The food production world knows that color analysis is necessary for developing a product that sells. Let's face it, consumers cannot taste or smell many of the prepackaged foods on the market today, so they must rely on visual perception when making purchasing choices. That is why sensory testing and color analysis have quickly become an important part of helping manufactures develop products that appeal to consumer perceptions and quality expectations.

Color Perception and Consumer Choice

Color analysis has played an important role in food production for many years. In fact, color and consumer choice are so closely related that entire product lines have either found success or failure based on color alone. For example, in the early 1990s Pepsi Cola© released a new line of clear colored cola products[1] that boasted less artificial coloring and no caffeine. Despite the increased buyer hype over an all-natural alternative, this new product bombed miserably as consumers simply could not disassociate their taste expectations from the signature brown cola color.

Color perception and taste often go hand-in-hand, but most consumers do not even recognize the subliminal signals that are generated by the brain. These brain-color relations are often product specific and develop over time with brand recognition and consistency. Many scientists believe that this is in direct relation to our natural judgement instincts which are used to determine the quality or safety of our food products.[2] For example, brown or discolored meat products are typically associated with spoilage and are rejected by the consumer based on color factor alone. Major food manufacturers invest their resources color analysis instrumentation to increase consumer acceptance and overall quality perception of their product.

Instrumental Analysis

Advanced color analysis requires the use of specialized analytical tools which quantify color for accuracy and repeatability. Spectrophotometers are commonly used in food production to monitor color consistency from batch-to-batch, ensuring that the visual appeal of the product meets consumer standards.[3] The standards are often subjective to preconditioned color expectations that are brought about by industry fads and interpretations of color that have been engrained on society as a "correct" association with that food product. Baked goods and what may be perceived as a healthier food choice is often associated with more natural brown and earthy tones, whereas bright hues are often expected with sugar-based or candy-like product selections.

Choosing the right color combinations which best address consumer expectations will result in the highest level of product acceptance and marketability. Thus, color analysis is important for developing precise color matching standards and ensuring repeatability throughout the production line. This is particularly important for name-brand recognition, reliability, and quality control.

Spectrophotometric Applications for Food Analysis

Spectrophotometers offer the most advanced method of color analysis in food products. The analytical tools offer a wealth of evaluative information that can be used to determine the quality and safety of food products and ensure consistency and consumer color acceptance.

Full article with photos available here:

https://www.hunterlab.com/blog/color-food-industry/judging-a-product-by-its-cover-using-color-analysis-for-sensory-testing-in-foods/