

Study about chest width average performances in Romanian Hucul horse breed – Goral 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 87 hucul horse from Goral bloodline divided in 5 stallion families analyzed at 18, 30 and 42 months old, owned by Lucina hucul stood farm.

The average performances for chest width are presented in paper. We can observe a good growth from one age to another and a small differences between sexes.

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

Keywords: Chest, bloodline, horse, hucul, width

1. 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 [1]. That's mind that the study of average performances give us an idea about the genetic level of population [2].

2. Materials and methods

For realising the purposed objectives, biological material became from Lucina Stood Farm, Suceava county, represented by a sample of 87 horses (males and females) divided at 5 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. The analyzed statistics are: average, variance, standard deviation, average error and variability coefficient.

3. Results and discussion

The average performances for chest width character, 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 insignificant difference between sexes for mentioned character. It is interesting that, in Goral bloodline, females have a bigger chest width than the males (about 0.5 centimeters more), but insignificant to put in discussion some differences in energetic capacity between sexes [3].

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Table I. The biological material

Bloodline	Family size	Males	Females
GORAL	87	35	52
- Goral XV	10	5	5
- Goral XVI	50	17	33
- Goral XVII	1	0	1
- Goral XVIII	12	5	7
- Goral XIX	14	8	6

Table II. The chest width average performances in Goral bloodline

Family	Sex	Age (years)											
		1.5				2.5				3.5			
		n	$\bar{X} \pm S_{\bar{X}}$	s	v%	n	$\bar{X} \pm S_{\bar{X}}$	s	v%	n	$\bar{X} \pm S_{\bar{X}}$	s	v%
G XV	M	5	150.6 ± 2.56	5.73	3.8	5	163.4 ± 2.79	6.23	3.81	5	167.6 ± 2.04	4.56	2.72
G XVI		17	149.47 ± 1.18	4.87	3.26	17	161.65 ± 1.14	4.68	2.9	17	168.18 ± 1.43	5.89	3.5
G XVII		-	-	-	-	-	-	-	-	-	-	-	-
G XVIII		5	142.6 ± 1.69	3.78	2.65	5	157.4 ± 3.42	7.64	4.85	5	168.4 ± 2.52	5.64	3.35
G IXI		8	144 ± 3.09	8.75	6.08	8	159.25 ± 1.61	4.56	2.86	8	166.63 ± 2.61	7.37	4.42
Total M		35	147.4 ± 1.1	6.5	4.41	35	160.74 ± 0.92	5.44	3.38	35	167.77 ± 3.18	5.84	3.48
G XV	F	5	147.8 ± 1.39	3.11	2.1	5	159 ± 1.27	2.83	1.78	5	164.6 ± 1.78	3.97	2.41
G XVI		33	149.33 ± 0.85	4.89	3.27	33	159.79 ± 0.78	4.48	2.8	33	168.79 ± 0.78	4.47	2.65
G XVII		1	144	-	-	1	161	-	-	1	167	-	-
G XVIII		7	145.14 ± 1.92	5.08	3.5	7	155.7 ± 1.02	2.69	1.73	7	167.57 ± 1.69	4.47	2.67
G IXI		6	147.33 ± 3.5	8.57	5.82	6	156.17 ± 4.27	10.45	6.69	6	169.5 ± 2.84	6.95	4.1
Total F		52	148.29 ± 0.74	5.35	3.61	52	158.77 ± 0.73	5.26	3.31	52	168.27 ± 0.66	4.76	2.83
Total bloodline	87	147.93 ± 0.62	5.82	3.93	87	159.56 ± 0.58	5.39	3.38	87	168.07 ± 0.56	5.19	3.09	
Significance of observed differences between sexes. (Student)	0.68 ^{NS}				1.66 ^{NS}				0.42 ^{NS}				

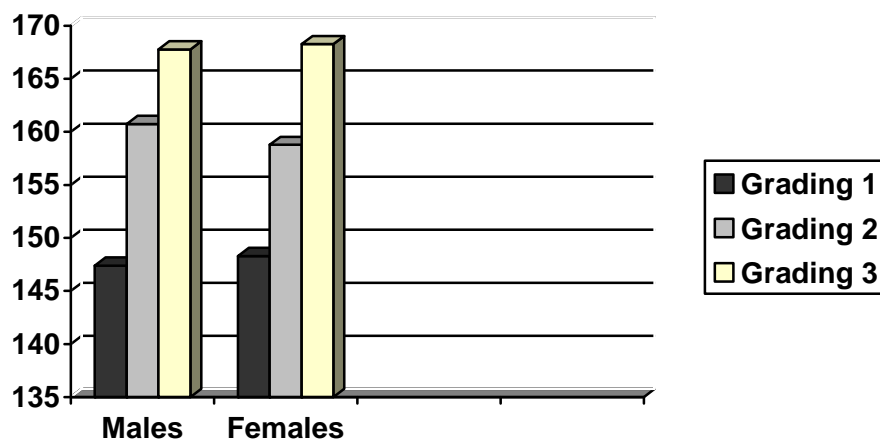


Figure I. Chest width dynamic in Goral bloodline

4. Conclusions

The calculated F value, in comparison with tabular values, reveals some significant differences between halfsibs families from Goral bloodline only at 1.5 years old ($F = 3.28$). 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 chest width evolution vary in postutherin period in correlation with age, with an decreasing trend of values due to this factor.

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