Economic Evaluation of Heritable Equine Regional Dermal Asthenia in the Quarter Horse Cutting Industry

Sally G. Tipton, MS; Trent Smith, PhD; Peter R. Ryan, PhD; John D. Anderson, PhD; Nena J. Winand, DVM, PhD; Robert L. Linford, DVM, PhD, Diplomate ACVS; and Ann M. Rashmir-Raven, DVM, MS*

Winning for heritable equine regional dermal asthenia (HERDA) carriers (heterozygous recessive) are increasing at twice the rate as winnings for normal Quarter Horses. Authors’ addresses: Department of Clinical Science, College of Veterinary Medicine, Mississippi State University, Starkville, Mississippi 38762 (Tipton, Linford, Rashmir-Raven); Department of Animal and Dairy Sciences, Mississippi State University, Starkville, Mississippi 38762 (Smith, Ryan); Department of Agricultural Economics, Mississippi State University, Starkville, Mississippi 38762 (Anderson); and Department of Molecular Medicine, College of Veterinary Medicine, Cornell University, Ithaca, New York 14853 (Winand); e-mail: rashmir@cvm.msstate.edu. © 2009 AAEP. *Presenting author.

1. Introduction
Heritable equine regional dermal asthenia (HERDA) is an autosomal recessive disorder of the skin of Quarter Horses and horses of Quarter Horse lineage. The disease is most prevalent in cutting horses, with a 28% carrier frequency in elite cutting horse lines. We hypothesize that carrier horses may have a performance advantage in cutting and that economics may be driving the increased prevalence of HERDA within the cutting discipline.

2. Materials and Methods
The records of 1634 top-ranked performance cutting Quarter Horses of all ages and all divisions were evaluated from 1985 through 2006. Total winnings and average offspring earnings of leading sires were evaluated for carrier and normal status. Linear regression was used to identify relationships between averaged annual dollars of offspring earnings, HERDA classification, and year. An analysis of variance was used to compare the offspring information. All tests were considered significant at $p \leq 0.05$.

3. Results
Carriers earn more dollars annually on average than normal Quarter Horses. The average number of earning offspring was greater for carriers than for normal horses. Average offspring earnings for carrier sires increased as inbreeding coefficients increased. However, when the one pre-eminent sire was removed, average offspring earnings actually decreased as inbreeding increased.

4. Discussion
The number and economic impact of horses that are carriers for HERDA are increasing.

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Editor’s Note: Dr. Rashmir-Raven’s current address is the College of Veterinary Medicine, Michigan State University.

Research Abstract

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