

ABSTRACT

The characteristics of muscle fiber types of longissimus thoracis muscle and their influences on the quantity and quality of meat from Japanese Black steers.

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Forty-four Japanese Black fattening steers from four groups, produced in four districts and consisting of differing genetic backgrounds were slaughtered to examine the characteristic differences in muscle fiber types at the 6th thoracic vertebra of the M. longissimus thoracis (LT). The influence of percentage, diameter, and relative area of each muscle fiber type on the carcass characteristics and some quantity and quality traits of beef taken from LT, were also investigated. Significant differences in the characteristics of the muscle fiber types were observed among the four groups, except for muscle fiber diameter in the α R fiber, and the relative area of each α W fiber. For all steers, the average percentages and diameters of each muscle fiber type, β R, α R and α W were 26.8, 18.5 and 54.7% and 51.4, 50.6 and 52.4 μ m, respectively. The relative area of each fiber type was similar to those of muscle fiber composition. α R Fiber content had significant negative correlations with marbling score ($p < 0.05$), intramuscular fat content ($p < 0.05$) and ultimate pH value ($p < 0.05$). Significant correlations between the diameter of each fiber type, and the quantity or quality traits of the meat were not found, with the exception of red fiber types (β R and α R) and meat color a^* values ($p < 0.05$) which were positively correlated.

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