MORPHOLOGICAL STUDY OF FURIOSO-NORTH STAR STALLIONS, FROM RUȘEȚU STUD FARM

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RESEARCH ARTICLE

Abstract
A population of 23 Furioso-North Star stallions from the Ruşeţu Stud Farm, spanning the generations from 1999 to 2019, was analyzed for this research. In 2022, 7 of these stallions were active as sires in the breeding herd of the stud farm, while the remaining 16 served as public breeding stallions. The horses were evaluated based on data obtained from standard measurements (height at the withers, heart girth, and cannon girth) conducted during the annual assessment work. The results for height at the withers indicated an average value of 161.43±0.39 cm; the heart girth registered 185±0.40 cm, while the cannon girth had an average value of 21.52±0.23 cm. Based on these results, it was observed that the studied group is homogeneous in terms of all three analyzed characteristics. The data obtained from the measurements conform to the breed standard and justify the retention of these horses in the stud farm's breeding population.

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INTRODUCTION

The "half-blood" horse breed Furioso-North Star has Hungarian origins, created at the Mezőhegyes Stud Farm, in the early 19th century by merging two half-blood Thoroughbred horse families, founded by the stallions Furioso and North-Star. The breed displays intermediate characteristics suitable for both draft work and riding. (Doliș et.al., 2008; Georgescu et.al., 1990)

Furioso-North Star horses are distinguished by their elegant and imposing appearance. They have a harmonious conformation and a rectangular body shape. They exhibit relatively large and robust body development, with a height at the withers of 164-166 cm and a body weight of 550-600 kg. They have a sturdy build with broad, strong foundations and joints. (Mărginean et.al., 2005; Velea et.al., 1980)

In 1919, in Romania, a significant population of Furioso-North Star horses began to be reared at the Bonțida Stud Farm, in Cluj County. This included 44 broodmares, 7 Furioso-North Star stallions, along with 2 Thoroughbred stallions imported from the Mezőhegyes Stud Farm. (Suciu et.al., 1975)

From 2000 to 2004, the Furioso-North Star breed was raised at the Jegălia Stud Farm, and from 2004 to 2010, it was transferred to the Slatina Stud Farm. Then, for just one year, it was located at the Beclean Stud Farm. Since 2012, the Furioso-North Star population has been raised at the Ruşeţu Stud Farm, in Buzău County. (Mărginean, 2012)

Over time, specialists dedicated to breeding it, have continually sought to improve the quality of the horses, especially those raised within the breeding population.

Through this study, we aim to contribute to understanding morphological aspects that influence the performance of horses for this breed. Given the limited and outdated information regarding the evolution of the Furioso-North Star population in our country, we consider research on the current breeding population to be necessary.

MATERIAL AND METHOD

The research material consisted of 23 stallions spanning the generations from 1999 to 2019. Out of these, 7 were active as sires in the breeding population of the Furioso-North Star breed at the Ruşeţu Stud Farm, from 2012 to 2022, while the remaining 16 served as public

breeding stallions, as indicated in the genealogical registry of the unity.

The study focused on three specific characteristics: height at the withers, heart and cannon girth. The measurements were conducted using standard instruments, as the measuring stick and a circumference tape (Doliş et.al., 2008; Mărginean et.al., 2005).

The data obtained from the measurements were subjected to statistical analysis (Cucu et.al., 2004).

RESULTS AND DISCUSSIONS

The data obtained from the measurements were statistically processed and centralized in Table 1.

According to these data, the height at the withers of the studied stallions ranged from 155 to 167 cm, with an average value of 161.43±0.39 cm. This conducted to the conclusion that the studied population was homogeneous, with a coefficient of variation of 2.18%.

These values fall within the limits specified for the Furioso-North Star breed (Romanian Official Gazette, 2008).

Comparing the data provided for height at the withers (159.5±1.16 cm) with the literature from the '70s [7], when Furioso-North Star was reared at the Bonţida Stud Farm, it is observed that this parameter has increased on average by 1.93 cm, or 1.21%.

