

# Study of the Main Body Dimensions that Are Used in the Selection Process, in the Reproductive Nucleus of the Thoroughbred horse from Cislau Studfarm

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## Abstract

Study of average performances in a population have a huge importance because, regarding to a population, the average of phenotypic value is equal with average of genotypic value. So, the studies of the average value of characters offer us an idea about the population genetic level. This study have the principal purpose to analyse main body dimensions who are used in selection process: withers height, thoracic perimeter and cannon bone perimeter, through the integration of individuals in an evaluation class, in accordance with selection methodology.

The biological material is represented by 41 Thoroughbred horses, 3 males and 38 females, at different ages, owned by Cislau stud farm. The average performances of characters are presented in the paper. We can observe a small grade of variability with some differences between sexes.

The average performances of the characters are between characteristic limits of the breed.

**Keywords:** analysis, Cislau studfarm, horse, Thoroughbred

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## 1. Introduction

Study of average performances in a population have a huge importance because, regarding to a population, the average of phenotypic value is equal with average of genotypic value [1]. So, the studies of the average value of characters offer us an idea about the population genetic level. This study have the principal purpose to analyse main body dimensions who are used in selection process: withers height, thoracic perimeter and cannon bone perimeter, through the integration of individuals in an evaluation class, in accordance with selection methodology.

## 2. Materials and methods

The biological material is represented by 41 Thoroughbred horses, 3 males and 38 females, at different ages, owned by Cislau stud farm, representing the entire reproductive nucleus. The individuals were analyzed through individual performances, through stallions average performance, through mares average performance, and, most important, through population average performance of body dimensions, related to selection criteria [2]. We analyzed the withers height, the thoracic perimeter and the cannon bone perimeter using somatometrie. All measurements was recorded from genealogical register and verified by us in Cislau stud farm in 2011 using ANIMETER measuring belt and a height measuring stick.

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### 3. Results and discussion

Analyzing recorded data, we can observe significant differences, for all characters, between

individuals (Figure 1), between sexes and at population level (Table 1, Figure 2).

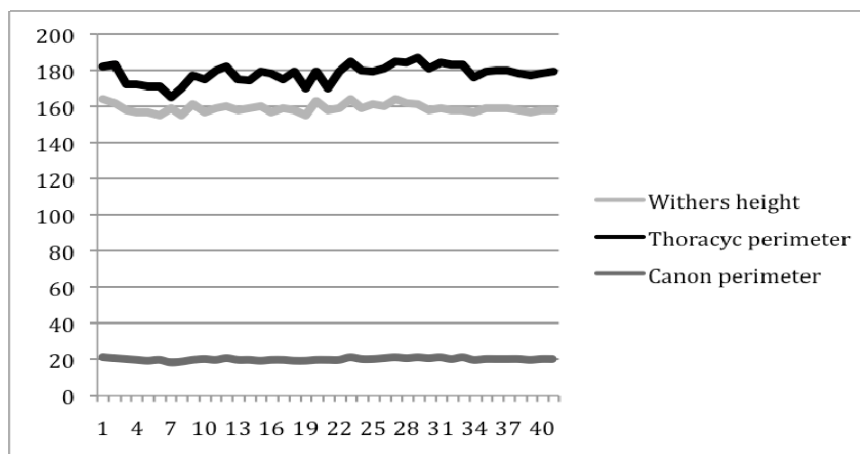


Figure 1. Graphic representation of individual performance in population

Table 1. Average values of analyzed characters

No.	Specification	N	Average performances		
			Withers height	Thoracic perimeter	Canon bone perimeter
1	Males	3	161.333	179	20.5
2	Females	38	158.842	177.895	19.8158
3	Population	41	159.024	177.976	19.866

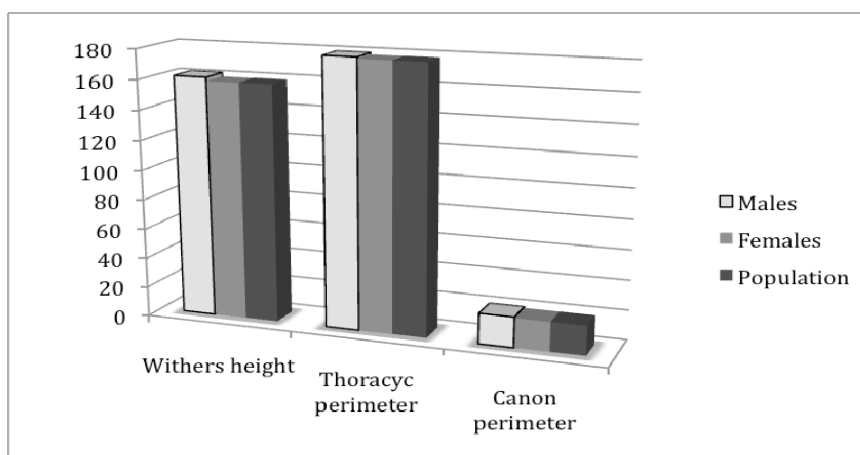


Figure 2. Graphic representation of characters

In stallion case we find significant differences between individual performances: the bigger value of withers height is 164 cm (Varlam), and the smallest was 158 cm. (Tezeu). The average performance of stallions was 161.333 cm, corresponding to best class (note 10 – record class). Even the Tezeu stallion corresponding for record class (note 9). The thoracic perimeter value, was maximum 183 cm (Odiseu), and

minimum 172 cm (Tezeu). Average performance for thoracic perimeter was 179 cm, corresponding for note 10, respectively record class. Canon bones perimeter have maximal value at 21 cm (Varlam), minimal value at 20 cm (Tezeu), and an average of 20.5 cm. Average value corresponding for note 10 and also for record class. Overall, regarding corporal dimensions, the stallions meet criteria's to be sires. In the mares effective, we can

say that we have a similar situation. For withers height, we record a maximal value at 164 cm. (Horinca, Debora), and a minimal value at 155 cm (Dansatoarea, Poiana). From our point of view, both mares does not meet criteria's for brood mare. The average performance was 158.842 cm, corresponding for note 10, respectively record class. The thoracic perimeter had values between 187 cm (Polina) and 165 cm (Prepozitia), with an average of 177.895 cm. From this point of view, Prepozitia does not meet criteria's to be included in brood mares category (note 4). Huge differences can be attributed to the moment of recording. However, the average performance includes mares stock in record class, at inferior level – note 8, minimal note for mares in record class. The canon bone perimeter had his higher value, at 21 cm (Horinca, Debora, Polina, Dragaica, Tura), and smallest value at 18 cm (Prepozitia). The average performance was 19.866 cm, corresponding for note 10 – record class.

#### **4. Conclusions**

Analyzing the reproductive nucleus of Thoroughbred horse from Cislau stud, by corporal

dimensions, it's obvious that the majority of individuals deserve to be the ancestors of a new generation. We strongly recommend increasing of sire stallions effective, for this breed, associated with a very strong control of selection for all characters. Unfortunately, in Romania, we don't have a hippodrome for testing Thoroughbred horses for the most important character of the breed: speed.

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