REASONS OF ELIMINATION OF THOROUGHBRED HORSES FROM BREEDING

CAUZELE DE ELIMINARE A CAILOR PUR SÂNGE ENGLEZ DE LA REPRODUCȚIE

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The basic aim of each stud activity is such a breeding which allows obtaining the best horses. Breeding profitability depends, among others, on number and way of elimination of horses in particular studs. The object of this study was to compare the causes of elimination of Thoroughbred horses from two different studs. According to horse age and sex the causes of elimination was analysed for 843 horses in 1993-2004 from Krasne and Kożienice studs. The percent of elimination for each group was calculated according to the number of broodmares in the stud during 12 years.

The main cause of elimination of horses was their sales. In Krasne stud more horses were sold to Polish (40.8%) and abroad (9.6%) breeders compare to Kożienice stud where most animals were sold as usability horses (40.2%). In all mentioned causes the significant differences between studs were shown. In the group of foals the main reason of elimination was the death caused by diseases and accidents. In Kożienice stud losses caused by this factor were significantly higher (for 5.3%) than in Krasne stud. One- and two years old horses from Krasne stud were more often sold to Polish breeders (10.7% and 5.3%) comparing to Kożienice stud where horses from these groups were mainly sold as usability horses (13.1% and 3.7%). In the groups of mares and stallions dominating way of elimination was the sale for Polish breeding or sale as usability horses. Stallions were also sold for abroad breeders – from Krasne stud significantly more (for more than 4.0%) than from Kożienice stud.

Key words: Thoroughbred horses, elimination from breeding

Introduction

Breeding results of Thoroughbred studs are conditioned by many factors and are constructed by number of following stages of breeding work. Using proper breeding methods and consequent selection breeders should direct to the main aim which are young mares for renovation of the herd and production of chief sires. Selection is one of the most important parts of horse breeding. In each stud the change of some animals is carried out systematically. Selected horses leave the herd as a result of economical and breeding decisions or bad chances. The reason of this situations could be very various for example the change of breeding conceptions, bad health status, old age or low productivity. Most of all cases except bad chance results in lower productivity of particular animal. So as a result of selection
the herd is left mostly by least productive animals (Zając, 1995 a). This definition of selection is not always so easy to introduce in practice. If the best animals have to stay in the stud, the rest, but not the worst, must leave mostly because economical reasons. The best way of elimination horses from the herd is their sale to obtain financial support to carry on the breeding activity on a proper level and also let to spread desired genes among all population. The sale of Thoroughbred horses concerns each age group, starting with foals, yearlings, two-years-old and finishing on adult horses. The object of this study was to compare the reasons of Thoroughbreds elimination in two different studs concerning horses age and sex

**Materials and Methods**

Information concerning 843 Thoroughbred horses bred in Kozienice and Krasne studs during 12 years period (1993-2004) were collected. On the base of data from documentation, following elimination groups were separated:
1. sale into Polish breeding,
2. sale into abroad breeding,
3. sale for use,
4. barren or low quality of offspring,
5. horses put down,
6. deaths.

The data concerning reasons of elimination were investigated according to the stud, the age of elimination and the age. The percent of elimination was counted in relation to number of brood mares in the stud during 12 years long period.

Obtained results were worked out statistically using SAS statistic program and one-factor variance analysis and Scheffe’s test.

**Results and Discussions**

During the analysis of elimination reasons among all studied population in both studs (Figure1) it was stated that in Krasne stud the most significant importance had the sale of horses into Polish breeding (40.8%) which was highly significantly higher than the analoical factor in the second stud (10.6%). In Kozienice stud the the most often elimination reason was the sale for use (40.2%) comparing to Krasne stud the difference was 31% and was significantly important. Similar highly significant differences were observed according to sale to abroad breeding and deaths. In first case Krasne stud dominated (9.6%) but in the second case higher values were observed in Kozienice stud (16.6%). It was noted that in both studs very rarely horses were eliminated according to their barrenness or put down. Even the differences were not statistically significant, more often such cases were observed in Kozienice stud.
Means marked with the same capital letters differ highly significantly at P ≤ 0.01

Figure 1. Reasons of elimination of Thoroughbred from Krasne and Kozienice stud

Significant effect on elimination of foals in both studs had deaths (Figure 2). The loses of foals in Kozienice stud according to this reason were 13.1% and were highly significantly higher than in Krasne stud (7.8%). Both studs sold their foals into Polish breeding but in Krasne stud such cases were highly significantly more often (2.2%). This stud also sold foals into abroad breeding. Among others causes of foal elimination low percents were observed for put down and sale for use, but the differences were not statistically significant.

