

MORPHOLOGICAL STUDY CONCERNING THE REPRODUCTION HORSES FROM ROMANIAN SEMIGREUL BREED FROM RUȘEȚU STUD

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Abstract

Research was carried out on the herd of horses, which constituted the reproduction nucleus of Romanian Semigreul breed from Rușețu Stud, between 2011 and 2013. Horses were assessed based on data obtained from usual measurements (waist, thoracic perimeter and shinbone perimeter) performed at the annual evaluation. Results obtained in 2013 regarding waist showed that it had average values of 155.07 ± 1.76 cm at mares, respectively 158.00 ± 1.78 cm at stallions. Thoracic perimeter had an average value of 187.51 ± 1.94 cm at mares, respectively 200.20 ± 2.00 cm at stallions and shinbone perimeter had mean values of 21.83 ± 0.66 cm at mares and 24.00 ± 0.69 cm for stallions. In light of these results it has been observed that the studied mares are presenting as a homogenous batch concerning waist and shinbone perimeter, respectively heterogeneous regarding the thoracic perimeter. At stallions, the batch is homogenous only in terms of waist. The obtained data gathered after measurements fits into breed standard and justify horses promoting/maintenance into stud breeding nucleus.

Key words: equines, mares, stallions, stud, measurements

INTRODUCTION

Since the second half of last century, some Romanian experts recommend a new line in genetic improvement of labour horses from the country, aiming to which seeks to increase body massiveness and calming temperament throughout using the heavy breed at natural insemination and in parallel by creating breeds and types of lightweight horses replacing the slight breeds in action of improvement.

Research Institute for Animal Science initiated since 1951 at Slobozia experimentation for formation of a new horse breed, with intermediate skills between heavy and light breeds, because of its qualities for strength, speed and docility, harmoniously combined on the same individual, are the most recommended for labour [10].

Research have continued from 1964 at I.C.Z. Rușețu Institute, through experiences of crossbreeding between Trăpaș, Ardenez breeds and Ialomițene mares, in order to

create a type of Semigreul horse for this area of the country. Thus initially resulted two types of Semigreul horses (small and large), which were later used for the formation of the present Romanian Semigreul breed at Rușețu Stud [2], [3], [5], [6], [10-13].

MATERIAL AND METHOD

The biologic material was represented by mares' mother and stallions, which constituted the reproduction nucleus of Romanian Semigreul breed from Rușețu Stud, between 2011 and 2013, according to the data registered in the book of the unit.

Characters that were the subject of the study are: waist, thoracic perimeter, shinbone perimeter. Measurements were effectuated using the usual tools, respectively zoo-meter, and ribbon [2], [4], [7-9].

Data obtained from measurements were statistically processed [1].

RESULTS AND DISCUSSIONS

Data obtained from measurements were statistically processed and summarized in table 1.

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According to these data it can be seen that the waist of the animals taken in study had values which oscillated between 151 and 169 cm, at mares and between 155 and 160 cm, at stallions, with a mean value of the herd which slightly varied depending on year, respectively from 155.92 at 155.07 cm, in mares case and from 158.80 at 158 cm, in stallions case (fig. 1).

From this point of view the studied batch was homogenous, in all the cases the coefficient of variation being beneath 10%.

Also, these values fit in general, within the limits stipulated for Romanian Semigreul breed.

Regarding the thoracic perimeter, this one registered absolute values, which ranged between 170 and 204 cm, at mares and between 184 and 206 cm, at stallions. These values fit the breed standard.

Table 1 Values of the studied characters at horses from the Rușețu Stud

Specification	Waist (cm)	Thoracic perimeter (cm)	Shinbone perimeter (cm)	Waist (cm)	Thoracic perimeter (cm)	Shinbone perimeter (cm)
	Mares			Stallions		
2011	n	72	72	72	6	6
	\bar{x}	155.92	189.69	22.17	158.50	199.83
	$\pm s_{\bar{x}}$	1.77	1.95	0.67	1.78	2.00
	V%	9.08	23.53	1.91	0.69	34.51
	MIN	151.00	170.00	21.00	157.00	184.00
	MAX	169.00	204.00	23.00	160.00	206.00
2012	n	71	71	71	5	5
	\bar{x}	155.31	188.35	21.99	158.80	199.80
	$\pm s_{\bar{x}}$	1.76	1.94	0.66	1.78	2.00
	V%	5.64	23.64	2.55	0.44	43.14
	MIN	151.00	170.00	20.00	158.00	184.00
	MAX	164.00	204.00	23.00	160.00	206.00
2013	n	72	72	72	5	5
	\bar{x}	155.07	187.51	21.83	158.00	200.20
	$\pm s_{\bar{x}}$	1.76	1.94	0.66	1.78	2.00
	V%	5.11	22.65	3.03	2.53	21.58
	MIN	151.00	170.00	20.00	155.00	190.00
	MAX	164.00	204.00	23.00	160.00	206.00

Average values of this character varied according to the reference year from 189.69 to 187.51 cm, at mares and from 200.20 to 199.83 cm at stallions (fig. 2).

