

Influence of Quality Grades and Major Muscles on Intramuscular Fat and Shear Force Value Ratings of Hanwoo

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This study was conducted to investigate the relationships among 6 major muscles of Hanwoo in relation to intramuscular fat content and shear force value. Twenty one Hanwoo carcasses (18 months old, bull) were selected at a commercial slaughter house at 24 hr postmortem to represent the three quality grades of APGS (Animal Products Grading Service) grade 1, 2 and 3. The quality grade was estimated by trained grader of APGS, and 6 major muscles including longissimus (LM), semimembranosus (SM), semitendinosus (ST), gluteus medius (GM), psoas major (PM) and supraspinatus (SS) were dissected from each carcasses. The muscles were transported in the laboratory and followed by measurements of pHu (ultimate pH), intramuscular fat contents (mg/g tissue) and shear force values (Kg/cm²). Result showed that pHu of muscles from APGS grade 3 was significantly ($p < 0.05$) higher than those of grade 1 and 2. All 6 major muscles from APGS grade 1 showed significantly ($p < 0.05$) higher intramuscular fat content compared to muscles from APGS grade 3. Specially, there were significant ($p < 0.05$) differences in intramuscular fat content of LM among three quality groups. Data suggested that APGS quality grade of Hanwoo carcasses strongly depended on intramuscular fat content of LM. Significantly ($p < 0.001$) high correlation coefficients between intramuscular fat content of LM and SS ($r=0.84$), GM ($r=0.78$), SM ($r=0.77$), ST ($r=0.73$), and PM ($r=0.68$) were observed. This results implied that intramuscular fat content of LM could be used to predict marbling of other muscles of Hanwoo. There were significant ($p < 0.05$) differences in shear force values of LM among three APGS quality groups. Also SM and GM showed significant ($p < 0.05$) differences in shear force values among quality groups. APGS grade 1 showed lower shear force value compared to grade 2, whereas grade 3 showed the highest shear force value. This result suggested that Hanwoo muscles seemed to be tender with increasing intramuscular fat content. There were significantly ($P < 0.001$) high correlation between shear force values of 6 major muscles. The shear force value of LM showed simple correlation coefficients with SM ($r=0.75$), GM ($r=0.83$), SS ($r=0.87$), PM ($r=0.64$) and ST ($r=0.65$). Results implied that shear force value of LM could be used to predict tenderness of other muscles of Hanwoo.