Nutrition Research Discovery Symposium

Researchers, cattlemen discuss ways to make beef even more healthful.

compiled by ***Micky Wilson***

NASHVILLE, TENN. (Feb. 1, 2007) — The Beef Nutrition Discovery Symposium at the 2007 Cattle Industry Annual Convention focused on selecting cattle to have a more healthful fatty acid composition. Penny Kris-Etherton, University of Minnesota distinguished professor of nutrition; Pramod Khosla, Wayne State University, Detroit, Mich.; Stephen Smith, professor at Texas A&M University; James Drouillard, Kansas State University professor of animal sciences; Todd Wills, Martek Biosciences Food Research and Development; and Joanne Holden, U.S. Department of Agriculture (USDA) Agricultural Research Service (ARS) presented the information. Following are summaries from each speaker's presentation.

Kris-Etherton: Dietary Fat Guidance From 1980-2006. Lean beef is a nutrient-dense food that is low in calories, total fat, saturated fat and dietary cholesterol. Lean beef can be included in a dietary pattern that achieves nutrient adequacy and meets current dietary guidance for health promotion and decreased risk of chronic disease.

Khosla: Health Benefits of Various Types of Dietary n-3 Fatty Acids. N-3 fatty acids from marine sources are biologically more efficient than plant-derived n-3. Conversion of Alpha linolenic acid (ALA) to eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) is heavily dependent on concomitant amounts of n-6 content in the diet. There is insufficient data for specific recommendations on individual n-3 fatty acids (for example, DHA vs. EPA as opposed to DHA and EPA).

Smith: Fatty Acid Composition of Beef: An Argument for Oleic Acid. There seems to be adequate justification for the production of beef and beef products with elevated concentrations of oleic acid. Studies have confirmed that ratios of monounsaturated fatty acids to saturated fatty acids (MUFA:SFA) in adipose tissues increase with increasing time on feed, providing an efficacious method to produce high-oleic acid beef.

Two additional conclusions can be drawn from the studies presented:

1. even when raised to the same body weight and fatness, adipose tissues from calf-fed steers contain higher concentrations of oleic acid than those from yearling-fed steers; and

2. subcutaneous adipose tissue is more enriched with oleic acid than is intramuscular adipose tissue.

In preliminary studies, it is documented that, of the adipose tissues in beef carcasses, subcutaneous adipose tissue is most enriched with MUFA. For this reason, the industry should consider using subcutaneous adipose tissue (in other words, backfat trim) in the production of ground beef and other processed beef products.

Drouillard: Effects of Dietary Lipids on Composition and Sensory Attributes of Beef. The rumen is characterized as a strong reducing environment. Hydrogenation of polyunsaturated fatty acids by microflora is extensive.

Wills: DHA Fortification in Meats: Improving Nutrient Composition. Fortifying beef products with DHA will greatly improve nutritional value and consumer perception, and capture market share of health-conscious shoppers. Changes in current processing aren't necessary; the industry is ready to adopt this practice. Consumer knowledge equals marketing success.

Holden: Development of Nutrient Composition Databases for Beef Products. The USDA National Nutrient Database for Standard Reference (SR) provides food and nutrient composition data for more than 7,000 foods consumed in the U.S. It is provided to the scientific community and the public free of charge.

SR releases include data for more than 980 beef and beef-containing food products. A primary challenge for SR is maintaining the currency of the data and the representativeness of the market. A recently completed market basket study conducted by the National Cattlemen's Beef Association (NCBA) will be used to identify outdated beef items for removal or revision, as well as new products not currently in SR. The revision of data will provide the industry with the necessary information to meet the required nutrition-labeling regulations. AJ