Visual assessment is the first line of defense our body uses to protect itself from potentially dangerous foods. Any discoloration behind the glass of the meat counter display is a surefire way to detour consumers. Think of the last time you saw someone pointing to that graying piece of steak saying, “I’ll take that one.” Studies support the notion that **color perception** is the number one factor that impacts buying decisions and the visual appearance of meat can either entice or discourage the buyer. That is why color analysis plays such an important role in meat processing and production. Quality evaluation of meat products involves numerous testing procedures, and of these processes, color assessment is the most influential when it comes to consumer purchasing power.[1]

Visual appearance and color is used as a sign of quality and greatly influences buyer perception and purchasing choices.
Image Source: Flickr user Steven Depolo

The Benefits of Objective Color Analysis

The color of meat is determined by the interaction with light with the surface texture of the product, as well as individual perception of the viewer. The capabilities of the human eye are highly subjective[2] and can be easily altered with variations in light source, viewing angle, and personal perception. Instrumental color assessment provides an objective measurement of color which can alert production teams to any potentially contaminated products, problems with packaging materials, or storage issues. Color assessment can also be used as a tool to monitor the quality of meat, as well a way to **determine the value and fair market price of meat products**.

The viewing angle, light source, and packaging can all cause variations in visual perception. Instrumental analysis ensures accurate color measurement with the ability to quantify this data for

continual product monitoring.
Image Source: Flickr user Procsilas Moscas

Utilizing Instrumental Analysis for Color Assessment

Changes in meat color involve the concentration of myoglobin and its response to oxidization. Various meats respond differently to these changes and the effects on color can be altered due to variations in processing, packaging, and storage. These changes are highly sensitive and require objective color assessment and continual monitoring to ensure that optimal product color is maintained.

Spectrophotometers effectively measure color by emulating human eye functioning while controlling the viewing angle and light source. Isolating these variables reduces errors in perception and enables consistent quantification of color. Continual color assessment monitors real-time changes to help avoid loss of quality and provide an alert to possible product contamination.

Spectrophotometers continually monitor the color of meat and poultry products to ensure quality and alert production facilities to product contamination and/or spoilage.
Image Source: Flickr user Raul.Perez.

Getting the Most Out of Your Spectrophotometer

The USDA (Untied States Department of Agriculture) standards require color analysis instrumentation to ensure the quality and safety of meat products.[3] Whether fresh or processed, refrigerated or frozen, all meats require objective color analysis to ensure that guidelines are followed and quality is guaranteed. HunterLab is a leading name is spectrophotometric technology and was the first to receive USDA approval for the evaluation of food color.

Major corporations and agricultural meat producers depend on HunterLab instrumentation to meet their color analysis needs. From large production plant monitoring to research and testing methods

for creating better products, HunterLab spectrophotometers are specifically designed for use in the agricultural and meat production industries. Our team of experts is here to help you find the right instrumentation to meet standards and regulations and ensure the highest quality of product. For more information on our line of spectrophotometers, **contact us today**.

1. "Instrumental measurement of texture and color of meat and meat products," http://www.maso-international.cz/wp-content/uploads/2013/04/maso-international-2012-2-page-107-114.pdf
2. "Color Is Subjective," June 9, 2001, http://www.extremetech.com/extreme/49028-color-is-subjective
3. "Inspection & Grading of Meat and Poultry: What Are the Differences?" Updated June 3, 2014, http://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/get-answers/food-safety-fact-sheets/production-and-inspection/inspection-and-grading-of-meat-and-poultry-what-are-the-differences_/inspection-and-grading-differences