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ROMANIAN SPORT HORSES: EFFECTS OF COMPETITION LEVEL, SEX AND BREEDER ON THE NATIONAL DRESSAGE RANKING

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Abstract

The study of the average performance regarding the results in national competitions for the horses from the Romanian Sport Breed (RSB) is particularly important. Thus, by studying the averages nationally competitive results we can form an idea about the performance level in dressage for this population.
The objective of this study was to analyze the differences between the horses from RSB regarding competition level, sex and origin, and to investigate the impact of these factors on the average competition results for the last 3 years.
For this research we examine all the horses legitimated FER from RSB participants in national dressage tests, divided in 2 groups for origin variable and 3 groups for competition level and sex variables.
Data were manipulated and analyzed using SPSS Version 21 for Windows (IBM, USA).
The results of the statistical analyze show that for the sex variable in case of the RSB legitimated FER from national state studs evaluated as being significantly different ($p<0.001$) for variable competition results at FE level in 2012, ($p<0.01$) for variables competition results at BA level in 2012 and competition results in 2012, ($p<0.05$) for variable competition results.
Also, the results show that from the distribution of RSB legitimated FER participants in national dressage tests, 62.5% participate at FE level (the lower difficulty level) and only 12.5% at BA level (the highest difficulty level). Must be noted that the last year in which the RSB horses participated at BA level was 2012, and from 2012 to 2014 the number of RSB horses participants in national dressage tests been halved.
In conclusion we can say that the present research work demonstrate that the role of RSB horses in dressage is abruptly decreasing and the only levels in which this horses are still present are the lower difficulty levels.

Key words: *competition, level, dressage, competition results, Romanian sport horses.*

INTRODUCTION

When we talk about breeding sport horses for performance in dressage or show jumping, the performance level obtain by these horses in competitions is particularly important. This is the basic criterion in terms of profit and profitability achieved from the economic point of view of this branch of farming.
The recent studies show that young horse performance tests have high genetic correlations with later competition results, but competition data are more accurate predictors when selecting for only one discipline (Hellsten et. al., 2006; Ducro et. al., 2007).
Good competition results in dressage and/or show jumping are the main objectives for breeding sport horses all over the world (Olsson et. al., 2008). The study of the average performance regarding the results in national dressage competitions for the horses from the Romanian Sport Breed (RSB) is particularly important because in this way we can form an idea about the performance level in dressage for this population.

MATERIALS AND METHODS

For this research we examine the entire population of horses from the Romanian Sport Horse (RSB) breed that are legitimated to Romanian Equestrian Federation (FER) and participants in national dressage competitions from 2012 to 2014.
This RSB horses come from both state studs and private studs and farms, consisting of 16 individuals, of whom 13 individuals represent RSB horses from state studs and 3 individuals representing RSB horses coming from private

studs and farms, with both parents from Romanian breeds.

In this research we had 4 independent variables divided in two groups for breeder variable (state studs and private studs and farms), three groups for sex variable (geldings, stallions and mares), four groups for competition level variable (EF levels, DC levels, BA levels and EF+DC levels) and six groups for competition period variable (2012, 2013, 2012-2013, 2014, 2013-2014 and 2012-2014).

The horse distribution for competition level and competition period variables taken is shown in Figure 1.

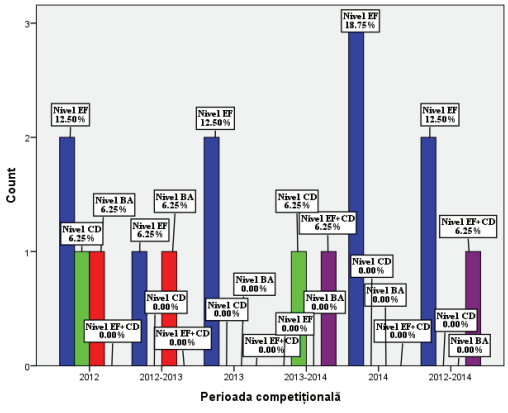

Figure 1. Horse distribution according to competition level and competition period

All the data were assessed based on FER reports, also serving in the calculation and assessment of results of competitions each year separately, for each and every horse in part.

