

ABSTRACT

**Genetic parameters for dry matter, energy and protein intake, and their relationships with performance and carcass traits in Japanese Black cattle.**

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Genetic parameters for feed intake and performance traits of 514 bulls and carcass traits of 22 099 of their progeny, and the relationships of measures of feed intake with performance and carcass traits were estimated. Feed intake traits were dry matter intake (DMI), concentrate intake (CONI), roughage intake, ratio of roughage intake to DMI, metabolizable energy intake (MEI) and digestible crude protein intake (DCPI). Performance traits included daily gain, metabolic weight, live weight at the end of test, dry matter conversion ratio and residual feed intake. Progeny carcass traits were carcass weight, percentage of meat yield, rib eye area (REA), subcutaneous fat, marbling score, meat colour (MCS), fat colour (FCS) and meat quality grade. All the feed intake and performance traits were moderately heritable. The heritabilities for REA and MCS were moderate, and that for FCS was low, while those for the other carcass traits were high. Selection against DMI, CONI and DCPI would reduce excessive intake of feed, but would have undesirable effects on growth and most of the carcass traits. Selection against MEI would lead to improvements in feed efficiency and growth traits. Selection against DCPI would also improve feed efficiency; however, responses in growth traits would decrease. Results indicate that selection against MEI might be better than any other measures of feed intake to improve feed efficiency with simultaneous improvement in growth and most of the carcass traits

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