

## **THE EVALUATION OF THE VALUE FOR SPORTS PURPOSES OF WARM-BLOODED HORSE BREEDS IN POLAND FOR THE SHOW JUMPING DISCIPLINE\***

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### **Abstract**

The scientific objective of the paper was to compare the use value of native and some foreign horse breeds competing in Polish regional show jumping tournaments. A total of 156 horses were analysed including the native breeds Malopolski (m), Wielkopolski (wlkp), Polish Half Bred Horse (pksp), and the foreign breeds Oldenburger (old), Holsteiner (hol) and Dutch Warmblood (kwpn). The competition results with distribution of penalty points as well as pedigree databases of Polish Horse Breeders Association and Polish Equestrian Federation were used. The data obtained was subjected to analysis of variance (ANOVA-GLM), and the differences between average values were determined with Tukey's t-test. It was concluded that the native breeds obtained statistically worse results than foreign ones, proportionally to the level of competition difficulty. The proportion of native breeds among the participants of competitions decreased with increasing course difficulty and was statistically significant for the number of eliminations and clear rounds. The results allow a conclusion about the lower use value of native compared to foreign horse breeds for sports purposes.

**Key words:** horse, breeding, show jumping, use value

Show jumping is the most popular discipline among equestrian sports, which has been rapidly developing for the last few years (Aldridge et al., 2000). Equestrian competitions are not only exciting shows for the spectators and the scenes of sports rivalry but also constitute an important element of horse breeding practices (Koenen et al., 2004). The evaluation of genetic and phenotypic predispositions of horses for show jumping has been the subject of numerous publications (Koenen et al., 1995; Janssens et al., 1997; Aldridge et al., 2000; Wallin et al., 2003; Thorén et al., 2006; Ruhlmann et al., 2009). The development of this discipline is determined by a number

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of factors that should harmonise and complement one another. The possibility to obtain horses that are capable of meeting the requirements of currently constructed jumping courses is a fundamental condition. Currently, there are numerous breeds selected for improved jumping capabilities (Koenen et al., 2004). In the annually published rankings of the World Breeding Federation for Sport Horses (WBFSH) the top ranks are granted usually to such breeds as Holsteiner, Selle Français, Dutch Warmblood, Belgian Warmblood, Hanoverian and Westphalian (Ducro et al., 2007). Moreover, breeding a good jumping horse is conditioned by a number of other factors such as appropriate training and riders' education system (Pietrzak, 2000; Gómez et al., 2006), as well as reasonable course construction (Sasimowski et al., 1986; Pollmann-Schweckhorst, 2002). Well qualified riders and trainers are able to present all of the horse's capabilities determined by its genotype and phenotype.

The aim of the present work was to evaluate and compare the use value of native and some foreign horse breeds competing on the basis of the results obtained in show jumping tournaments.

### Material and methods

Subjects were 156 horses and 151 riders who took part in Polish regional show jumping competitions in the territory of Lublin and Małopolska Equestrian Federation in 2011 as part of nine events. The results of different breeds of horses obtained in normal competitions (not against the clock), competitions against the clock, competitions in two phases, in classes "L" (100 cm – height of fences) to "C" (130 cm – height of fences) were analysed. In total, 894 starts of the above mentioned horses and riders were analysed.

Table 1. The list of number of evaluated horses and starts in the classes of competitions

Competition class	Number of starts	Number of horses
L – 100 cm	341	62
P – 110 cm	283	39
N – 120 cm	181	31
C – 130 cm	89	24
TOTAL	894	156

The analysed material included the competition results with distribution of penalty points and jumping course plans with description of obstacles as well as pedigree databases of Polish Horse Breeders Association and Polish Equestrian Federation (Table 2).

The collected data was used to calculate the average number of penalties during a round (knocking down an obstacle; disobedience, refusal, run-out or resistance; exceeding the time allowed) obtained by each breed of horses in the examined classes. The data was subjected to one-way analysis of variance with consideration of the

fixed effect of horse breed (ANOVA – GLM). The significance of differences between the average values was determined with Tukey's t-test for  $\alpha=0.05$ . The authors did not consider the rider by horse interaction because the same pair (rider – horse) took part in around 99% of analysed starts.