The competition results of each horse were judged in part as follows (Figure 2.):

- for the first 5 places were offered points for the obtained place (5 point for first place, 4 points for second place, 3 points for third place, 2 points for fourth place and 1 point for fifth place);
- number of points obtained was multiplied by 1, 1.5 or 2 along with the raising of tests difficulty;
- the scores were calculated for each horse regardless of the rider because we want to realize an analysis of the horse sports performance and not those of the rider;
- we considered and awarded points only for the first 5 places in each test because under FER Regulation prizes are accorded to 25% of the number of starts, but at least to the first 5 finishers (http://www.fer.org.ro/pdf/regulament-competitional-2013.pdf).

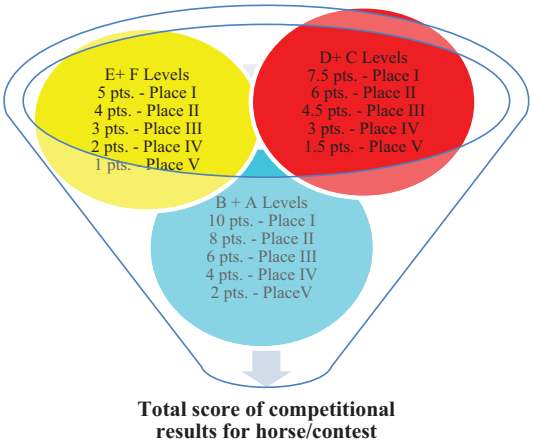

Figure 2. Assessment of competition results

Data was manipulated and analyzed using SPSS Version 21 for Windows (IBM, USA) the following statistical analyzes being performed:

- Independent Sample T-Test;
- One-Way ANOVA;
- Descriptive statistics on the distribution of variables, mean, median, graphs etc.

The value of alpha was set at 0.05 for all statistical tests.

The objective of this study was to analyze the differences between the horses from RSB regarding competition level, sex and origin, and to investigate the impact of these factors on the average competition results for the last 3 years.

RESULTS AND DISCUSSIONS

The results show that for:

- sex variable: - 43.75% of the horses are mares, 31.25% are stallions and 25% are geldings;
- breeder variable: - 81.25% of the horses come from state studs and 18.75% from private studs and farms;
- competition level: - 62.5% of the horses compete on EF levels, 12.5% on DC levels, 12.5% on BA levels and 12.5% on EF+DC levels;

- competition period: - 25% of the horses competed only in 2012, 12.5% only in 2013, 18.75% only in 2014, 12.5% from 2012 to 2013, 12.5% from 2013 to 2014 and 18.75% from 2012 to 2014.

For the RSB horses from state studs that are legitimated FER and competing in dressage tests we observed that the highest value of the factor score for competition results was recorded for the mare Magnolia with an overall score of 59.5 points, while the lowest value was recorded for the gelding Taifun with a total score equal to 0 (Table 1). The average performance for this factor is 23.62 points. (Table 3)

Table 1. The values of the competition result scores of RSB horses from state studs that are legitimated to FER and competing in dressage

Name	Sex	Competition period	Score for competition results
APOLLO	s	2014	2
DESTOINIC	s	2012-2013	38
DOMINO	s	2012	46
ELMO	s	2013-2014	33,5
GRETA	m	2013-2014	37.5
LEONA	m	2012-2014	46
LUP	g	2012-2014	6
MAGNOLIA	m	2012-2014	59.5
NUFĂR	g	2012	4.5
OLIMPIA	m	2014	6
PANTERA	m	2012	27
REFLEX	g	2012	1
TAIFUN	g	2013	0

For the RSB horses from private studs and farms that are legitimated FER and competing in dressage tests we observed that the highest value of the factor score for competition results was recorded for the mare Zaina with an overall score of 19 points, while the lowest value was recorded for the mare Afrodita with a total score of 8 points (Table 2).
The average performance for this factor is 12 points (Table 3).

Table 2. The values of the competition result scores of RSB horses from private studs and farms that are legitimated to FER and competing in dressage

Name	Sex	Competition period	Score for competition results
AFRODITA	m	2013	8
ORLIC	s	2012-2013	9
ZAINA	m	2014	19

The results shows that the total score for competition results for all 16 horses taken into study vary between 0 and 59.5 points, with an average of 21.44 points (Table 3 and Figure 3).

