Genetic parameters for test day somatic cell score in Brazilian Holstein cattle

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ABSTRACT. Selection for lower somatic cell count has been included in the breeding objectives of several countries in order to increase resistance to mastitis. Genetic parameters of somatic cell scores (SCS) were estimated from the first lactation test day records of Brazilian Holstein cows using random-regression models with Legendre polynomials (LP) of the order 3-5. Data consisted of 87,711 TD produced by 10,084 cows, sired by 619 bulls calved from 1993 to 2007. Heritability estimates varied from 0.06 to 0.14 and decreased from the beginning of the lactation up to 60 days in milk (DIM) and increased thereafter to the end of lactation. Genetic correlations between adjacent DIM were very high (>0.83) but decreased to negative values, obtained with LP of order four, between DIM in the extremes of lactation. Despite the favorable trend, genetic changes in SCS were not significant and did not differ among LP. There was little benefit of fitting an LP of an order >3 to model animal genetic and permanent environment effects for SCS. Estimates of variance components found in this study may

be used for breeding value estimation for SCS and selection for mastitis resistance in Holstein cattle in Brazil.

Key words: Dairy cattle; Genetic correlation; Heritability; Random regression; Somatic cell count

