

## STUDY REGARDING THE MORPHOLOGY OF PUBLIC MOUNT STALLIONS POPULATION FROM TULUCEȘTI STUDFARM

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### Abstract

*The study was based on 34 Gidran, Lipizzaner, Semigreu Românesc and Pure Arabian stallions from Public Mount Unity of Tulucești studfarm, Galați county, Romania. These horses were reared in troops where they have been used or assessed as public mount stallions after promoting the specific ranking activity. They were appreciated regarding the usual measurements used on horses (height, thorax perimeter and cannon girth) at current criteria evaluation, where they obtained very satisfying marks. The results show that the stallions can be included, based on body measurements, in Elite class, which proves that they should continue to reproduce in Tulucești National studfarm; thus a high biological material will be obtained, which indicates that the main purpose of studfarm will be achieved.*

**Key words:** horses, stallions, studfarm, measurements.

### INTRODUCTION

Public mount stallions are horses of high genetic value, reared in National studfarms, which have obtained satisfying marks at current criteria evaluation to be framed in Elite class (Velea, 1980).

These stallions are billeted in National Stallion Stores and Public Mount Stallions Unities that exist beside studfarms, like Tulucești unity; their purpose is mating free of charge with households mares regarding equine amelioration. Likewise, these stallions can represent a precious source in stud selection.

The purpose of this study is to add a small contribution in the morphology domain, which can directly influence the performances of every horse.

### MATERIALS AND METHODS

The biological material was represented by 34 stallions from Public Mount Stallion Unity within the Tulucești studfarm, which was registered at the end of 2018. These horses were 5 to 18 years old and 8 of them were

Gidran breed, 12 Lipizzaner, 4 Semigreu Românesc and 10 Pure Arabian. We analyzed the withers height, the thorax perimeter and the cannon girth, using the standard equipment like zoometer and metric tape (Doliș et al., 2008; Doliș, 2009; Doliș, 2011; Doliș, 2011; Doliș et al., 2014; Doliș et. al., 2017; Dulugeac, 2005; Georgescu et al., 1990; Mărginean et al., 2012; Moldoveanu et al., 1961). Data obtained was statistically processed (Cucu et al., 2004).

### RESULTS AND DISCUSSIONS

Data obtained through measurements was statistically processed and centralized for every breed (Tables 1-4; Fig. 1-3).

The minimum absolute value for withers height was 151 cm (Pure Arabian stallion) and the maximum absolute value for this parameter was 170 cm (Semigreu Românesc and Lipizzaner) (Fig. 1).

Regarding the thorax perimeter the minimum absolute value was 151 cm (Pure Arabian stallion) and the maximum value for this parameter was 189 cm (Gidran stallion) (Fig. 2)

