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Biometric data in wild boar (*Sus scrofa ferus*) populations from Transylvania, between 7 months and 2 years of age

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Abstract. In this paper we present the statistical interpretation of the mean and dispersion mean indices for the following phenotypic traits in Romanian wild boar: oblique body length, withers height, rump height, thorax perimeter, body weight, head length and forehead width. The data are presented for young animals, aged between 7 months and 2 years, separately by age and gender. A total number of 190 animals were taken into account, from all the experimental devices in 10.11.2010, representing wild boars of both sexes and different ages: 80 boars aged between 7 and 12 months, 50 males and 30 females; 110 boars aged between 1.5 and 2 years, 50 males and 60 females. At the age of 7 to 12 months the differences between males and females are minimal for all the recorded traits. At the age of 1.5 to 2 years, the average body length of females is 127 ± 1.47 cm, inferior with 11 cm to the one of males of the same age. The same sexual dimorphism is reflected in withers height, males being superior to females by 7 centimetres, having an average of 87 cm. At the age of 2 years, males have an average thoracic perimeter of 113 cm and females of only 94 cm. The body length has an average of 170 cm in males, 14 cm higher than the one of the females. Males show a higher average performance by 7 cm in withers height, where females have an average of 88 cm. Thorax perimeter of males is superior by 15 cm, compared to female wild boars of similar age.
Key Words: wild boar, phenotypic traits, young animals, age, gender.

Introduction. The paper data resulted from an extensive research conducted in the experimental device of the project PN II 52105/2008. In this paper we present the statistical interpretation of the mean, and dispersion indices, for the following phenotypic traits in young wild boars: oblique body length, withers height, rump height, thorax perimeter, body weight, head length and forehead width. The data are presented for young animals, aged between 7 months and 2 years, separately by age and gender.

Previous authors stated that wild boar development is in direct link to habitat conditions (Almășan et al 1973; Cotea et al 2001; Pascal 2002). Data presented here shows a good overall body development of Transylvanian wild boars, indicating proper natural conditions for the species.

Materials and Methods. A total number of 190 young wild boars were measured, from all the experimental devices in 10.11.2010, representing wild boars of both sexes and different ages: 80 boars aged between 7 and 12 months, 50 males and 30 females; 110 boars aged between 1.5 and 2 years, 50 males and 60 females. At the time of each piece collection conformation measurements were made and hair samples (with bulb) and blood were collected, for DNA isolation and consequent genetic analyses. The following conformation measurements were performed: oblique body length, withers height, rump height, thorax perimeter, body weight, head length and forehead width. Measurement data were processed statistically by estimating the mean and dispersion indices represented by the variance, standard deviation, standard error of mean, coefficient of variation (using the formulae of Oroian et al 2009; Vlaic 2011). Age was estimated based on dentition, as indicated in our previous studies (Oroian et al 2010).

Results and Discussion. In wild boars aged between 7 and 12 months, the differences between males and females are minimal for all the recorded traits. It must be noted that there is a positive correlation between thorax perimeter and body weight, but corrections must be made according to the harvesting season (late autumn or January - February months). All the followed traits in the studied population had a good homogeneity, indicating a pronounced conservatism and good uniformity, both within and between sexes (Table 1).

Razmaite et al (2009) recorded body measurements of Lithuanian wild pigs that are inferior regarding all investigated traits, compared to those of wild boars in Transylvania. Wild boar populations from Transylvania are superior to most traits observed within the wild boar populations studied by Moretti (1995). Also, Gallo Orsi et al (1995), presented biometric data and growth rates of a wild boar population living in the Italian Alps, inferior to our wild boars measurements in Transylvania.

Table 1

Biometric data in wild boars aged between 7 and 12 months
Average and dispersal indices

Trait	Sex	n	X±sx	s	V%
Body length (cm)	♂	50	121 ± 0.69	5.3	4.42
	♀	30	110 ± 1.30	7.1	6.45
Withers height (cm)	♂	50	64 ± 0.87	6.1	9.53
	♀	30	63 ± 1.15	6.3	10.00
Rump height (cm)	♂	50	58 ± 1.02	7.2	12.41
	♀	30	56 ± 1.35	7.4	13.21
Back height (cm)	♂	50	59 ± 0.91	6.4	10.85
	♀	30	58 ± 1.26	6.9	11.90
Thorax perimeter (cm)	♂	50	66 ± 1.06	7.5	11.36
	♀	30	58 ± 1.45	7.9	13.62
Body weight (kg)	♂	50	53 ± 1.65	11.7	22.08
	♀	30	41 ± 2.61	14.3	34.88
Head length (cm)	♂	50	33 ± 0.81	5.7	17.27
	♀	30	32 ± 1.11	6.1	19.6
Forehead width (cm)	♂	50	10 ± 0.33	2.3	23.00
	♀	30	9 ± 0.36	2.0	22.22

Table 2

Conformation dimensions in wild boars aged between 1.5 and 2 years
Average and dispersal indices

Trait	Sex	n	X±sx	s	V%
Body length (cm)	♂	60	138 ± 1.24	9.6	6.94
	♀	50	127 ± 1.47	10.4	8.19
Withers height (cm)	♂	60	87 ± 1.01	7.8	8.97
	♀	50	80 ± 1.20	8.5	10.64
Rump height (cm)	♂	60	74 ± 1.02	7.9	10.68
	♀	50	70 ± 1.29	9.1	13.00
Back height (cm)	♂	60	83 ± 1.25	9.7	11.69
	♀	50	75 ± 1.40	9.9	13.20
Thorax perimeter (cm)	♂	60	113 ± 1.59	12.3	10.88
	♀	50	94 ± 1.57	11.1	11.84
Body weight (kg)	♂	60	101 ± 2.09	16.2	16.04
	♀	50	82 ± 1.90	13.4	16.34
Head length (cm)	♂	60	44 ± 0.81	6.3	14.32
	♀	50	39 ± 0.74	5.2	13.33
Forehead width (cm)	♂	60	15 ± 0.34	2.6	17.33
	♀	50	13 ± 0.33	2.3	17.69

In wild boars aged between 1.5 and 2 years, the average body length of females is 127 ± 1.47 cm, inferior with 11 cm to the one of the males of the same age. The same sexual dimorphism is reflected in withers height, males being superior to females by 7 centimetres, having an average of 87 cm. At the age of 2 years, males have an average thoracic perimeter of 113 cm and females of only 94 cm. We believe that at this age the sexual dimorphism occurs due to the hormonal activity, influencing the differential gender growth, reflecting the head length and forehead width in the two sexes (Table 2), in accordance with our previous findings (Oroian et al 2012).

The body length has an average of 170 cm in males, 14 cm higher than the one of the females. Males show a higher average performance by 7 cm in withers height, where females have an average of 88 cm. Thorax perimeter of males is superior by 15 cm to the one of females, the average of the 30 tracks being 125 cm (Table 2).

Conclusions. Body weight of individuals collected in these age periods is strongly influenced by feeding conditions depending on soil yield and season (during January-February weight loss is very obvious because of the lack of natural food, depending almost exclusively on the additional food administration). In the studied area we noticed very good body conformation for all ages, both in males and females, this trait not being affected as strongly as body weight by the environmental conditions. Head length and forehead width actually reveals the existence of a strong group, highly adaptable to the natural habitat. Rump height viewed in correlation with size, highlights the existence of genetic purity in boar herds in Transylvania, where there were no reported hybrids with domestic pigs.

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