. Carmolact	68	821,44	468,09	60,42	184,09
Galea Cristian	34	991,50	396,03	30,32	111,12

Table 6. Average values of productive traits on Romanian black and White breed population

Farm	n	Lenght of normal lactation	Quantity of milk	Quantity of fat	Fat content	Lenght of totall lactation	Quantity of milk	Quantity of fat	Fat content
		Days	Kg	kg	%	Days	Kg	kg	%
S.C. Carla	9	267,11	5202,99	208,94	4,02	340,44	5897,27	243,38	4,13
Ciorba Calin	19	261,68	4442,92	176,96	4,00	280,68	4698,31	186,87	4,00
Peica	20	287,31	5535,74	223,36	3,96	322,06	6026,77	245,50	4,01
Onoaie	57	296,56	7688,05	316,26	4,06	343,67	8549,78	352,00	4,06
Pasca Traian	30	286,24	4278,39	172,19	4,03	306,58	4368,96	176,38	4,04
S.C. Centana	57	292,39	8516,92	340,55	3,99	359,72	9909,16	398,72	4,03
S.C. Carmolact	68	297,68	7794,43	317,92	4,07	404,74	9350,30	383,99	4,09
Galea Cristian	34	300,64	4118,22	168,89	4,10	369,77	4759,84	195,43	4,10

REFERENCES

- [1] Dinescu, S., Sabadeanu, P., 1996, Hranirea animalelor in ferme mici si mijloci. Ceres Publishing house, Bucuresti.
- [2] Draganescu, C., Iosif, N. Gh., Muresan, G., 1976, Optimizarea marimii fermelor pentru exploatarea vacilor de lapte. Lucrari stiintifice, I.C.C.T. Corbeanca, vol 3.
- [3] Iosif, G., Zahiu Letitia, Fratila, G., 1984. Economia si organizarea productiei de lapte. Ceres Publishing house, Bucuresti.
- [4] Samochis, B., 1974, Dimensionarea optima a fermelor de vaci. Ceres Publishing house, Bucuresti.