Genetics of pasteurellosis resistance in rabbits

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Pasteurellosis is the first cause of rabbit culling in commercial herds. Antibiotic treatments against pasteurellosis have a low efficiency and may lead to the development of antibiotic resistance. Breeding rabbits for their resistance to this disease could be a way to tackle this issue. For this purpose, 964 crossbred rabbits were inoculated with a strain of *Pasteurella multocida* and monitored during 14 days. Body weight, body temperature, abscess dissemination, blood cell count, and bacterial count were registered on the inoculated rabbits. A resistance score was created combining the survival of the animal (alive or dead at Day 14) and the abscess and bacterial dissemination scores. Two traits under selection, litter size and weaning weight, were also recorded in the selection farms on the purebred rabbits used to produce the experimental population. Genetic parameters analyses were carried out using linear animal models. Disease response was very variable with 7% of resistant rabbits and 11% of highly susceptible rabbits. The heritabilities of the resistance, bacterial dissemination, and abscess dissemination scores ranged from 0.09±0.05 to 0.16±0.06. Due to the relatively low number of inoculated animals, the genetic correlations could not be estimated with a high accuracy. The genetic correlation between the resistance score and the litter size seems to be unfavorable. On the opposite, the genetic correlations between the resistance score and growth traits seems to be favorable. According to these results, selection on pasteurellosis resistance seems to be feasible.