

69 Chemical and sensory properties of beef from known locations and finished on varying types and levels of roughage. B. E. Jenschke*, J. R. Benton, C. R. Calkins, T. P. Carr, K. M. Eskridge, T. J. Klopfenstein, and G. E. Erickson, *University of Nebraska, Lincoln.*

Factors such as age, diet, and aging affect the flavor of beef. Source-verified cattle (n=168) from South Dakota, eastern Nebraska, and western Nebraska were identified and finished at the University of Nebraska on diets containing 30% wet distillers grains plus solubles (DM basis) (control diet). Additionally, roughage sources of corn silage, corn stalks and alfalfa (4%-low or 8%- high) were included in the diet on an equal NDF basis to determine if cattle location and roughage source have any relationship with liver-like off flavor. Proximate analysis, pH, oxidation-reduction potential, and fatty acid analysis of subcutaneous and intramuscular fat of the *M. Rectus femoris* were conducted following a 7 d aging period. A trained taste panel was also conducted. Proximate analysis and oxidation-reduction potential were not affected by location or diet ($P>0.05$). Cattle fed the control diet had the lowest pH ($P<0.01$), higher amounts of intramuscular 16:0 ($P=0.02$), but the lowest amount of intramuscular monounsaturated fatty acids ($P=0.02$). Cattle finished on the diet with high amounts of silage had the greatest amount of intramuscular polyunsaturated fatty acids while the low alfalfa treatment had the lowest ($P=0.05$). Cattle receiving silage (regardless of level) had greater ($P=0.05$) amounts of intramuscular omega 6 fatty acids. Cattle from eastern NE had significantly ($P<0.05$) lower amounts of 10:0, 20:2, 20:3, 20:4, and conjugated linoleic acid (CLA) in subcutaneous fat. In regards to intramuscular fat, 16:0 and 24:0 were greater ($P=0.05$) in cattle from western NE. Cattle from SD had lower ($P=0.04$) intramuscular CLA content but the greatest amount of subcutaneous 12:0. Sensory analysis revealed significant treatment and location effects for bloody and juiciness. Steaks from cattle on the low alfalfa and low corn stalk diets most frequently had bloody off-flavor notes and were juiciest, while cattle from SD most frequently had bloody off-flavor notes and higher juiciness ratings ($P<0.05$). Neither dietary treatment nor location had any effect on liver-like off flavor. From subcutaneous fat, 18:2 trans ($r=-0.17$), 20:1 ($r=0.21$), and CLA 9c, 11t ($r=0.16$) were significantly ($P<0.05$) correlated to liver-like off flavor. From intramuscular fat, 24:0 ($r=0.15$) was significantly ($P<0.05$) related to the liver-like off flavor. Strategies to effectively alter the deposition of these fatty acids might reduce liver-like off flavor in beef. Regional differences in calf environment appear to influence fatty acid composition after finishing.