

## ABSTRACT

### **Genetic relationships between performance test traits and field carcass traits in Japanese Black cattle**

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Genetic relationships between body measurements and growth traits at performance testing of bull calves and field carcass traits in Japanese Black cattle were estimated using a two-trait sire and maternal grandsire model with REML procedure. Covariances between performance test and carcass traits were obtained from across environment analyses. Performance test traits included wither height, chest girth, chest depth, thurl width, body weight, and daily gain. For field carcass traits carcass weight, longissimus muscle area, rib thickness, subcutaneous fat thickness, yield estimate, and beef marbling score were measured on 8329 steers and heifers. Heritabilities for performance test traits ranged from 0.13 to 0.36, and for carcass traits from 0.39 to 0.55. The basis of selection at performance testing, daily gain, did not correlate well with carcass beef marbling score, the breeding goal, indicating that genetically superior bull calves in marbling may be culled at the end of testing. Chest girth at the middle and the end of testing correlated well in the desired directions with all carcass traits. It is possible to improve total merit of the carcass by introducing chest girth into performance testing.

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