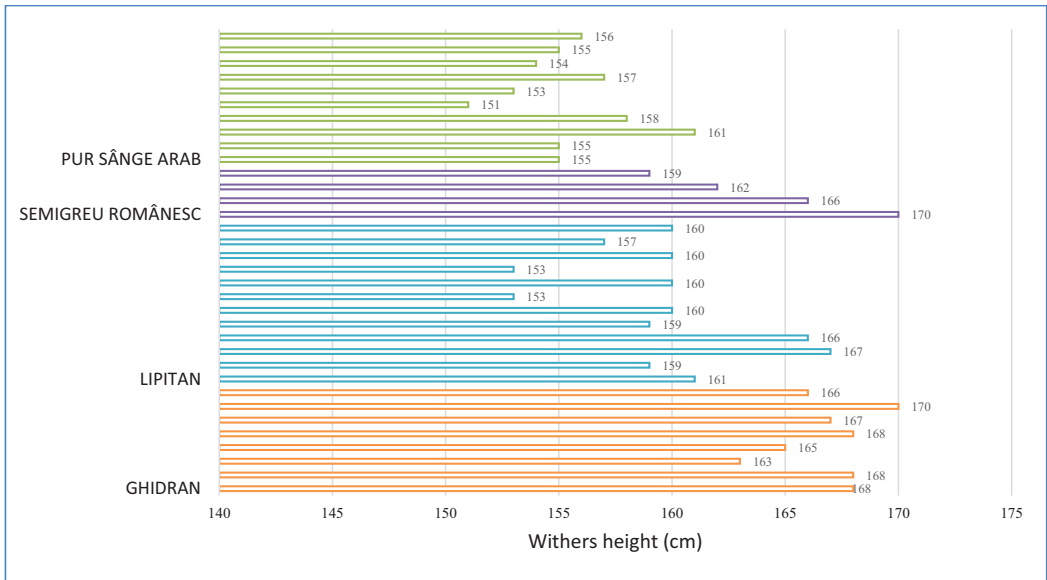


Figure 1. Withers height (cm) of public mount stallions reared in Tulucești studfarm

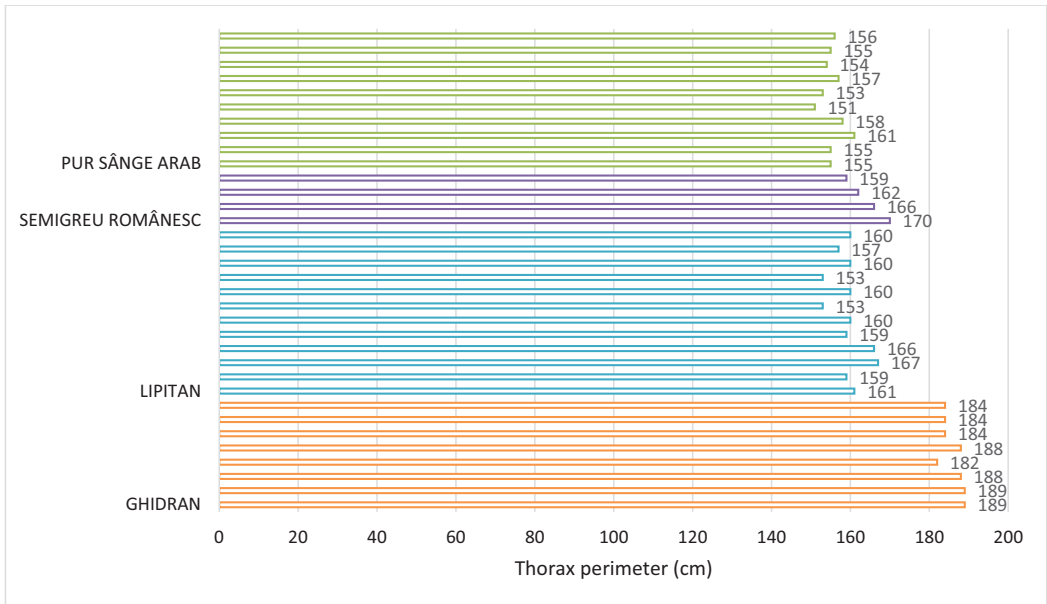


Figure 2. Thorax perimeter (cm) of public mount stallions reared in Tulucești studfarm

The minimum value of cannon girth found at analyzed stallions was 20 cm (Pure Arabian)

and the maximum value was 25 cm (Semigreu Româneșc) (Fig. 3).

