

THE STUDYS OF GREY STEPPE BREED UNTIL NOW

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Abstract

Research has been conducted in the SCDCB Dancu, Iași on 30 Grey Steppe cows to see the milk production indices per successive lactation, the corporally growth to the adult cows, heritability, repeatability and, genetic and phenotypic correlations between morph productive main characters.

In the same time we done a bibliographic study on the research made on this race in the past, and put face to face the grey steppe characters from the past(years 1947-1963) present Grey Steppe from SCDCB Dancu Iasi.

The primary data was from the OARZ Iasi database and from direct observations done on the farm. This notes that the duration of total lactation was the same with normal lactation, no more than 305 days, the quantity of milk was from 1589.64 kg (lactation I) to 2535.43 kg on the fifth lactation that is the maximum lactation. In studies of past productions the average of milk production was 1624 kg on the average period of 216.54 lactation days, in the 1947 year in Anton Paul' farm Ilfov, 2172 kg in the 1959 year, 2310 kg in the 1960 year and 1976 kg in 1963 to GAS Laza Vaslui, 1244 kg in the 1961 year to G.A.C., May 8 'village Săveni, Fetesti. The corporally growth has medium value of 122.28 cm for height, and 542.86 kg for weight, with no significant differences to the Grey Steppe from the past.

Analyzing the coefficient of heritability for main characters we acquired medium value for milk quantity and fat ($h^2=0,30\pm 0,31$), which proves a good genetic consolidation of this caws study in the present.

Key words: Grey Steppe, milk, heritability, correlation

MATERIAL AND METHOD

The biologic material take in study was represented by 30 Grey Steppe caws grows in SCDCB Dancu.

To this caws was followed the milk production indices, corporally growth indices, to the adult caws, heritability, repeatability, and phenotypic correlation.

The primary data was from direct observation and direct determination on the farm and from OARZ Iasi data base, after that it was statistically calculated with a program made in the bovine growth technology (SAVC), and the results was disposed in tables and graphics.

The results of our research were compared with the result of some Grey Steppe breed research from the past, to see the evolution in the last five decades.

RESULTS AND DISCUSSIONS

Analyzing the obtain results we can see than the duration of normal lactation is the same like total lactation, no more than 305 days. The quantity of milk was included between 1589,64 (I lactation) and 2535,43 Kg in the V lactation, which is the maximum lactation. The milk quantity decrease starting with the VI lactation to 1078 Kg, in the VIII lactation.

In the first lactation was obtain 62,68% from the maximum lactation, value which show us the undue of Grey Steppe cattle for milk production.

The variability of quantitative milk production was pronounced, the value for standard deviation was included between 544,10 Kg milk, in the first lactation and 1185,89 Kg in the V lactation, and for variability coefficients between $V\%=36,43$ and $V\%=46,77$. The pronounce variability to

studied caws proves the absence of amelioration by this basic parameter and the possibility of genetic amelioration by confined and multiplication of genotypic values.

Is to mention that was caws that have a maximum milk production of 4080 Kg per lactation or 3080Kg.

The observation from the past about Grey Steppe cattle shows medium milk production of: 1624Kg in 216,54 days in the year 1947 to the Anton Paul farm, 2172Kg in the year 1959, 2310Kg in 1960 and 1976 Kg in 1963 to the GAS Laza Vaslui, 1244 Kg in the year 1961 to the GAC 8 Mai.

Table1.

The average values and the statistical data of milk production variability on successive lactations to the Grey Steppe Bred from SCDCB Dancu

