

BIOMETRIC PARAMETERS OF ARABIAN MARES FROM POLISH STUDS BETWEEN 1945-2002¹

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Abstract: The process of Arabian improvement is still lasting and it must be adapted to modern trends and conditions which are reflected in changes of biometric parameters. The aim of this study was to evaluate the changes in biometric parameters of Arabian horses bred in Polish studs after the II World War. Material for this research were information concerning basic measurements (height at withers HW, girth circumference GC and cannon circumference CC) of 1218 Arabian horses (1076 mares and 142 stallions) used in Polish breeding after the II World War. The observation showed that mares were always characterized by lower measurements than stallions. Nearly all measurements for mares and stallions from Białka stud appeared to be the highest compare to other studs. The lowest height at withers was observed for both sexes from "other studs", in Michałów mares were characterized by the lowest girth circumference and stallions by canon circumference.

Key words: Arabian horses, biometric measurements, breeders

Introduction

Arabian horses in Poland, Europe and all over the world are used as saddle horses or as light carriage horses. As a result of long-lasting work of Polish breeders the special type called "Polish type" of Arabian horses was created. Polish Arabians differ from their ancestors bred by Bedouins on deserts of Arabia. Main differences are slightly higher height, better nobleness and correct exterior. The value of Polish Arabian horses can be proved by very high prices obtained for Polish mares and stallions (record price for mare Penicylina – 1,5 million of US dollars). The process of Arabian improvement is still lasting and it must be adapted to modern trends and conditions which are reflected in changes of biometric parameters (*Budzyński et al.* 1976). The process of changing their conformation lasts according to better climate, environmental and nutrition conditions. Height at withers, girth circumference and cannon circumference are basic measurements making possible to compare horses born in different time and place. The average measurements for Polish Arabian horses are: height at withers 140-155 cm, girth circumference 160-180 cm and cannon circumference 17,5 – 19,5 cm (*Pruski* 1960). *Zwoliński* (1976) showed following measurements for Arabians bred in Poland: : height at withers for stallions -151cm, for mares 147,8 cm; girth circumference for stallions 180,4 cm and for mares 180,8 cm; and cannon circumference for stallions 19,4 cm and for mares 18,4 cm. The aim of this study was to evaluate the changes in biometric parameters of Arabian horses bred in Polish studs after the II World War.

Material and methods

Material for this research were information concerning basic measurements (height at withers HW, girth circumference GC and cannon circumference CC) of 1218 Arabian horses (1076 mares and 142 stallions) used in Polish breeding after the II World War. Information was collected on the base of studs' documentation (cards of stallions and mares). Seven breeders owning more than 10 horses were taken under consideration. Arithmetical average of HW, GC and CC were calculated for all studied period of time for each breeder. The differences between breeders were statistically verified using computer program Statistica for Windows 5.0 and Duncan's test.

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Results and discussion

In all studied population average height at wither for mares was 149,87 cm and for stallions 151,68 cm. *Skorkowski (1926)* in his work concerning Arabian horses rescued after I World War showed that HW for mares was 148,00 cm and for stallions 150,00 cm. *Kownacki et al. (1992 a, b)* stated that HW for mares was 148,70 cm and for stallions 151,74 cm. The highest were mares from Janów Podlaski stud (150,45 cm) and the lowest from the group of “other studs” (147,41 cm). This value was significantly lower than for Mares from Janów Podlaski. Stallions from Białka stud appeared the highest (155,00 cm) and this value was highly significantly higher than observed for horses from “other studs” (148,50 cm) (tab. 1). Significantly shorter were also stallions from Nowy Dwór, Albigowa and Klemensów studs (respectively 151,00; 150,11 and 150,75 cm).

During the analysis of effect of the breeder on girth circumference it was stated that mares were always characterized by lower girth circumference compare to stallions (average for mares 175,75 cm and for stallions 177,67 cm). The highest value of GC was observed for mares from Białka stud (180,33 cm) and the lowest from Michałów stud (175,25 cm). The highest value of GC was observed for stallions from Białka stud (183,25 cm) and the lowest from Kurozwęki stud (176,78 cm) (tab. 1). The value of discussed parameter was very low in 1923 – only 169,90 cm for mares and 171,40 cm for stallions (*Skorkowski 1926*). It could be explained by very high effect of environment (especially feeding) on this trait. According to studies of *Kownacki et al. (1992 a, b)* the average GC for mares was 182,74 cm and for stallions - 178,72 cm. The average cannon circumference for all studied mares was 18,11 cm and was lower than this value for stallions – 18,88 cm. The highest value of CC was observed for mares from Klemensów stud (18,5 cm) and the lowest from Albigowa stud (17,97 cm). The highest value of CC was observed for stallions from Białka stud (18,75 cm) and the lowest from Michałów stud (18,75 cm) (tab. 1). Arabian horses measured by *Skorkowski (1926)* were characterized by CC on the level 17,90 cm for mares and 18,90 for sires. According to measurements done by *Kownacki et al. (1992 a, b)* stallions were characterized by the highest CC – 19,38 cm; for mares it was also very high value 18,64 cm.

Table 1. Biometric parameters of Arabian mares from Polish studs between 1945-2002

Studs	Biometric parameters (cm)					
	Height at withers		Girth circumference		Canon circumference	
	Mares	Stallions	Mares	Stallions	Mares	Stallions
Albigowa	147,92c	150,11a	176,44	177,33	17,97	19,03
Kurozwęki	150,17	151,67	177,93	176,78a	18,06	18,97
Janów Podlaski	150,45abc	152,01	175,39	177,72	17,99	18,81
Klemensów	150,71	150,75b	176,00	180,75	18,50	19,25
Białka	149,40	155,00Aabc	180,33a	183,25a	18,42	19,75a
Michałów	149,71	151,50	175,25a	176,95	18,21	18,75a
Nowy Dwór	147,70b	151,00c	175,94	177,88	18,07	19,06
Other studs	147,41a	148,50A	177,65	177,00	18,11	19,25
Total	149,87	151,68	175,75	177,67	18,11	18,88

Conclusions

The observation showed that mares were always characterized by lower measurements than stallions. Nearly all measurements for mares and stallions from Białka stud appeared to be the highest compare to other studs. The lowest height at withers was observed for both sexes from group of “other studs”. Mares from Michałów stud were characterized by the lowest girth circumference and stallions by canon circumference.

BIOMETRIJSKI PARAMETRI ARAPSKIH KOBILA IZ POLJSKIH ERGELA U PERIODU 1945-2002

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Proces oplemenjivanja arapskih konja još uvek traje i mora se prilagoditi modernism trendovima i uslovima koji se odražavaju u promenama biometrijskih parametara. Cilj ovog istraživanja je bio ocena promena u biometrijskim parametrima kod arapskih konja koji se gaje u Poljskoj nakon II svetskog rata. Materijal za istraživanje se sastojao od podataka o osnovnim merama (visina grebena HW, obim grudi GC, obim cevanice CC) kod 1218 arapskih konja (1076 kobila i 142 pastuva) koji su korišćeni u Poljskoj u odgoju konja nakon II svetskog rata. Zapažanja su pokazala da su kobile uvek imale manje mere od pastuva. Skoro sve mere za kobile i pastuve iz Białka ergele su imale nešto više vrednosti od ostalih ergela. Najniža visina grebena je registrovana kod oba pola iz "ostalnih ergela", a kobile iz ergele Michałów su imale najnižu vrednost obima grudi a pastuvi obima cevanice.

Ključne reči: arapski konji, biometrijske mere, odgajivači

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