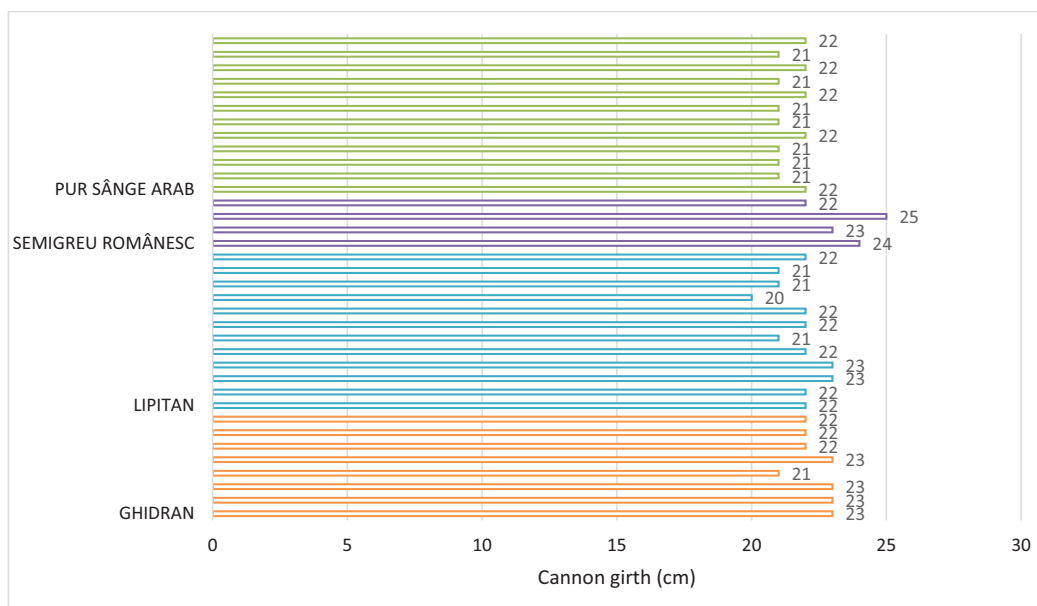


Figure 3. Cannon girth (cm) of public mount stallions reared in Tulucești studfarm

According to the results, all 8 Gidran stallions had an average value for height parameter of  $166.88 \pm 0.77$  cm, a minimum value of 163 cm and a maximum value of 170 cm.

For the thorax perimeter, the absolute value had ranges of 182-189 cm and the average value was  $186 \pm 0.98$  cm; the cannon girth had an average value of  $22.38 \pm 0.26$  cm, with a minimum value of 21 cm and a maximum of 23 cm. The coefficient of variation for all three studied parameters was 1.49% and 3.33%,

indicating very homogeneous characters in every assessed case.

Regarding calculated body indexes, the average value of digital-thorax index was  $12.03 \pm 0.08$  cm (minimum of 11.54 cm and maximum of 12.23 cm), while the average value of bone index was  $13.41 \pm 0.16$  cm (minimum of 12.73 cm and maximum of 14.11 cm); the massiveness index had a minimum value of 108.24 cm, a maximum of 115.34 cm and an average of  $111.48 \pm 0.75$  cm, which indicated that the population was homogenous (Table 1).

Table 1. Average values of main body measurements of Gidran public mount stallions from Tulucești studfarm

Breed	Specification	Withers height (cm)	Thorax perimeter (cm)	Cannon girth (cm)
Gidran	n	8		
	$\bar{X}$	166.88	186.00	22.38
	$\pm s_{\bar{x}}$	0.77	0.98	0.26
	s	2.17	2.78	0.74
	V%	1.30	1.49	3.33
	Minimum	163	182	21
Maximum	170	189	23	

For all 12 Lipizzaner stallions, the withers height parameter oscillated between 153-167 cm, the thorax parameter had ranges of 182-192 cm and the cannon girth registered values between 20-23 cm.

The statistical estimators for the Lipizzaner public mount stallions, indicated average values of  $159.58 \pm 1.21$  cm for withers height,  $189.67 \pm 1.28$  cm for thorax perimeter and  $21.75 \pm 0.25$  cm for cannon girth. The studied

group had a coefficient of variation which oscillated between 2.34% and 3.96% revealing

homogenous characters for the analyzed parameters (table 2).

Table 2. Average values of main body measurements of Lipizzaner public mount stallions from Tuluțești studfarm

Breed	Specification	Withers height (cm)	Thorax perimeter (cm)	Cannon girth (cm)
Lipizzaner	n	12		
	$\bar{X}$	159.58	189.67	21.75
	$\pm s_{\bar{x}}$	1.21	1.28	0.25
	s	4.19	4.44	0.87
	V%	2.62	2.34	3.98
	Minimum	153	182	20
	Maximum	167	197	23

Regarding body indexes, the average value for digital-thorax formula was  $11.47 \pm 0.11$  cm, while the average value for bone index was  $13.63 \pm 0.11$  cm and  $118.92 \pm 1.21$  cm for massiveness index; these results show that the population is highly homogenous (the coefficient of variation had values 2.24%, 3.36% and 3.69% for every character mentioned).