Specification	Statistical parameters	Total lactation				Normal lactation				Gestation length days
		Lactation length days	Milk kg	Fat %	Fat Kg.	Lactation length days	Milk kg	Fat %	Fat Kg.	
Lactation I	No	30	30	30	30	30	30	30	30	30
	\bar{X}	259,80	1589,64	4,64	68,94	259,80	1589,64	4,64	68,94	281,89
	$\pm s$	14,04	112,51	0,09	5,03	11,18	102,82	0,09	4,67	1,07
	s	74,33	595,35	0,49	26,62	59,19	544,10	0,49	24,74	5,70
	V%	28,68	36,69	11,24	39,18	23,74	36,43	11,21	37,48	2,02
	Min	90	360	3,40	15,00	90	360	3,40	15,00	269
Max	450	2612	5,30	110,00	305	2612	5,30	107,00	293	
Lactation II	No	27	27	27	27	27	27	27	27	27
	\bar{X}	254,26	1699,96	4,65	67,04	254,26	1699,96	4,65	67,04	277,26
	$\pm s$	14,45	147,15	0,09	5,09	14,45	147,15	0,09	5,09	5,42
	s	62,29	705,71	0,45	24,42	62,29	705,71	0,45	24,42	25,99
	V%	27,25	41,58	9,88	33,43	27,25	41,58	9,88	33,43	9,37
	Min	32	198	3,70	10,00	32	198	3,70	10,00	161
Max	369	3565	5,40	111,00	369	3565	5,40	111,00	296	
Lactation III	No	20	20	20	20	20	20	20	20	20
	\bar{X}	254,80	2092,80	4,51	93,00	254,80	2092,80	4,51	93,00	284,50
	$\pm s$	15,39	215,08	0,12	8,76	15,39	215,08	0,12	8,76	1,35
	s	59,61	833,01	0,49	33,95	59,61	833,01	0,49	33,95	5,08
	V%	23,39	39,80	10,85	36,50	23,39	39,80	10,85	36,50	1,78
	Min	116	434	3,50	22,00	116	434	3,50	22,00	276
Max	345	4080	5,30	144,00	345	4080	5,30	144,00	292	
Lactation IV	No	15	15	15	15	15	15	15	15	15
	\bar{X}	290,50	2082,10	4,62	91,10	290,50	2082,10	4,62	91,10	278,70
	$\pm s$	22,75	250,46	0,13	9,71	22,75	250,46	0,13	9,71	3,18
	s	71,95	792,03	0,41	30,72	71,95	792,03	0,41	30,72	10,06
	V%	24,77	38,04	8,94	33,72	24,77	38,04	8,94	33,72	3,61
	Min	194	835	4,10	45,00	194	835	4,10	45,00	255
Max	470	3080	5,30	138,00	470	3080	5,30	138,00	292	
Lactation V	No	8	8	8	8	8	8	8	8	8
	\bar{X}	285,43	2535,43	4,73	119,92	285,43	2535,43	4,73	119,92	282,00
	$\pm s$	20,76	448,22	0,21	25,25	20,76	448,22	0,21	25,25	3,20
	s	54,93	1185,89	0,57	66,82	54,93	1185,89	0,57	66,82	8,48
	V%	19,24	46,77	12,06	54,01	19,24	46,77	12,06	54,01	3,00
	Min	191	675	3,70	32,00	191	675	3,70	32,00	263
Max	369	4087	5,30	212,00	369	4087	5,30	212,00	287	

Table 1

	No	5	5	5	5	5	5	5	5	5
Lactation VI	\bar{X}	226,75	1411,0	4,95	69,00	226,75	1411,00	4,95	69,00	281,33
	$\pm s \bar{X}$	21,04	201,67	0,15	9,28	21,04	201,67	0,15	9,28	1,66
	S	42,08	403,35	0,31	18,56	42,08	403,35	0,31	18,56	2,88
	V%	18,55	28,58	6,28	26,90	18,55	28,58	6,28	26,90	1,01
	Min	175	818	4,60	43,00	175	818	4,60	43,00	282
	Max	278	1705	5,30	87,00	278	1705	5,30	87,00	287
Lactation VII	No	3	3	3	3	3	3	3	3	3
	\bar{X}	298	1519,0	4,66	83	298	1519,00	4,66	83	276
	$\pm s \bar{X}$	20,75	270,46	0,13	9,71	20,75	270,46	0,13	9,71	3,18
	S	71,95	792,03	0,41	30,72	71,95	792,03	0,41	30,72	10,06
	V%	14,77	18,04	3,94	13,72	14,77	18,04	3,94	13,72	3,61
	Min	254	835	4,10	45,00	254	835	4,10	45,00	250
Lactation VIII	No	2	2	2	2	2	2	2	2	2
	\bar{X}	227,77	1078,5	5,28	57,44	227,77	1078,5	5,28	57,44	275
	$\pm s \bar{X}$	10,75	268,46	0,13	9,71	10,75	268,46	0,13	9,71	3,18
	S	71,95	792,03	0,41	30,72	71,95	792,03	0,41	30,72	10,06
	V%	9,77	12,04	2,94	10,72	9,77	12,04	2,94	10,72	3,61
	Min	194	875	5,19	45,00	194	875	5,19	45,00	254
Max	260	1282	5,30	68,00	260	1282	5,30	68,00	297	

Table 2.

The results for same research from the past for milk production to Grey Steppe breed

Farm / study year	No	Statistical parameters	Lactation length days	Milk kg	Fat %
Ferma „Anton Paul” Ilfov 1947	11	\bar{X}	216,54	1624	4,62
		$\pm s \bar{X}$	8,30	308,73	0,23
		s	27,54	93,08	0,07
		V%	12,71	19,01	5,12
		Min	159	1307	4,2
		Max	263	2057	5,1
G.A.S. Laza Vaslui 1960	100	\bar{X}	267	2310	4,25
		Min	170	930	
		Max	325	3695	
Ferma „8 Mai”, Săveni, raionul Fetești	65	\bar{X}		1244	4,05
		Min	200	664	2,9
		Max	360	2280	4,7
G.A.S. Laza Vaslui 1963	36	\bar{X}	248	1976	4,2
		Min	144	955	3
		Max	343	3017	5,2

In the table 3 are the medium value and the variability for corporally growth that show us:

The studied caws had a medium height of 122,28 cm and 542, 86 weight, value who show us a good corporal massiveness. To this character are caws that have 770 Kg weight.