Table 3. Descriptive statistics for the competition results variable

Competition results	N	$\bar{X} \pm S_{\bar{X}}$	s	V%	*Min.*	*Max.*
RSB State Studs	13	23.62±5.84	21.06	89.17	0	59.5
RSB Private Studs and Farms	3	12±3.51	6.08	50.69	8	19
Total Effective	16	21.44±4.88	19.53	91.12	0	59.5

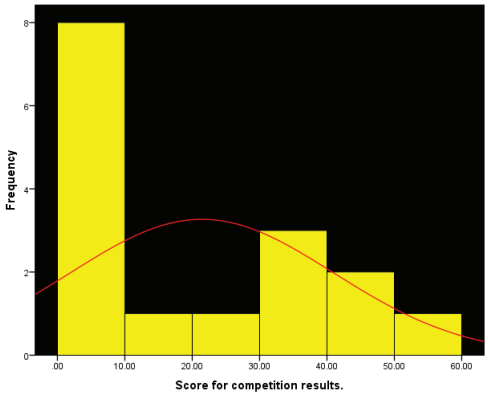

Figure 3. Normal distribution of the score for competition results in the studied population

For the sex variable the results from the statistical analysis shows that the score for competition results doesn't present statistically significant differences for the 0.05 significance level ($F = 3.153$, $p = 0.077$).
Therefore, we can say that, regarding the score for competition results there are no statistically

significant differences between mares, geldings and stallions.

Table 4. Descriptive statistics for the sex variable

	N	$\bar{X}$	s	$\mp S_{\bar{X}}$	Min.	Max.
mare	7	29.00	7.50	19.85	6	59.5
gelding	4	2.87	1.41	2.83	.00	6
stallion	5	25.70	8.55	19.13	2	46
Total	16	21.43	4.88	19.53	.00	59.5

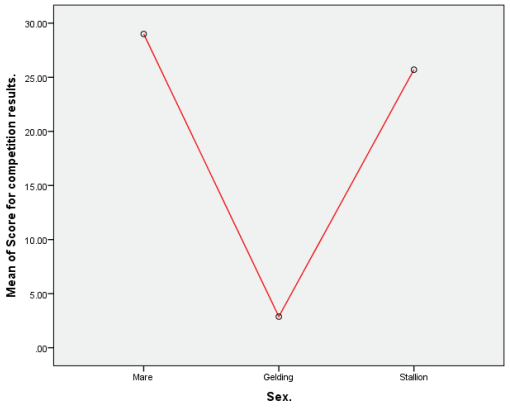

Figure 4. Means Plots of the score for competition results for sex variable

Nevertheless the results from the statistical analysis shows that the score for competition results for the RSB horses from state studs presents a statistically significant differences for the 0.05 significance level (F = 4.596, p = 0.038).

Therefore, we can say that the score for competition results for the RSB horses from state studs is significantly higher (p = 0.048) for mares ($\bar{X}_1$=35.2) compared to geldings ($\bar{X}_3$=2.87), but no statistically significant differences exist between stallions and gelding (p=0.134), nor between mares and stallions (p=1.000).

Table 5. Descriptive statistics of the RSB horses from state studs for the sex variable

	N	$\bar{X}$	s	$\mp S_{\bar{X}}$	Min.	Max.
mare	5	35.20	9.03	20.20	6	59.5
stallion	4	2.87	1.41	2.83	.00	6
gelding	4	29.87	9.64	19.28	2	46
Total	13	23.61	5.84	21.05	.00	59.5

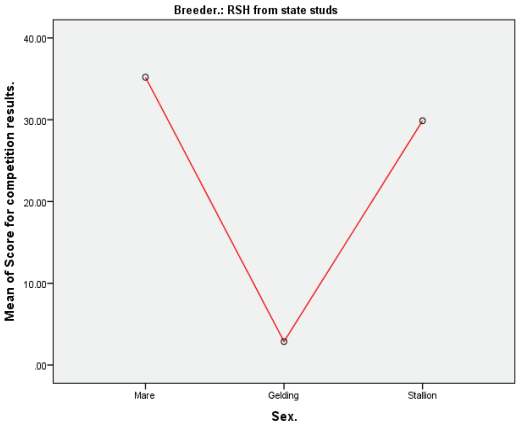

Figure 5. Means Plots of the score for competition results of RSB horses from state studs for sex variable

For the breeder variable the results from the statistical analysis shows that the score for competition results doesn't present statistically significant differences for the 0.05 significance level (t = 1.704, p = 0.113).

Therefore, we can say that, regarding the score for competition results there are no statistically significant differences between horses from state studs and horses from private studs and farms.

Table 6. Descriptive statistics for the breeder variable

	N	$\bar{X}$	s	$\mp S_{\bar{X}}$	Min.	Max.
State studs	13	23.61	5.84	21.05	.00	59.5
Private studs and farms	3	12.00	3.51	6.08	8	19
Total	16	21.43	4.88	19.53	.00	59.5

For the competition level the results from the statistical analysis shows that the score for competition results presents a statistically significant differences for the 0.05 significance level (F = 4.163, p = 0.031).