The Semigreu Românesc public mount stallions registered a minimum withers height value of 159 cm, a maximum of 170 cm and an average

value of  $164.25 \pm 2.39$  cm; regarding the thorax parameter, the average value was  $194.25 \pm 4.55$  cm, with limits of variation comprised between 184-206 cm.

The cannon girth had an average value of  $23.50 \pm 0.65$  cm, while the absolute values oscillated between 22-25 cm.

The coefficient of variation for the studied characters was underneath 5.50% indicating a homogenous group (Table 3).

Table 3. Average values of main body measurements of Semigreu Românesc public mount stallions from Tuluțești studfarm

Breed	Specification	Withers height (cm)	Thorax perimeter (cm)	Cannon girth (cm)
Semigreu Românesc	n	4		
	$\bar{X}$	164.25	194.25	23.5
	$\pm s_{\bar{x}}$	2.39	4.55	0.65
	s	4.79	9.11	1.29
	V%	2.91	4.69	5.49
	Minimum	159	184	22
	Maximum	170	206	25

The digital-thorax index had an average value of  $12.10 \pm 0.15$  cm, while the average value of bone index was  $14.31 \pm 0.38$  cm and the massiveness index was  $118.32 \pm 2.09$  cm. The coefficient of variation was underneath 5.30%. Regarding the main body measurements of Pure Arabian public mount stallions, the average values were:  $155.50 \pm 0.87$  cm for withers height,  $181.00 \pm 1.51$  cm for thorax

perimeter and  $21.40 \pm 0.16$  cm for cannon girth. The absolute values for withers height oscillated between 151-161 cm, for thorax perimeter were between 172-186 cm and for cannon girth were 21-22 cm.

The studied characters showed that the group was homogenous (the coefficient of variation was 1.77-2.64%) (Table 4).

Table 4. Average values of main body measurements of Pure Arabian public mount stallions from Tuluțești studfarm

Breed	Specification	Withers height (cm)	Thorax perimeter (cm)	Cannon girth (cm)
Pure Arabian	n	10		
	$\bar{X}$	155.50	181.00	21.40
	$\pm s_{\bar{x}}$	0.87	1.51	0.16
	s	2.76	4.78	0.52
	V%	1.77	2.64	2.41
	Minimum	151.00	172.00	21.00
	Maximum	161.00	186.00	22.00

As shown in the table 4, the average values of the analyzed indexes were:  $11.83 \pm 0.11\%$  for digital-thorax index,  $13.77 \pm 0.16\%$  for the bone index and  $116.63 \pm 0.96\%$  for the massiveness index; these results showed that the group was homogenous also regarding the calculated indexes.

Generally speaking, the body measurements obtained for the 34 stallions were included in the limits found in the literature or close to it, proving that they had to be promoted in the Public Mount Stallions Unity of the National Tuluțești studfarm (Doliș et al., 2008; Doliș, 2011; Doliș et al., 2014; Doliș et al., 2018; Dulugeac, 2005; Furtunescu, 1971; Georgescu et al., 1982; Georgescu et al., 1990; Mărgărint et al., 2012; Suciuc et al., 1975; Velea et al., 1980).

There is obvious exceeding of these limits, like a higher withers height than 170 cm for Semigreul Românesc, but this aspect can be positive because it can be used in future amelioration programs considering that this breed it is not fully consolidated.

Data obtained regarding body indexes revealed that, depending on every breed, stallions have a harmonious constitution, representative for the morphological type that they belong to.

## CONCLUSIONS

The analyzed stallions presented values found in breed standards for every studied measurements (withers height, thorax perimeter, cannon girth);

Regarding the data obtained for body indexes (digital-thorax index, bone index, massiveness index), the studied stallions

presented an harmonious development, typical to every breed, exactly to the morphological type that they represent.

Data obtained from the statistic program indicate that all breeds have homogenous characters in all analyzed cases.

Regarding the studied characters, the analyzed stallions can be included at least in Elite class.

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