

# INBRED HORSE - A SOCIAL LOSER? EFFECT OF INBREEDING ON SOCIAL BEHAVIOUR AND SOCIAL SUCCESS IN AN INBRED POPULATION OF DOMESTIC HORSES

Dubcová J.<sup>1,2</sup>, Bartošová J.<sup>3</sup>, Kašpar M., Tykalová R.<sup>4</sup>, Komárková M.<sup>3,4</sup>

<sup>1</sup>Department of Zoology, Faculty of Science, University of South Bohemia, Branisovska 31, Ceske Budejovice, Czech Republic

<sup>2</sup>The National Stud in Kladruby nad Labem, 533 14, Kladruby nad Labem, Czech Republic

<sup>3</sup>Institute of Animal Science, Prague-Uhrineves, Czech Republic

<sup>4</sup>Faculty of Science, Charles University in Prague, Vinicna 7, Praha 2, Czech Republic

E-mail: JancaD@seznam.cz

---

## ABSTRACT

We studied influence of inbreeding on social behaviour and social success of horses of limited population (about 1000 pedigrees) of a breed of Oldkladruby horse characterized by high level of inbred mating. Inbreeding generally has a negative impact on many various characteristics; therefore an influence also on behaviour could be expected. We hypothesized, that horses with higher level of inbreeding (1) should achieve lower dominance rank; (2) should initiate and participate in less both, agonistic and non-agonistic interactions; and (3) should stay at a greater distance from the herd compared to lower inbred horses. Seventy-one mares and their 113 foals (62 fillies, 51 colts) born within three seasons in National stud Kladruby nad Labem were observed in two periods; before and after abrupt weaning (at age of approx. 6 months). Following characteristics of social behaviour were examined: dominance status of the mare, distance of the mare/foal from the herd and foal's distance from its mother (before weaning) and distance of the foal from the herd, its dominance status and interactions with other weanlings (after weaning). Inbreeding levels in horses were calculated according to Wright (1922, Am. Nat. 56: 330-338) (10 generations of ancestors, range 1.22-18.71). Dominance rank of horses was assessed in two ways, according to Clutton-Brock et al. (1982, Nature 350: 178-180) and using dyadic relationships between group members. Horse's distance from the herd was scanned each 15 minutes (2x12 hours in each period). Social interactions among weanlings were recorded continuously (2x2 hours of focal observation for each foal). Level of inbreeding affected none of the tested variables except of a tendency of more inbred foals to stay at greater distance from the herd after weaning ( $\chi^2(1)=3.29$ ,  $p<0.07$ , logistic regression, PROC GENMOD, SAS). Conclusion: High level of inbreeding in a foal caused neither its fundamental problems in social integration nor altered social behaviour towards other horses.

**Key words:** horse; *Equus caballus*; inbreeding; social behaviour, dominance status