

Effect of censoring in a social-genetic model

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The aim of this study was to estimate (i) social-genetic effects in Danish Duroc pigs, and (ii) the impact of censoring on genetic parameters, bias, and predictive ability. In commercial-pig breeding, pigs can be removed from pens during performance test, e.g. due to mortality and involuntary culling. This poses problems for social-genetic models because social-genetic effects for individual pigs are influenced by other pigs sharing the same pen during the performance test. It is, therefore, important to determine how to handle censoring in social-genetic models. We did this using data from a performance test at the Danish test station Bøgilgaard. Data included 719 pens, 12-14 boars per pen, and a total of 9432 pigs. Data were available on average daily gain (ADG), feed conversion (FCR) recorded in the period from 30 kg to 100 kg, and meat percentage (MEAT%). During the test period the mortality and involuntary culling was ~7% and occurred across ~55% of the pens. Single-trait analyses were carried out on three datasets: 1) full data, 2) full data excluding dead and culled animals, and 3) full data excluding pens with dead or culled animals. Three models were applied: 1) a classical-animal model, 2) a social-genetic model, and 3) a social-genetic model with proportional weighing of social effects on the time each pig spent in the pen. Preliminary results show that social-genetic effects were present for ADG and FCR with higher total heritabilities compared to classical heritabilities (0.27 and 0.20). Results also indicate that estimated social-breeding values were more sensitive to the method of handling censoring than classically estimated breeding values. Although, the higher total heritabilities bring promises of higher genetic gains, this potential may be lower if censoring is ignored.