The variability of height is not so evidently, the animal group was homogeneous enough (3,06 and V%=2,51). But the weight had a big variability with s = 99,38 kg, and V % =18,30.

Table 3.
 The statistical parameters of corporally growth to the Grey Steppe Cattle

Farm /year	Specification	Wither height	Back height	Rump height	Pin bone base height	Thoracic depth	Brisket height	Obliquity length	Horizontal length	Total length	Thoracic length	Rump length	Head length	Thoracic width	Brisket width	Rump width at hip bone	Rump width at hip joint	Rump width at ischium	Head width	Thoracic perimeter	Shin perimeter	Corporal weight -kg
SCDCB Dancu Iași / present	UM No	cm 30	cm 30	cm 30	cm 30	cm 30	cm 30	cm 30	cm 30	cm 30	cm 30	cm 30	cm 30	cm 30	cm 30	cm 30	cm 30	cm 30	cm 30	cm 30	cm 30	cm 30
	\bar{X}	122,28	121,66	125,14	126,00	70,24	51,62	155,10	134,72	191,07	87,21	49,66	48,66	47,00	41,03	49,83	43,76	16,90	21,79	189,00	18,07	542,86
	$\pm s_{\bar{X}}$	0,57	0,58	0,61	0,58	0,71	0,74	1,90	1,14	4,67	0,97	0,51	0,57	0,64	0,54	0,50	0,42	0,42	0,18	2,18	0,15	18,45
	S	3,06	3,14	3,33	3,14	3,87	4,02	10,23	6,16	25,19	5,25	2,79	3,09	3,47	2,93	2,70	2,27	2,27	1,01	11,75	0,82	99,38
	V%	2,51	2,58	2,66	2,49	5,50	7,79	6,59	4,57	13,18	6,02	5,62	6,36	7,39	7,14	5,41	5,20	13,45	4,65	6,22	4,54	18,30
	Min	115	116	119	120	63	41	132	121	78	77	44	36	41	35	43	40	13	20	158	17	390
	Max	128	129	132	132	79	60	169	148	216	99	59	53	53	47	57	51	22	23	207	20	710
% din talie	100	99,49	102,33	103,41	57,44	42,21	126,84	110,17	156,25	71,31	40,15	40,59	38,43	33,55	40,75	35,78	13,82	17,81	154,56	14,77	-	
Ferma „Anton Paul” Ilfov 1947	No	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
	\bar{X}	132,81	131,09	133,18	132,73	67,46	58,82	-	157,73	-	-	49,37	49,81	36,73	38,64	50	44,64	31,09	23,27	179,36	16,64	-
	$\pm s_{\bar{X}}$	0,74	0,58	0,45	0,67	0,5	1,3	-	0,8	-	-	0,52	0,58	0,46	0,5	0,82	0,61	0,37	0,38	1,1	0,41	-
	S	2,48	1,39	1,5	2,24	1,67	4,38	-	2,77	-	-	1,72	1,92	1,55	1,66	2,73	2,05	1,23	1,29	3,65	1,37	-
	V%	1,08	1,46	1,12	1,68	2,4	7,4	-	1,75	-	-	3,4	3,85	4,2	4,2	5,46	4,58	3,63	5,42	2,02	8,23	-
	Min	128	128	130	130	65	52	-	152	-	-	47	47	34	36	45	42	29	21	170	15	-
Max	136	134	136	138	71	66	-	164	-	-	53	53	40	42	53	48	33	25	186	19	-	
GAC „8 Mai”, Săveni, raionul Fetești/ 1961	No	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
	\bar{X}	129,9	123,1	128,7	126,7	62,3	-	144,4	-	-	-	52	48,4	36,3	36,2	46,3	40,3	28,2	21,8	174,8	17,18	372
	Min	120	118	124	120	58	-	133	-	-	-	48	46	30	30	43	37	23	18	188	16	264
	Max	128	128	136	131	67	-	157	-	-	-	53	51	41	41	51	48	31	24	152	20	430
	% din talie	100	99,63	103,38	102,2	50,2	-	116,5	-	-	-	41	39	29,3	29,2	37,3	32,5	22,8	17,1	141,2	14,3	-
G.A.S. Laza Vaslui 1963	No	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
	\bar{X}	128	125	130,9	131,3	67,1	61,1	-	153	199,8	-	51,1	46,6	37,5	-	50	40,4	28,2	20,7	174,3	17,7	394
	Min	115	114	120	122	62	56	-	144	179	-	46	41	32	-	43	37	24	18	153	16	300
	Max	138	137	142	142	72	68	-	166	229	-	59	52	42	-	56	51	38	23	188	19	515
	% din talie	100	98,2	102,1	102,4	52,3	47,7	-	111,5	155,8	-	39,8	36,3	29,2	-	39	31,5	21,9	16,1	135,9	13,8	-

