

8 Contribution of lean and fat components on beef and pork species flavor. D. D. Boler*, S. M. Scramlin, A. J. Meyers, A. C. Dilger, F. K. McKeith, and J. Killefer, *University of Illinois, Urbana.*

The influences of lean and fat components to species-specific flavor of beef and pork are difficult to define. Therefore, the objective of this research was to determine the impact of fat and lean source and degree of doneness (EXP. 1), varying levels of fat (EXP. 2), and dark and light muscles (EXP. 3) on the species specific flavor of pork and beef patties. Pork lean was collected from the shoulder and ham, while beef lean was collected from the chuck and round. Composite fat sources were obtained from sources throughout the carcass. All lean and fat samples were trimmed, ground, and analyzed for fat content via proximate analysis for use in formulations. After formulation, 113 g patties were formed, and frozen for analysis. For each experiment, samples were analyzed in duplicate by a trained sensory panel using a 15 cm weighted scale for beef and pork flavor intensity. Exp. 1: Samples were formulated to combine beef lean/beef fat, pork lean/pork fat, beef lean/pork fat, and pork lean/beef fat in 80:20 (lean:fat) ratio, with samples cooked to 66°C or 71°C. Degree of doneness did not impact pork or beef flavor ($P>0.05$). Lean was the greatest contributor of species specific flavor, as beef flavor was greater in samples with beef lean compared with samples with pork lean, and samples with pork lean exhibited more intense pork flavor than those with beef lean ($P<0.05$). Species of fat, however, did not impact either beef or pork flavor. These data suggest that lean contributes more to the overall species specific profile of flavor than fat. Exp. 2: To further investigate the role of fat level in species specific flavor, patties were formulated to contain 5, 10, 15 or 20% fat. For these samples, pork lean was mixed only with pork fat, and beef lean only with beef fat, all were cooked to 71°C. Increasing fat level did not impact beef flavor ($P>0.05$). However, increased fat level did increase pork flavor ($P<0.05$). It is unclear why the flavors of the two species react differently to increasing fat content. Exp. 3: Finally, the impact of dark and light muscles on pork and beef flavor was evaluated. Light and dark muscles were collected from beef and pork and ground with pork fat and beef fat, respectively, creating four 80:20 lean:fat formulations - pork light lean, pork dark lean, beef light lean and beef dark lean. Neither beef flavor nor pork flavor intensity was impacted by the type of lean (light vs. dark) used ($P>0.05$) suggesting the species specific flavor component of lean meat is not impacted by muscle fiber type. Overall, these data suggest that the lean component of meat contributes more to species specific flavor than the fat component. Furthermore, species specific flavor intensity is not impacted by degree of doneness or muscle type. Increasing fat content of pork samples results in increased pork flavor, however, increased fat content does not alter beef flavor. Therefore, in mixed species products, the species of the lean contributor is more important to overall flavor than the species of the fat contributor. Also, increasing fat in all beef products may not be an effective means of increasing beef flavor.