Therefore, we can say that the score for competition results is significantly lower (p = 0.028) for horses that compete in EF levels ($\bar{X}_1$=12.4) compared to horses that compete in BA levels ($\bar{X}_3$=42) and also comparing to

horses that compete in EF+DC levels (p=0.014, $\bar{X}_4$=46.5), but no statistically significant differences exist between the horses that compete in EF levels and the horses that compete in DC levels (p=0.482).

Table 7. Descriptive statistics
for the competition level variable

	N	$\bar{X}$	s	$\mp S_{\bar{X}}$	Min.	Max.
EF levels	10	12.40	4.58	14.49	.00	46
DC levels	2	21.00	16.50	23.33	4.5	37.5
BA levels	2	42.00	4.00	5.65	38	46
EF+DC levels	2	46.50	13.00	18.38	33.5	59.5
Total	16	21.43	4.88	19.53	.00	59.5

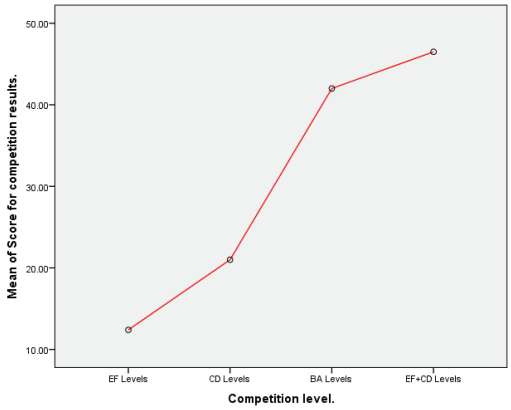

Figure 6. Means Plots of the score for competition results for competition level variable

For the competition period variable the results from the statistical analysis shows that the score for competition results doesn't present statistically significant differences for the 0.05 significance level (F = 1.278, p = 0.346).
Therefore, we can say that, regarding the score for competition results there are no statistically significant differences between horses that competed only in 2012, the ones that competed only in 2013, only in 2014, the horses that competed from 2012 to 2013, the ones that competed from 2013 to 2014 and the ones that competed from 2012 to 2014.

Table 8. Descriptive statistics
for the competition period variable

	N	$\bar{X}$	s	$\mp S_{\bar{X}}$	Min.	Max.
2012	4	19.62	10.51	21.02	1.00	46
2012-2013	2	23.50	14.50	20.50	9.00	38
2013	2	4.00	4.00	5.65	.00	8
2013-2014	2	35.50	2.00	2.82	33.50	37.5
2014	3	9.00	5.13	8.88	2.00	19
2012-2014	3	37.16	16.06	27.82	6.00	59.5
Total	16	21.43	4.88	19.53	.00	59.5

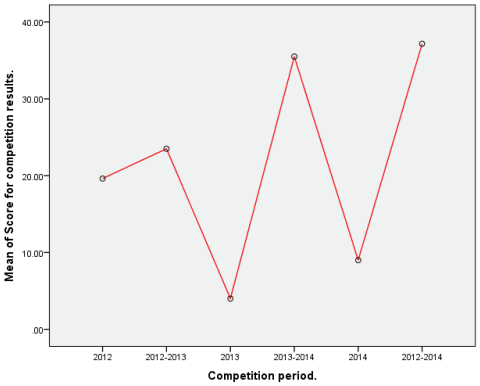

Figure 7. Means Plots of the score for competition results for competition period variable

CONCLUSIONS

From those shown so far it can be seen that the majority of RSB horse participates in the lowest difficulty tests (62.5% in FE levels tests) and only 12.5% in the test with the highest level of difficulty (BA levels tests). It should be observed that the last year in with an RSB horse participated in BA levels tests was 2012, and in the period between 2012 and 2014 the number of participants from this breed halved.
In conclusion we can say that regarding the average score for competition results for RSB horses participants in national dressage competitions from 2012 to 2014 is not influenced by the type of breeder (private or state), but we have to specify that for the private farmers we included in the study only

horses with both parents from Romanian breeds.

For the future is impetuously necessary to research how the level of performance achieved in dressage tests is influenced by the RSB horses from different type of breeder (private or state), the parents breed and also a comparison of their results to other breeds that take part in Romanian national dressage championship.

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