Means marked with the same capital letters differ highly significantly at P ≤ 0.01

Figure 2. Reasons of elimination of foals from Krasne and Kozienice stud
The main reason of elimination of yearling horses from Kozięnic stud was sale for use (13.1%) which was highly significantly higher than in Krasne stud (0.7%) (Figure 3). In Krasne stud sale into Polish breeding dominated (10.7%) what was highly significantly higher than in Kozięnic stud. Very important role in both studs played the sale into abroad breeding – it was similar in both studs (SK Krasne 3.1% and SK Kozięnic 2.9%). Low percent of deaths and put down was observed in both studs – the last were noted only in Kozięnic stud.

Means marked with the same capital letters differ highly significantly at $P \leq 0.01$

Figure 3. Reasons of elimination of yearlings from Krasne and Kozięnic stud

5.3% of two-years-old horses from Krasne stud were sold into Polish breeding (Figure 4). It was highly significantly more for 0.2% than in second stud. Next significant reason of elimination was sale of two-years-old horses for use – in Kozięnic stud 3.7% and in Krasne stud only 1.3%. 1.1% of horses from Krasne stud were sold into abroad breeding, only 0.1% of horses from Kozięnic stud were found by such buyers. In both studs death were on low level, lower than 0.5%. In the group of adult horses the most common reason of elimination was sale (Figure 5). In Krasne stud the most (22.5%) of adult horses were sold into Polish breeding which was highly significantly higher than in Kozięnic stud, where only 7.7% horses were sold for Polish breeders. In the mentioned stud most horses were sold as horses for use (23.2%). Comparing to Krasne stud the high significant difference was stated – 16.5%. Highly significant difference was also observed between studs in the sale into abroad breeding. From Krasne stud 5.1% and from Kozięnic stud only 1.6% was sold into abroad breeding. In both studs barren mares were also eliminated. The cases of deaths and put down were also observed but they were not higher than 5.0%.
Means marked with the same capital letters differ highly significantly at $P \leq 0.01$

Figure 4. Reasons of elimination of two-years-old from Krasne and Kozienice stud

Among all mares the basic reason of elimination was sale into Polish breeding (Figure 6). Highly significantly more mares were sold in this way from Krasne stud (25.4%) comparing to Kozienice stud (7.2%). The second reason was sale for use. 22.2% of mares from Kozienice stud and 0.7% from Krasne stud were sold in this way. The differences between these two studs were highly significantly important. The next highly significant reason was deaths. 0.4% case more were observed in Kozienice stud. In the same stud mares were more often eliminated according to their barrenness (4.8%). In both studs about 2% of horses were sold abroad and not more than 1% was put down or dead according to their illness and bad accidents.
Means marked with the same capital letters differ highly significantly at $P \leq 0.01$

Figure 6. Reasons of elimination of mares from Krasne and Kozieneice stud

The main reason of elimination of stallions was sale: in Krasne into Polish breeding (15.4%), in Kozieneice stud as usability horses (16.2%). In both sale cases the highly significant differences were stated (Figure 7). The same difference (more than 4%) for Krasne stud was stated for sale into abroad breeding. Deaths according to illness and bad accidents were 7.2% in Kozieneice stud and 5.1% in Krasne stud but put down were lower than 2%.

Means marked with the same capital letters differ highly significantly at $P \leq 0.01$

Figure 7. Reasons of elimination of stallions from Krasne and Kozieneice stud

Mentioned above results showed that each studied stud had a bit different elimination profile. The important factor in Krasne stud was sale into Polish breeding (40.8%) and in Kozieneice stud was sale for use (40.2%). Both studs sold horse
into abroad breeding at similar level (Krasne stud - 9.6%, Kozienice stud - 4.6%). Similar statements were noted by Kulisa et al. (1999 a) who worked out the reason of Thoroughbreds elimination at the race track, where on average 5.4% of horses were exported; the highest variety was observed in 1988 (0.6%) and 1994 (9.0 %) at an average percent of 23.7% elimination. Brzeski and Zając (1977) underline the role of export as a main position in tasks of Company of Breeding Animal Trade. Basic part of export were slaughter horses (48.3%) and then working horses (41.5%); the lowest percent was observed for ridding horses (10.2%).

Wesołowska and Nowicka-Posłuszna (1997) during the analysis of elimination reasons of stallions in Stallion Depots showed that in Gniezno Stallion Depot in 8-ties export increased gradually from 43.5% to 66.6%. In case of Arabian horses, which are very valuable according to their beauty and precious traits, export in 1981-1995 from Michałów stud was 84.7% (Kulisa et al. 1999 b). Zając (1995 b) state that in studs from South of Poland most horses are sold abroad and into Polish breeding (Kozienice stud – 22.2%). Deaths and put down were the most common in the group of foals and then in adult horses; the lowest in yearlings and two-years-old horses. In Arabian mares group (Kulisa et al. 1999 b) 4 and 5 years old were sold more often (16.0 % and 16.5 %, respectively) then youngsters to 3-years of age (18.3%) and then foals (11.4%). According to working horses the layout of elimination was completely different – the highest loses in population concerned 7-14 years old horses (57.0%); the lowest (19.1%) in the youngest horses (Zwoliński et al. 1963). It was stated that most deaths (9.6%) were caused by bad accidents. Higher percentage of dead animals (12.5%) were noted in Hucul horse breeding in Siary stud (Zając, 1995 b), oppositely to Malopolski horse breeding in Trzebieńce stud (6.8%) and Silesian horse in Strzelce Opolskie stud (1.1%).