Analyzing the observation from the field and from the bibliography for corporally growth we can see a positive evolution for weight with value of: 372 Kg to the GAC 8 Mai (year 196), 394 Kg to the GAS Laza Vaslui to get to 542 Kg weight in present to the SCDCB Dancu. The same evolution is for thoracic width, 47 comparing with 36,3 – 37,5 cm obtained in the past, 189 cm for thoracic perimeter comparing with 174,3-179,36 cm, 41,03 for brisket width comparing with 36,2 – 38,64 cm obtain in the past.

The value for another biometrics measure had a negative evolution, for example for height 122,28cm comparing with 128 cm (Laza 1963), 132cm (Anton Paul 1941).

Analyzing the heritability for mains characters the group of caws take in study has a medium value for milk and fat quantity, which proves a good genetic consolidation for the animal group. The same result was for corporally weight and height, the phenotypic selections for this characters being efficient.

Is to mention that the fat percent from milk had a big hereditary influence ($h^2=0,71$) (tab. 4).

The repeatability for this characters take in study proves a good genetic consolidation for Grey Steppe breed and the possibility for amelioration by a phenotypic selection. We mark out the milk quantity and fat with

medium repeatability $R=0,33 - 0,34$ and big repeatability for fat percent $R=0,73$.

Table 4.
 The heritability (h^2) and the repeatability (CR) for main characters to the Grey Steppe breed

Specification	h^2	CR
Gestation length	0,15	0,17
Normal lactation length	0,27	0,29
Milk quantity	0,30	0,33
Percent of fat	0,71	0,73
Fat quantity	0,31	0,34
Whither height	0,37	-
Thoracic perimeter	0,33	-
Corporal weight	0,41	-

For genetics and phenotypic correlations between the different propriety disclosed different significations (tab. 5).

From numerous character pairs was evident the intense and positives genetic and phenotypic correlations between milk quantity and fat quantity $r_{pg}=0,98 - 0,97$.

The same positive correlations with medium intensity was between quantitative milk production and the corporally growing indices $r_{pg}=0,33 - 0,44$. The classic correlation between quantitatively milk production and fat percent was negative (-0,21; -0,19). The correlations between gestations period and corporaly growing are small and positive or small and negative.

Table 5
 The values of phenotypic, genetic and environmental correlations coefficients of Grey Steppe breed

Correlating characters	$r_{p \pm s_p}$		$r_{g \pm s_g}$	
Milk quantity and:				
Gestation length days	0,18	0,07	0,25	0,04
Lactation length days	-0,25	0,03	-0,26	0,05
Fat percent	-0,21	0,02	-0,19	0,01
Fat quantity	0,98	0,01	0,97	0,03
Wither height	0,38	0,06	0,33	0,01
Thoracic perimeter	0,39	0,06	0,32	0,01
Corporal weight -kg	0,44	0,06	0,41	0,01
Gestation length days and:				
Lactation length days	0,09	0,08	0,13	0,06
Fat percent	0,07	0,08	0,10	0,07
Fat quantity	0,28	0,07	0,43	0,09
Wither height	-0,11	0,01	-0,13	0,05
Thoracic perimeter	-0,10	0,07	-0,30	0,04
Corporal weight -kg	-0,08	0,09	-0,11	0,02

CONCLUSIONS

Analyzing the morphologic and productizes indices to Grey Steppe caws from SCDCB Dancu Iasi is obvious the present genetic value, this one wasn't improved comparing with genetic value from five decades ago, because wasn't give attention for the amelioration to this breed, and was made absorptions crossing with deferred breeds, after that this cows almost disappeared.

Following the heritability for principals characters are evident medium value for milk and fat quantity ($h^2=0,3; 0,31$) proved a good genetic consolidations to Grey Steppe breed and possibility to ameliorate it by phenotypic selections.

From the interdependence of characters was obvious the phenotypic and genetic correlations intense positives between quantitative milk production and fat quantity ($r_{pg}=0,98; 0,92$). The same positives correlation of medium intensity was between quantitative milk production and corporally growing aspects.

The Grey Steppe group from SCDCB Dancu is a valuable genetic fond who must be conserved, ameliorated and numeric developed to avoid the genetic drift and consanguinity.

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