STUDY ABOUT CANNON BONE PERIMETER AVERAGE PERFORMANCES IN ROMANIAN HUCUL HORSE BREED – PRISLOP BLOODLINE

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Abstract

Study of average performances in a population have a huge importance because, regarding 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. The biological material is represented by 93 Hucul horse from Prislop bloodline divided in 3 stallion families analyzed at 18, 30 and 42 months old, owned by Lucina Hucul stood farm. The average performances for cannon bone perimeter were 17.25 cm at 18 months, 18 cm at 30 months old and 18.57 cm at 42 months old. We can observe a good growth rate from one age to another and significant differences between sexes. The average performances of the character are between characteristic limits of the breed.

Key words: bloodline, horse, Hucul, Lucina, Prislop.

INTRODUCTION

The study of average performances for different characters in a population, have a great importance because, at the population level, the average of phenotypic values are equal with the average of genotypics values (Mărginean, 1997). That's mind that the study of average performances give us an ideea about the genetic level of population (Mărginean et al., 2005).

MATERIALS AND METHODS

For realising the purposed objectives, biological material became from Lucina Stood Farm, Suceava county, represented by a sample of 93 horses (males and females) divided at 3 stallion familys, presented in Table 1.
The sample was studied at three different ages: first grading at 1.5 years old, second grading at 2.5 years old and the third grading at 3.5 years old. After the third grade, the individuals support a performances testing for energetic capacity. The sample was extracted from population in according with registered performances for all three ages to have one balanced experimental plan (Harper, 2006). The analyzed statistics are: average, variance, standard deviation, average error and variability coefficient.

RESULTS AND DISCUSSIONS

The average performances for cannon bone perimeter, are presented in Table 2.
The character dynamic is presented in Figure 1. Analyzing Table 2 and Figure 1, we can observe an important growth from one grading to another, in both sexes. Also we distinguish significant difference between sexes for mentioned character.
Calculated values for Fisher test does not reveal significant differences, from statistical point of view, between halfsibs families (F=0.03 at 18 months old, F=0.24 at 30 months old and F=0.62 at 42 months old).
The differences between sexes, for all three ages are insignificant to put in discussion some differences in energetic capacity between sexes (Saastamoinen, 1990).

Table 1. The biological material

Bloodline	Family size	Males	Females
PRISLOP	93	44	49
- Prislop VIII	26	14	12
- Prislop IX	62	27	35
- Prislop X	5	3	2

Table 2. The cannon bone perimeter average performances in Prislop bloodline

| Family	Sex	Age (years)											
		1.5				2.5				3.5			
		n	$\overline{X} \pm S_{\overline{X}}$	s	v%	n	$\overline{X} \pm S_{\overline{X}}$	s	v%	n	$\overline{X} \pm S_{\overline{X}}$	s	v%
Pr VIII		14	17.39 ± 0.21	0.79	4.54	14	18.29 ± 0.13	0.47	2.57	14	18.71 ± 0.13	0.47	2.51
Pr IX	M	27	17.54 ± 0.15	0.80	4.56	27	18.41 ± 0.18	0.92	5	27	19 ± 0,14	0.75	3.95
Pr X		3	17	0	0	3	18.17 ± 0,17	0.29	1.6	3	19.17 ± 0.44	0.76	3.96
Total M		44	**17.45 ± 0.12**	**0.77**	**4.41**	44	**18.35 ± 0.12**	**0.77**	**4.2**	44	**18.92 ± 0,1**	**0.67**	**3.54**
Pr VIII		12	17.04 ± 0,2	0.69	4.05	12	17.83 ± 0,11	0.39	2.19	12	18.13 ± 0.16	0.57	3.14
Pr IX	F	35	17.04 ± 0.09	0.51	2.99	35	17.64 ± 0.08	0.48	2.72	35	18.31 ± 0,1	0.58	3.17
Pr X		2	17.5	0	0	2	17.5 ± 0,5	0.71	4.06	2	18 ± 0.5	0.71	3.94
Total F		49	**17.06 ± 0.08**	**0.55**	**3.22**	49	**17.68 ± 0.07**	**0.46**	**2.6**	49	**18.26 ± 0.08**	**0.58**	**3,18**
Total family		93	**17.25 ± 0.07**	**0.69**	**4**	93	**18 ± 0,07**	**0.71**	**3.94**	93	**18.57 ± 0.07**	**0.71**	**3.82**
Significance of observed differences between sexes (Student)		3.00 [**]				5.15 [***]				5.50 [***]			
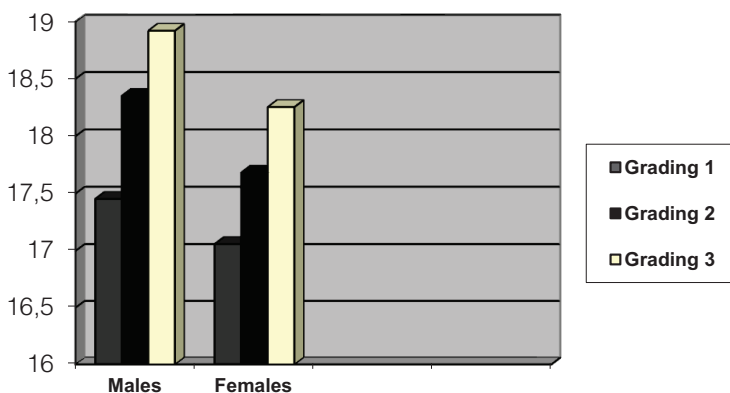
Figure 1. Cannon bone perimeter dynamic in Prislop bloodline

CONCLUSIONS

We reveal an important growth of character, from one age to another, especially in stallion case (14 cm between first and second grade of stallions).
Significant differences was recorded between the individuals from both sexes.

The calculated F value does not reveal significant differences, from statistical point of view, between half sibs families (F=0.03 at 18 months old, F=0.24 at 30 months old and F=0.62 at 42 months old). For the other two gradings the differences are not significant from statistical point of view (F = 2 at 2.5 years old, and F = 0.49 at 3.5 years old).

To see between which families are significant differences, we applied Tuckey test. The test does not succeed to show between which families are significant differences, probably as a result of sample error associated with any statistical analysis.

The cannon bone perimeter evolution vary in postutherin period in correlation with age, with an decreasing trend of values due to this factor.

REFERENCES

Mărginean Gh., 1997. Tratat de hipologie, Editura Orion, Bucuresti.

Mărginean Gh., Georgescu Gh., Maftei M., 2005. Indrumator de lucrări practice pentru exploatarea cabalinelor, Editura Agrotehnica, Bucuresti.

Harper F., 2006. Growth in horses. Horse Express, 25(3).

Saastamoinen M., 1990. Factors affecting growth and development of foals and young horses. Acta Agriculturae Scandinavica, 40, 387-396.