*Ключевые слова: лошади, орловская рысистая порода, генеалогическая структура, жеребцы-производители, племенные матки, генеалогические линии, субъекты племенного дела.*

*MODERN LINEAR STRUCTURE OF ORLOV TROTTER IN UKRAINE*

*Tkachova I.V., Institute of animal sciences of the UAAS*

*The modern state of Orlov trotter in Ukraine is lighted up in the article: amount of pedigree total number of livestock, amount of subjects of pedigree business, modern genealogical structure of breed. On materials of database the origin of stallions-producers and pedigree uteruses, their belonging, to the genealogical lines is analyses. The changes in genealogical domestic part of Orlov trotter are set, namely its narrowing due to disappearance of three lines for the last two decades and diminishment of stake of other lines, pressure of the most popular lines on the amount of continuers and linear belonging of uterine composition is also certain: Pilot, Pion, Barchuk.*

*Keywords: horses, Orlov trotter, genealogical structure, stallions, mares, genealogical lines, subjects of pedigree business.*

УДК 636.1.082:631.15

# VERIFICATION OF THE ACCURACY OF DESCRIPTIVE CHARACTERIZATION METHOD IN ESTIMATION OF PUREBRED ARABIAN HORSES AS A RESEARCH METHOD

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*This article highlights the experimental research results on the descriptive method accuracy verification via the purebred Arabian horses estimation. The tested purebred Arabian horses group was evaluated for the above-mentioned purpose. The descriptive method presumed to be inaccurate and replicate. The significance test was fulfilled. The significant difference was observed in the adult horses. The race-connected neck and trunk characteristics were identified. Confidence coefficient was computed for complete analysis execution of exterior and trot races results evaluation of the purebred Arabian horses. The difference grades proved to be dependent on developmental rate of the individual animal. Developmental rate of the individual animal is stipulated by the mare pregnancy. The descriptive method considered to be implemented by the complete analysis execution.*

Key words: **horses, Arabian horses, method, estimation, traits, National Stud Farms, descriptive characterization.**

The purebred Arabian horses, besides the Thoroughbred horses belong to the most popular horse breeds all over the world. Besides still growing interest in using them in sport (mostly long distance rallies), and still high level of interest in their races, again there are more and more places where they are bred for their beauty, as they are most beautiful horses of the world [1, 13].

The purebred Arabian horses and the Thoroughbred horses are two most often examined for a science research horse breeds. Those examinations apply to all the aspects interested from either veterinary's or horse-breeders' point of view [Kulisa i wsp.2004]. Lot of researches apply to the method of descriptive characterization and scoring system in estimation of this breed's horses [2-6, 13]. Also the notes value collected thru using descriptive characterization and scoring

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system were a point of many analyses, also with estimation of heritability [9-12]. Anyhow this opinion is still very subjective. So the attempt of estimating already estimated horses was undertaken again, to verify the statement that the descriptive characterization method is inaccurate and in low level repeatable.

**Methodology and a research material.** The examinations were made in a presence of the commission. Same group of Arabian horses (stallions and mares) was examined in two following years, by the routine estimation, with the method of descriptive characterization and again scoring system estimation with using applied system of total estimation. From the researched group of horses 6 was examined in National Stud Farm (SK) Białka (5 mares 1 stalion), 14 in SK Janów Podlaski (11 and 3), 8 in SK Kurozwęki (7 and 1) and 15 in SK Michałów (12 and 3).

The method of descriptive characterization [4] contains 178 exterieur traits and correlated with it score system estimation regards (together with total sum) 28 feature's groups and the averages for those groups [8]. In estimation with the descriptive characterization method, for describing every trait was used three gradients : "small", "middle" and "big", with the amount of points : for " small" 1, 2 or 3; for "middle" 4, 5 or 6; for "big" 7, 8 or 9. In the scoring system estimation was used a scale every 0,5 point.

The notes given in the descriptive characterization method and in the scoring system estimation method were compared. With the program STATISTICA FOR WINDOWS 5,0 was calculated, if the differences between the estimation averages from two following years, for same horses (means between noted differences and level of 0,000) were statistically significant.

**The results and the discussion.** The table 1 contains the results of comparing the notes given to horses examined in National Stud Farms (Białka, Janów Podlaski, Kurozwęki, and Michałów), to the notes given to the same horses in the same stud farms, but a year before. This comparison is given as a differences ( in absolute values) comparing to first notes (taken as level of 0,000).

From all the traits of the Arabian horses descriptive characterization, 47 apply to a horse's head, 14 – a neck, 32 – a trunk, 26 – front legs (with an arm and a hoof), 26 – back legs (with a thigh and a hoof), 12 –traits of a horse's movement, 8 – general traits (like color and other hair features), 13 – complementary traits (like size, dimension, character, temper, similarity to parents).

As we can see from the statistic results, the real differences in notes took place only in few positions and applied only three positions : a neck, a trunk and a movement. Also little differences was noted in between estimation in different stud farms. Comparing those notes to the ones analyzed on the sex reason, we can see that the noted differences applied to the same feature groups, but in changing level, depending of the horse's sex (tabl. 2).

Those differences were mostly coming from individual development of each examined horse, or from the changes coming with following pregnancy, applying to the trunk features or a movement ones.