Table 2. The list of horse numbers of each breed

Breed	Number of horses	Number of starts
Polish Half Bred Horse (pksp)	94	566
Małopolski (m)	29	135
Wielkopolski (wlkp)	7	27
Oldenburger (old)	11	79
Dutch Warmblood (kwpn)	8	52
Holsteiner (hol)	7	35
TOTAL	156	894

Additionally, the average number of penalty points obtained by riders with specific sports qualifications were statistically compared (initial – riding skills up to “L” class, 3° – riding skills up to “N” class, 2° – riding skills up to “C” class, 1° – riding skills to higher classes) in order to define the influence of riders' expertise on the result in the competition (Table 3).

Moreover, statistical analysis of clear rounds characteristics and the eliminations of the studied horses was made within individual breeds.

Table 3. The list of numbers of individual groups of riders

Sex	N	Sport competences			
		Initial	3°	2°	1°
M	61	9	25	20	7
F	90	19	42	24	5
TOTAL	151	28	67	44	12

## Results

The analysis of results obtained by horses of given breeds allowed making an attempt to evaluate sports predispositions of native horse breeds in comparison to foreign breeds.

In “L” class competitions (Table 4) no significant differences between average values of penalty points obtained by each horse breed were registered. In “P” class better results (statistically significant difference) were obtained by the breeds Dutch Warmblood (2.36 pts.) and Holsteiner (1.60 pts.). In “N” class the weakest breed was Małopolski (12.13 pts.) and the best one was Dutch Warmblood (2.48 pts.). Average

results were obtained by Polish Half Bred Horses (4.47 pts.), Holsteiner (4.75 pts.) and Oldenburger (4.50 pts.). In “C” class the best results were obtained by Dutch Warmblood horses (1.93 pts.), whereas worse results were obtained by Małopolski (7.20 pts.) and Polish Half Bred Horses (5.98 pts.). Average results were obtained by Holsteiner horses (4.50 pts.) and Oldenburgers (3.58 pts.). It was noticed that statistically the weakest results were obtained by the Małopolski breed in the competitions above “P” class, whereas Polish Half Bred Horses in “C” class competitions.

Table 4. Significance of differences between average numbers of penalty points obtained by individual horse breeds

Breed	Competition class			
	L	P	N	C
pksp	3.60	4.05 b	4.47 b	5.98 c
m	3.41	5.50 c	12.13 c	7.20 c
wlkp	3.45	3.60 b	8.41 c	4.33 b
kwpn	3.77	2.36 a	2.48 a	1.93 a
hol	4.37	1.60 a	4.75 b	4.50 b
old	2.48	4.04 b	4.50 b	3.58 b

Average values marked with different letters in columns differ significantly for  $\alpha=0.05$ .

The average proportion of clear rounds compared between groups of horses of different breeds was observed to decrease with increasing competition difficulty for the Polish Half Bred Horses breed, and to increase for Dutch Warmblood and Holsteiner breeds (Table 5). It was also stated that a lower proportion of native breeds finish the competition without faults in comparison to foreign breeds.

The proportion of horses which did not finish the competition for various reasons was particularly high for the Małopolski breed (around 16.67%) in “C” class (the most difficult in regional competitions), whereas for Dutch Warmblood and Holsteiner breeds, no such case was registered in this class, similar to Oldenburger breed in “L” and “P” classes. The proportion of Polish Half Bred Horses which did not finish the competition in “C” class was relatively low at 0.91%. Among Małopolski horses the most frequent reason for elimination was the failure to jump non-typical fences (due to their construction or visual look): “liverpool” – 25%, “filler” – 21%, wall – 17%, “rainbow” ornamentation of the fence – 9%. The results obtained allow speculating that Małopolski horses are not completely predisposed to compete in higher class courses. This opinion is confirmed by practitioners (riders and trainers) and scientific research (Pietrzak et al., 2004).

As is evident from the analysis of the data in Table 6, the proportion of native horse breeds decreases with increasing competition difficulty. This situation is particularly clear for the Małopolski breed, whose proportion was around 24.07% in “L” class and around 6.90% in “C” class.

