

# Heritability and repeatability of insect bite hypersensitivity in Dutch Shetland breeding mares

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**Abstract :**

Insect bite hypersensitivity (IBH) is a seasonal recurrent allergic reaction of horses to the bites of certain *Culicoides* spp. and is found throughout the world. The aim of our study was to estimate the heritability and repeatability of IBH in the Dutch Shetland pony population. A total of 7,924 IBH scores on 6,073 mares were collected during foal inspections in 2003, 2005, and 2006. Mares were scored for clinical symptoms of IBH from June until February by 16 inspectors. Of all mares, 74.4% (n = 4,520) had a single observation, 20.7% (n = 1,255) had 2 observations, and 4.9% (n = 298) had 3 observations in different years. The overall mean IBH prevalence was 8.8%. Heritability was 0.08 (SE = 0.02) on the observed binary scale and 0.24 (SE = 0.06) on the underlying continuous scale. Repeatability was 0.30 (SE = 0.02) and indicates that including repeated observations of the clinical symptoms of IBH will improve the accuracy of breeding values for IBH. We conclude that IBH, based on clinical symptoms, is a heritable trait in the Dutch Shetland pony population. Therefore, the IBH prevalence in this population can be decreased by selection.

**Key Word :**

heritability, horse, insect bite hypersensitivity, repeatability

Volume 87, Number 2, February 2009