



## Estimating additive and dominance variances for complex traits in pigs combining genomic and pedigree information

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**ABSTRACT.** Knowledge of dominance effects should improve genetic evaluations, provide the accurate selection of purebred animals, and enable better breeding strategies, including the exploitation of heterosis in crossbreeds. In this study, we combined genomic and pedigree data to study the relative importance of additive and dominance genetic variation in growth and carcass traits in an F2 pig population. Two GBLUP models were used, a model without a polygenic effect (ADM) and a model with a polygenic effect (ADMP). Additive effects played a greater role in the control of growth and carcass traits than did dominance effects. However, dominance effects were important for all traits, particularly in backfat thickness. The narrow-sense and broad-sense heritability estimates for growth (0.06 to 0.42, and 0.10 to 0.51, respectively) and carcass traits (0.07 to 0.37, and 0.10 to 0.76, respectively) exhibited a wide variation. The inclusion of a polygenic effect in the ADMP model changed the broad-sense heritability estimates only

for birth weight and weight at 21 days of age.

**Key words:** Dominance; Genetic Parameters; Polygenic effect; Piau pigs