Regarding the hearth girth, it recorded absolute values ranging from 177 to 192 cm. It can be stated that the population is also homogeneous regarding this characteristic, with coefficient of variation values of 1.95%. The average values of this trait were 185±0.40 cm. These fall into the breed standard (Romanian Official Gazette, 2008) and are close to those specified in the literature (Doliş et.aş., 2008; Georgescu et.al., 1990; Mărginean et.al., 2005; Velea et.al., 1980).

Comparing the data obtained with the values from the '70s (190±1.76 cm), at the Bonţida Stud Farm, the heart girth has decreased on average by 5 cm (-2.63%).

The cannon girth had values that fit within the breed standard, ranging from 19.5 to 25 cm, with an average of 21.52±0.23 cm. In terms of this characteristic, the coefficient of variation values was 5.45%, thus, the studied population can be considered homogeneous.

Compared to the data obtained at the Bonţida Stud Farm in the '70s (21.07 ± 0.25 cm), there is an average increase of 0.45 cm (+2.14%).

Table 1

The characteristics for Furioso-North Star stallions (Rușețu Stud Farm)

Specification	Height at the withers (cm)	Heart girth (cm)	Cannon girth (cm)
n	23	23	23
$\overline{X}$	161.43	185.00	21.52
s^2	12.35	13.00	1.37
s	3.51	3.61	1.17
$\pm s_{\overline{x}}$	0.39	0.40	0.23
V%	2.18	1.95	5.45
MIN	155.00	177.00	19.50
MAX	167.00	192.00	25.00

Data obtained from body measuring served also for calculating several body indices as digital-thoracic index, bone and massiveness index. The results were centralized in table 2.

The digital-thoracic index, which is calculated through the ratio between the cannon girth and the heart girth, had values between 10.37 and 13.44%, with an average value of 11.63±0,16%. Comparing the data obtained with the values registered back in '70s in the literature (11.09%), for the current population an increment of 4.87% is noticed.

The bone index (the percentage ratio between the cannon girth and the height at the withers) had absolute values ranging from 11.98-16.13%, with an average of 13.35±0.2%. Compared to the value recorded in the '70s (13.21%), there is a slight increase of only 0.14 percentage points (+1.06%).

Regarding the massiveness index (the percentage ratio between the heart girth and height at the withers), it had an average value of 114.65±0.22%, ranging from 108.59% to 121.29%. The calculated value for the population in the '70s (119.12%) was 4.47 percentage points higher, indicating a 3.8% reduction for this characteristic during the analyzed period.

Table 2

The body indices for Furioso-North Star stallions (Ruşeţu Stud Farm)

Specification	Digital-thoracic index (%)	Bone index (%)	Massiveness index (%)
n	23	23	23
$\overline{X}$	11.63	13.35	114.65
s^2	0.34	0.87	11.36
s	0.59	0.93	3.37
$\pm s_{\overline{x}}$	0.16	0.20	0.38
V%	5.04	6.99	2.94
MIN	10.37	11.98	108.59
MAX	13.44	16.13	121.29

CONCLUSIONS

Based on the study conducted on the population of Furioso-North Star stallions at the Ruşeţu Stud Farm, the following conclusions have been drawn:

- The studied population was homogeneous in terms of all the analyzed characteristics, with coefficients of variation having values lower than 6.99%.
- The data obtained in this study fall within the limits specified for the Furioso-North Star breed.
- The analyzed stallions exhibited appropriate development, which allowed for their promotion to the categories of sires or public breeding stallions.
- Based on the differences in the values obtained for the measured dimensions (height at the withers, heart girth, and cannon girth), as well as for the calculated body indices (the digital-thoracic index, bone index, and massiveness index), there is a noticeable trend over time to an increase in height (towards hypermetric development) and the shaping of a finer and moderately robust constitution.

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