Table 5. Average percentage of clear rounds (A) and eliminations (B) of individual breeds

Breed	Parameter	Competition class				Total average
		L	P	N	C	
pksp	A	41.67	37.95	30.91	10.91	32.61
	B	5.42	1.25	10.00	0.91	8.09
m	A	45.83	25.71	15.88	15.67	31.58
	B	8.33	8.57	9.01	16.67	8.61
wlkp	A	35.65	20.11	8.34	11.55	19.21
	B	16.44	15.64	11.23	15.11	13.89
kwpn	A	23.08	41.67	50.00	64.29	47.00
	B	0.00	8.33	0.00	0.00	1.34
hol	A	15.79	42.86	31.25	50.00	31.01
	B	0.00	28.57	0.00	0.00	4.04
old	A	44.83	28.00	23.08	30.77	34.52
	B	0.00	0.00	7.69	7.69	3.45

Foreign breed horses constituted around 30% of specimens in regional competitions, but the proportion increased with an increase in competition level.

Table 6. Percentage of individual horse breeds in different levels of competitions

Breed	Competition class				Total number of starts
	L	P	N	C	
pksp	62.69	63.95	58.33	44.83	566
m	24.07	18.60	10.00	6.90	135
wlkp	4.63	3.49	6.67	6.90	27
old	4.63	6.98	6.67	17.24	79
kwpn	2.78	4.65	11.67	13.79	52
hol	0.93	2.33	6.67	10.34	35

Table 7. Statistical characteristics of the results obtained by individual groups of riders

Sports competences	Average number of penalty points	Standard deviation	% of clear rounds	% of eliminations
Initial	5.00 c	6.05	34.55 a	10.00 c
3°	4.12 b	5.02	37.62 b	5.84 b
2°	3.93 b	4.32	38.06 b	3.66 a
1°	3.58 a	4.12	39.06 c	3.65 a

Average values marked with different letters in columns differ significantly for  $\alpha=0.05$ .

The analysis of riders' results showed that there is a correlation between riders' qualifications and the results in competitions. Statistically best results were obtained by riders with 1° qualifications (3.58 pts.); in this group the largest proportion of clear rounds and the lowest proportion of eliminations were recorded. Average values were obtained by the riders with 2° and 3° qualifications, whereas worse results were obtained by the riders with initial qualifications (brown rider's badge).

### **Discussion**

In the light of the conducted research it was stated that most horses participating in Polish regional jumping events were of native breeds (130 = 83.33%, Table 2). In comparison to the research conducted in the 1980s (Sasimowski and Pietrzak, 1986) a significant increase in foreign breeds was recorded. This situation can be explained by higher accessibility of horses, globalisation of breeding, and higher sports predispositions of foreign breeds (Polish sport horse breed is quite new). The analysis of penalty points obtained by individual horse breeds in the analysed competition classes shows that the specimens of some foreign breeds were statistically better than native horses, while the differences in average results were virtually proportional to the increase in competition level. Interestingly, the proportion of native horses with clear rounds decreased with the increase in competition level. This situation can be probably explained by lower sports predisposition among native breeds. In the most difficult class of regional competitions ("C" class) a high proportion of eliminations of Małopolski breed specimens was recorded, which can prove lower jumping predispositions of this breed. It is worrying that the proportion of native breeds manifested a downward trend with the increase of competition level. This is even more evident (as stated by many riders and trainers) at Polish national level competitions. It seems that the recent decrease in native breed horses (Janczarek and Próchniak, 2010) is most probably related to unsatisfactory use value of the breeds in horse riding sports, as presented in the present research. The analysis of results obtained by the riders with specific sports qualifications shows that the proportion of clear rounds was significantly higher in the group of riders with higher qualifications. This confirms the appropriateness of the training system employed by the Polish Equestrian Federation and proves the role of rider and kind of training in exposing genetic capabilities of the horse. This is also proved by previous research results (Pietrzak, 2000). It was noticed that the composition and optical look of the fences that changes with the level of competition, have negative influence on the results obtained by native horses (especially the Małopolski breed in "C" class). It seems justified to specify the objectives of native full bred horse breeding and the emphasis on the evaluation of use and breeding value of the breeding stock (Janssens et al., 1997).

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