

Genetic determinism of boar taint and relationship with meat traits

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Entire male meat can have a major quality defect called boar taint, partly due to the presence of androstenone in fat. This study evaluates the feasibility of a selection to directly decrease back fat androstenone level or indirectly by a selection on the plasma estradiol level and estimate the consequences on meat traits in purebred or crossbred pigs. Pure Pietrain (P) and Pietrain Large White crossbred pigs (X) were measured for hormone levels: estradiol (Est) and testosterone (Tes), growth traits: average daily gain, feed conversion ratio (FCR), average daily feed intake (ADFI), carcass composition: carcass yield (CY), lean percentage (L%) and quality traits: pH in Ld and ham, drip loss, intramuscular fat and back fat androstenone level (Andr). The number of skin lesions (SL) was measured at three stages. Carcass additional measures were obtained by computerized tomography: loin eye area (LEA) and density, femur density, ham muscle/bone length ratio (HFR). The number of measured animals varied from 553 to 712 for P and from 556 to 736 and for X. Heritabilities were of medium values for estradiol level and high values for androstenone level. A selection to decrease P Andr level would increase HFR and pH in ham and decrease FCR and Tes in P pigs. On X it would increase CY, LEA, L% and HFR and decrease SL at fattening entrance, FCR, drip loss, ADFI and femur density. A selection to decrease P Est level would decrease Andr, FCR, ADFI and Tes in P pigs and Andr, SL at fattening entrance and Tes in X pigs. Heritabilities and genetic correlations indicate that a selection to decrease estradiol level would have overall favourable effects on meat traits. The authors are extremely grateful to the UEPR personnel, PEGASE technicians and IRSTEA. This study has been granted by ANR (ANR-10-GENOM_BT-015, ANR-15-CE20-0008), Alliance R&D, InaPorc and FranceAgrimer.