



# Evaluation of the efficiency of artificial neural networks for genetic value prediction

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Genet. Mol. Res. 15 (1): gmr.15017676

Received August 18, 2015

Accepted November 17, 2015

Published March 28, 2016

DOI <http://dx.doi.org/10.4238/gmr.15017676>

**ABSTRACT.** Artificial neural networks have shown great potential when applied to breeding programs. In this study, we propose the use of artificial neural networks as a viable alternative to conventional prediction methods. We conduct a thorough evaluation of the efficiency of these networks with respect to the prediction of breeding values. Therefore, we considered eight simulated scenarios, and for the purpose of genetic value prediction, seven statistical parameters in addition to the phenotypic mean in a network designed as a multilayer perceptron. After an evaluation of different network configurations, the results demonstrated the superiority of neural networks compared to estimation procedures based on linear models, and indicated high predictive accuracy and network efficiency.

**Key words:** Artificial intelligence; Simulation; Accuracy