From this point of view, the effective is very heterogeneous, values of the variation coefficient being over 20%.

Shinbone perimeter had values falling within the standard breed ranging between 20 and 23 cm for females, respectively between 22 and 26, at stallions, with a mean that oscillated depending on the year between 22.17 and 21.83 cm, in females case and which was consistent (24 cm), in the males case (fig. 3).

Regarding this character, at female, values of the variation coefficient were small,

under 3.03%, so the studied batch can be considered very homogenous.

In male case, inputs and outputs of the original batch, which was homogenous in terms of this character, led to the appearance of a greater variability (10.42%).

Generally, during the three years of study it can be observed a slightly decrease of the average values of the three corporal sizes.

This decrease can be attributed to the entry into the herd of young animals, newly promoted, which are still growing, respectively of the output from the effective of some older animals, reformed, which in relation with age had a properly development.

Data obtained from body measurements served for calculation of some corporal

indexes, respectively: dactyl-thoracic index, body index and massive index (table. 2).

The dactyl-thoracic index, as expected, had higher values in the case of males, ranging between 12 – 12.04% and lower in female cases, respectively 11.65 – 11.69%.

From this point of view the studied population act as a homogenous batch.

In comparison, the bone index had slightly higher values at stallions (15.11 – 15.19%) than females (14.08 – 14.22%), the studied population being homogenous from this point of view.

Regarding the massive index, this one had medium values which oscillated, function of the year of reference, between 125.81 and 126.69% at stallions, respectively between 120.93 and 121.69% at mares.

From this point of view both studied mare population, and especially the stallions was heterogeneous, the variability coefficient having values over 10% at mares and even over 20% at stallions.

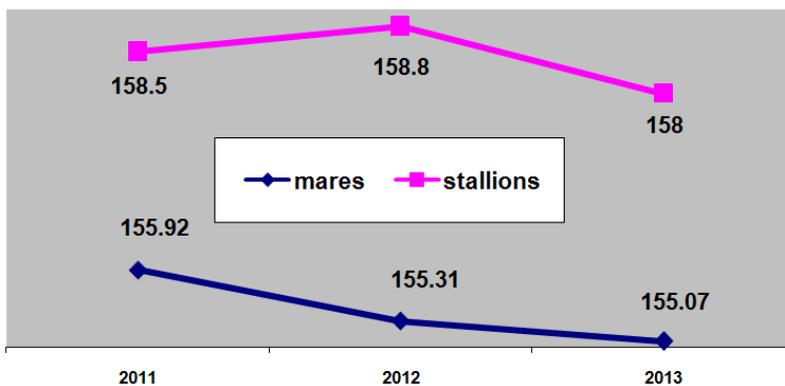


Fig. 1 The mean values of waist during the studied period (cm)

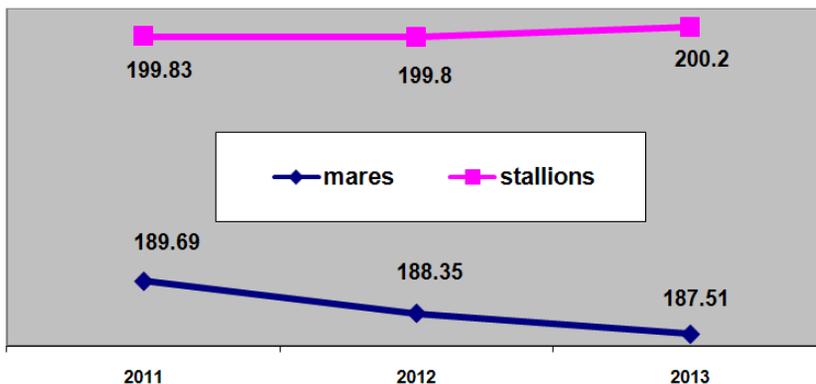


Fig. 2 The mean values of thoracic perimeter during the studied period (cm)