In both studied studs barren mares were eliminated on level lower than 5% and it was lower than values stated for other breeds. Zając (1995 b) showed that 12.5% of Hucul, 40.6% Silesian and 54.5% Malopolski mares were eliminated according to this factor. Jeleń and Woźni (1996) stated that in 1951-1990 average level of elimination in all population of Thoroughbred adult mares varied between 2.9% and 18.7% and young mares between 4.5% and 20.9%.

In the group of stallions the main reason of elimination was sale. In Krasne stud mainly into Polish breeding (15.4%) and in Kozienice stud sale for use (16.2%). In local breeding in Wielkopolska region similar percent of stallions was sold to another breeding centres (Nowicka-Posłuszna and Wleklińska, 1997). Fedorski and Pikuła (1987) during the analysis of elimination reasons in Łobez stallion Depot showed that the most important reason of stallion elimination was senility (40.9% of noble stallions, 30.4% of cold blooded stallions) and lack of breeders interest in a particular stallion (6.5% of noble stallions, 10.6% of cold blooded stallions). In the National Stallion Depots (Nowicka-Posłuszna and Wesołowska, 1996) the most common reason of elimination was senility (33.4%) and illnesses of movement organs (6.4%). Similar reasons were observed in the Gniezno Stallion Depot (Wesołowska and Nowicka-Posłuszna, 1997) where senility was the reason of 37.8% eliminations among all studied population. Most stallions with illnesses
of movement organs were eliminated among Thoroughbred horses – 15.3% (permanent injuries at Race track) and among Sztumski horses – 29.0%.

**Conclusions**

The main reason of Thoroughbred elimination from stud was their sale. In Krasne stud more horses were sold into Polish breeding and into abroad breeding comparing to Kozienice stud, where most horses were sold for use. In all abovementioned cases highly significant differences were observed between investigated studs. In the group of foals most losses were caused by deaths of illnesses or bad accidents. In Kozienice stud such causes were highly significantly more often than in Krasne stud. Yearlings and two-years-olds from Krasne stud were mostly sold into Polish breeding, which was highly significantly different from Kozinice stud, where these horses were mostly sold as usability horses. In groups of mares and stallions the dominating way of elimination was sale into Polish breeding or sale for use. Stallions were also sold into abroad breeding, in Krasne stud highly significantly more often than in Kozienice stud.

**Bibliography**


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Scopul de bază a activității fiecărei herghelii este acela de ameliorare, ceea ce permite obținerea celor mai buni cai. Profitabilitatea creșterii depinde, printre altele, de numărul și modul de eliminare a cailor în anumite herghelii. Obiectivul acestui studiu a fost compararea cauzelor de eliminare a cailor de rasă Pur Sânge Englez din două herghelii diferite. S-au analizat cauzele de eliminare la 843 de cai, în funcție de vârstă și sex, din herghelile Krasne și Kozienice între anii 1993-2004. Procentul de eliminare a fiecărei grup a fost calculat în funcție de numărul de șepe mamă din herghelie pe parcursul celor 12 ani. Principală cauză de eliminare a cailor a fost vânzarea lor. Din herghelia Krasne s-au vândut mai mulți cai crescătorilor polonezi (40,8%) și străni (9,6%) decât din herghelia Kozienice, de unde cei mai mulți cai s-au vândut pentru muncă (40,2%). Pentru toate situațiile amintite mai sus au existat diferențe semnificative între cele două herghelii. În cazul mânjilor, principalul motiv pentru eliminarea din herghelie a fost moartea cauzată de boli și accidente. În herghelia Kozienice pierderile cauzate de acest factor au fost semnificativ mai mari (de 5,3%) decât în herghelia Krasne. Caii în vârstă de 1 și 2 ani din herghelia Krasne au fost vânduți mai frecvent crescătorilor polonezi (10,7% și respectiv 5,3%) în comparație cu herghelia Kozienice, din care caii aparținând acestui grup de vârstă au fost vânduți în principal pentru muncă (13,1% și respectiv 3,7%). În grupul iepelilor și a armăsarilor, modalitatea dominantă de eliminare a fost vânzarea către crescătorii polonezi sau ca și cai de muncă. Armăsarii au fost vânduți și crescătorilor din străinătate, semnificativ mai mult din herghelia Krasne (cu peste 4%) decât din herghelia Kozienice.

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