**1. Differences in estimation of horses from different stud farms comparing to the traits of the characterization**

| Groups of traits and their number (n) | n | For horses from studs[x] | | | |
|---|---|---|---|---|---|
| | | B | J | K | M |
| Traits of horse´s head | 47 | 0,137 | 0,092 | 0,082 | 0,080 |
| Traits of nack | 14 | $0,226^{a}$ | $0,375^{A}$ | $0,182^{b}$ | $0,285^{c}$ |
| Traits of trunk | 32 | $0,315^{B}$ | $0,286^{d}$ | 0,133 | $0,386^{C}$ |
| Traits of front legs | 26 | 0,071 | 0,081 | 0,025 | 0,055 |
| Traits of back legs | 26 | 0,055 | 0,062 | 0,035 | 0,033 |
| General traits | 8 | 0,015 | 0,033 | 0,077 | 0,082 |
| Traits of horse´s movement | 12 | $0,225^{e}$ | $0,285^{f}$ | $0,315^{D}$ | $0,386^{E}$ |
| Complementary traits | 13 | 0,008 | 0,026 | 0,119 | 0,082 |

[x] *– B – SK Białka, J – SK Janów Podlaski, K – SK Kurozwęki, M – SK Michałów*

With the same big letters were signed the statistical highly significant differences, on the level p 0,01, and with small letters significant on the level p 0,05, applying to the basic estimation (value= 0,000), and averages given in the table.

**2. Differences in estimation of a opposite sex horses, comparing to the features of characterization**

| Groups of traits and their number (n) | n | Sex | | Total |
|---|---|---|---|---|
| | | Mares | Stallions | |
| Traits of horse´s head | 47 | 0,086 | 0,131 | 0,099 |
| Traits of nack | 14 | $0,117^{**}$ | $0,632^{**A}$ | $0,319^{C}$ |
| Traits of trunk | 32 | $0,557^{**B}$ | $0,112^{**}$ | $0,326^{D}$ |
| Traits of front legs | 26 | 0,072 | 0,067 | 0,070 |
| Traits of back legs | 26 | 0,048 | 0,086 | 0,052 |
| General traits | 8 | 0,063 | 0,052 | 0,058 |
| Traits of horse´s movement | 12 | $0,415^{*E}$ | $0,196^{*a}$ | $0,272^{b}$ |
| Complementary traits | 13 | 0,051 | 0,031 | 0,063 |

With the same big letters were signed the statistical highly significant differences, on the level p 0,001, and with small letters significant on the level p 0,005, applying to the basic estimation (value=0,000), and averages given in the table. Statistically significant differences between the averages for mares and stallions was signed "*", and highly significant "**".

The noticed changes giving different notes applied to such features like: a neck thickness and the neck thickness (stallions), a width of a back and loins, fulfill of flanks, drooping abdomen, dynamics and freedom of movement and a length of steps in trot, width of movement of back legs in trot, and also small differences of excitability and the animal's size and dimension changes (all about mares), or moving ears to the line of neck (stallions).

Establishing that the different notes applied in an important way only to 14 from 178 analyzed traits it was found that both of the estimations were very similar.

On the basis of the conducted research it can be established that using the descriptive characterization method in Arabian horses estimation is changed by personal point of view only in a very small level – but on condition that the estimation is done by high class specialists and respected horse breeders.

**Conclusions:**

1.The conducted for the second time research of the Arabian horses estimation, with using the descriptive characterization method has shown the differences in this estimation in adult horses mostly in features of a neck, a trunk and connected with a movement ones.

2.The scale of differences and their obvious interdependence with the animal's individual development (also connected with mares pregnancy), shows, that the descriptive characterization method can be used with high reliability for a composite estimation of shape and movement of purebred Arabian horses.

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*ПРОВЕРКА ТОЧНОСТИ ОПИСАТЕЛЬНОГО МЕТОДА ОЦЕНКИ СТАТЕЙ ЧИСТОКРОВНЫХ АРАБСКИХ ЛОШАДЕЙ КАК МЕТОД ИССЛЕДОВАНИЯ*

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*Целю исследований стала попытка повторной оценки уже оцененных Арабских лошадей для проверки утверждения того, что описательный метод оценки неточен и его повторяемость находится на низком уровне. Проведенное повторное исследование статей Арабских лошадей с использованием описательного метода оценки показал отличия в признаках большинства статей у взрослых лошадей, в особенностях построения шеи, крупа и в движениях. Масштаб отличий и их очевидная взаимная связь с индивидуальным развитием (также связанным с беременностью кобыл) животного, показал, что описательный метод оценки может использоваться с высокой надежностью для составления оценки телосложения и движений чистокровных Арабских лошадей.*

*Ключевые слова: лошади, Арабская порода, метод, стать, признаки, Национальные Конные Заводы, описательная характеристика.*

*ПЕРЕВІРКА ТОЧНОСТІ ОПИСОВОГО МЕТОДУ ОЦІНКИ СТАТЕЙ ЧИСТОКРОВНИХ АРАБСЬКИХ КОНЕЙ ЯК МЕТОД ДОСЛІДЖЕННЯ*

*Яцковскі М., Бартманска К., УІТМ в Жешові, Польща*

*Метою досліджень стала спроба повторної оцінки вже оцінених Арабських коней для перевірки затвердження того, що описовий метод оцінки неточний і його повторюваність знаходиться на низькому рівні. Проведене повторне дослідження статей Арабських коней з використанням описового методу оцінки показав відмінності в ознаках більшості статі у дорослих коней, в особливостях побудови шиї, крупа і в рухах. Масштаб відмінностей і їх очевидний взаємний зв'язок з індивідуальним розвитком (також пов'язаним з вагітністю кобил) тварини, показав, що описовий метод оцінки може використовуватися з високою надійністю для складання оцінки будови тіла і рухів чистокровних Арабських коней.*

*Ключові слова: коні, арабська порода, метод, статі, ознаки, Національні Кінні Заводи, описова характеристика.*