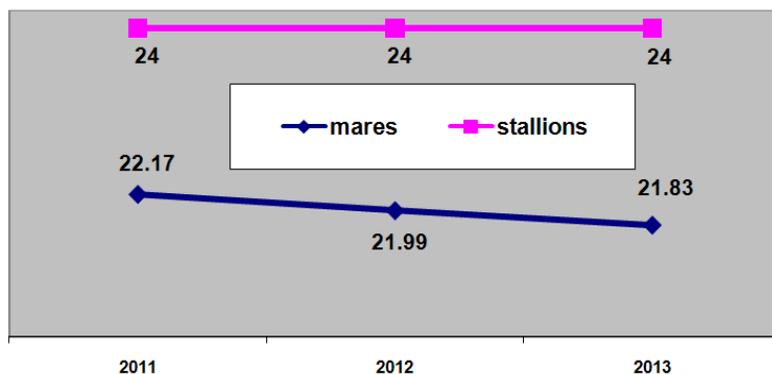


Fig. 3 The mean values of shinbone perimeter during the studied period (cm).

Table 2 Mean values of the body indexes calculated for the studied horse population

Specification	Dactyl-thoracic index	Bone index	Massive index	Dactyl-thoracic index	Bone index	Massive index	
	Mares			Stallions			
2011	n	72	72	6	6	6	
	\bar{X}	11.69	14.22	121.69	12.03	15.14	126.07
	$\pm s.\bar{X}$	0.48	0.53	1.56	0.49	0.55	1.59
	V%	1.13	1.42	12.92	6.88	4.25	19.61
	MIN	10.82	12.80	109.68	10.68	13.84	116.46
	MAX	12.50	15.13	130.72	13.07	16.35	129.56
2012	n	71	71	5	5	5	
	\bar{X}	11.68	14.16	121.28	12.04	15.11	125.81
	$\pm s.\bar{X}$	0.48	0.53	1.56	0.49	0.55	1.59
	V%	1.04	1.40	12.28	8.59	5.28	24.15
	MIN	10.82	13.07	109.68	10.68	13.84	116.46
	MAX	12.50	15.13	130.72	13.07	16.35	129.56
2013	n	72	72	5	5	5	
	\bar{X}	11.65	14.08	120.93	12.00	15.19	126.69
	$\pm s.\bar{X}$	0.48	0.53	1.56	0.49	0.55	1.59
	V%	1.06	1.63	11.30	6.79	6.39	6.35
	MIN	10.82	13.07	109.68	10.68	13.84	122.58
	MAX	12.50	15.13	130.72	13.07	16.35	129.56

Exception is 2013, when, due to changes from the effective at the end of 2012, the batch become homogenous (V% = 6.35).

It can be stated therefore that in general stallions presents a superior body development to mares, being in general more robust.

At the same time, about the analyzed mares it can be stated that they have an adequate development, fact which allowed them to promote in the breeding nucleus.

Naturally, values of the calculated indexes were during the three years of study, fully

consistent with the values of the analyzed body sizes (waist, thoracic perimeter, shinbone perimeter), being able to say that in general were constant, registered differences depending on the reference year being very small.

CONCLUSIONS

Following the study conducted over a period of three years on the effective of mares' mother and stallions, from Romanian Semigreul breed, from Rușețu Stud the following conclusions were drawn:

- **waist** of the studied stallions had an average value of 158.43 cm;
- waists of the analysed mares' mother had an average value of 155.43 cm;
- for both sexes, waist had values that were usually within the breed standard;
- generally in the studied period at both sexes, the medium value of waist registered a slightly decrease, up to 0.8 cm;
- **thoracic perimeter** at stallions had an average value of 199.94 cm;
- thoracic perimeter at mares' mother had an average value of 188.51 cm;
- for both sexes the thoracic perimeter had values that were usually within the breed standard;
- generally in the studied period at stallions the medium value of thoracic perimeter was relatively constant, while mares, registered a decrease of approximately 2 cm;
- **shinbone perimeter** at stallions had an average value of 24 cm;
- shinbone perimeter at mares' mother had an average value of 21.99 cm;
- for both sexes the shinbone perimeter had values that were usually within the breed standard;
- generally in the studied period at stallions the value of shinbone perimeter was constant, while in mares case, registered a slightly decrease of approximately 0.3 cm;
- **dactyl-thoracic index** at stallions had an average value of 12.02%;
- dactyl-thoracic index at mares' mother had an average value of 11.67%;
- **bone index** at stallions had an average value of 15.14%;
- bone index at mares' mother had an average value of 14.15%;
- **massive index** at stallions had an average value of 126.19%;

- massive index at mares' mother had an average value of 121.30%;

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