

# Sensory testing of food products

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**PLAN**

- OVERVIEW



- A consumer's direct sensory experience with a product often plays a major role in that product's market success. In order to minimize returns and maximize repeat purchases, it is crucial that a product's attributes accurately match the sensory cues delivered on product packaging and marketing collateral and meet consumer expectations. UL sensory testing services evaluate product difference, characteristic and preference attributes in order to help companies understand how their products are perceived by their target markets.

# I. Sensory analysis

## Definition



- Utilizing both expert analysis and consumer feedback, UL's sensory testing services help companies evaluate whether their products meet consumers' preferred sensory characteristics. Our customers gain a detailed view of consumers' responses to a tested product and a deeper understanding of that product's prospective competitive value.

# I. Sensory analysis

## Benefits

- Industry knowledge, analytical expertise and technical skill come together in UL's state-of-the-art facilities to evaluate how tested products will influence consumer purchase decisions and build brand loyalty.

## Trained Descriptive Panels

- Our customers' products are evaluated by panels of people who are experienced in sensory science. UL uses an established framework during testing in order to help ensure standardized responses across product lines and quantitative result data.

# I. Sensory analysis

## Shelf-life and Stability Studies

- UL evaluates a product's sensory appeal over a period of time in order to determine the appropriate messaging on product packaging.



## Degree of Difference Testing

- Our tests help customers know whether appreciable differences occur between test and control products, and help establish a product's intrinsic variability rate due to variances in production time, component sourcing and other circumstances.

# I. Sensory analysis

## Product Cuttings

- UL's product cutting tests help assess general product quality, competitive value and consumer acceptance.

## Claim Substantiation and Product Optimization

- UL's testing and analysis help customers verify their advertising, packaging and marketing claims and assist in their efforts to maximize consumer satisfaction potential.

## On-site Sensory Testing and Product Evaluations

- UL can help customers create in-house programs using accepted sensory testing methods in order to evaluate specific product attributes.



# I. Sensory analysis

Consumer tastes, preferences and buying behaviours are changing constantly. Researchers at the Health and Food Sciences Precinct can help your business:

- understand your target market characteristics
- define products and their acceptability
- test product concepts
- understand product quality issues.



## II. Sensory analysis of food products



## Sensory analysis for food and beverage products



Sensory analysis can reveal how consumers perceive the appearance, aroma, taste and texture of your product. Testing includes:

- difference testing to understand if new product formulations differ in taste and texture from old ones
- shelf-life trials (in combination with microbial count testing)
- acceptability testing to understand if a product suits consumer palates
- flavour profiling to identify consumer preferences for product
- fault detection to identify undesirable flavours.

## II. Sensory analysis of food products

Consumer research for food and beverage products



Consumer research gives you information about potential customers. We use focus groups, surveys, experimental auctions, at-home trials and novel interview methods to understand how consumers think and feel about food and beverage products. Some of the ways our methods have helped business and industry include:

- product concept and prototype testing
- domestic and export market consumer profiles
- customer motivation and how this can shape marketing strategies
- demand, purchase intent and consumer willingness to pay
- consumer threshold for defects.

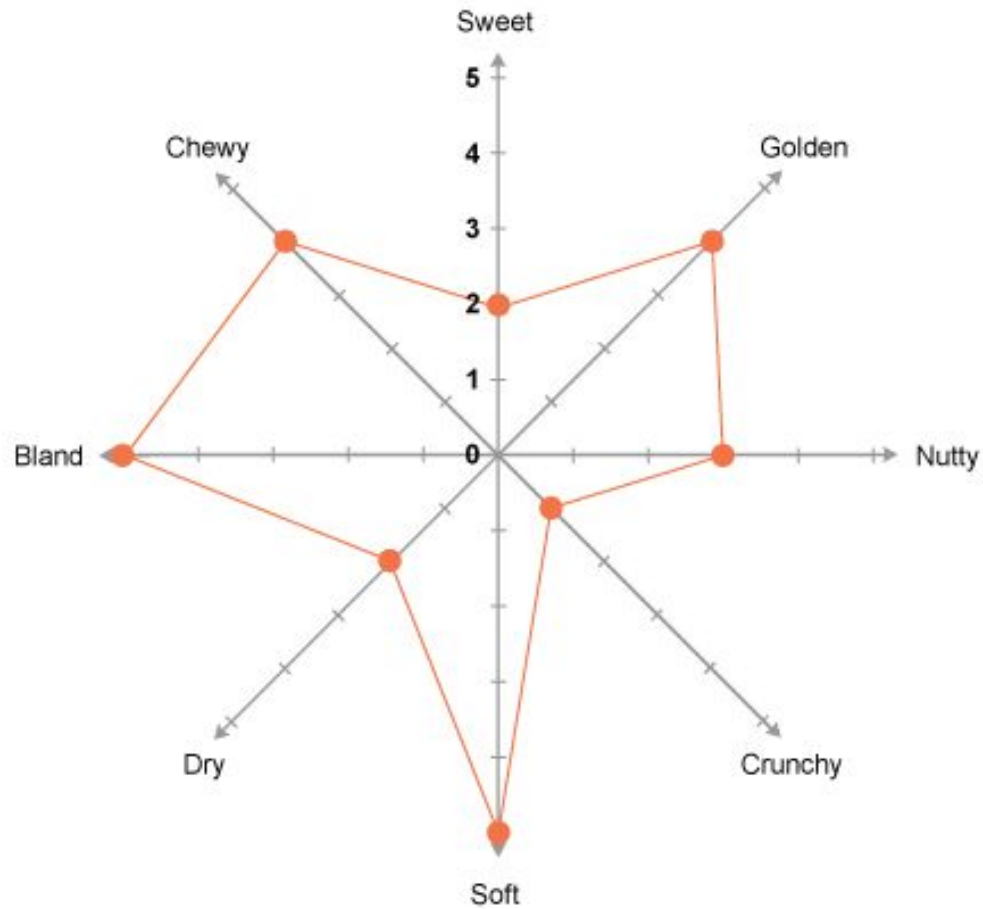
## II. Sensory analysis of food products

## About the facilities

The food science laboratory has been purpose-built and includes:

- computerised sensory booths
- access to a trained taste panel
- focus group room with audio and visual recording, and viewing window
- commercial kitchen and cold storage.

## **II. Sensory analysis of food products**



## II. Sensory analysis of food products

- **Sensory analysis** (or **sensory evaluation**) is a scientific discipline that applies principles of experimental design and statistical analysis to the use of human senses (sight, smell, taste, touch and hearing) for the purposes of evaluating consumer products. The discipline requires panels of human assessors, on whom the products are tested, and recording the responses made by them. By applying statistical techniques to the results it is possible to make inferences and insights about the products under test. Most large consumer goods companies have departments dedicated to sensory analysis. Sensory analysis can mainly be broken down into three sub-sections:
  - Effective testing (dealing with objective facts about products)
  - Affective testing (dealing with subjective facts such as preferences)
  - Perception (the biochemical and psychological aspects of sensation)

## III. Sensory Testing

## Effective testing



- This type of testing is concerned with obtaining *objective facts* about products. This could range from basic discrimination testing (e.g. Do two or more products differ from each other?) to descriptive profiling (e.g. What are the characteristics of two or more products?). The type of panel required for this type of testing would normally be a trained panel.

## III. Sensory Testing

## Effective testing



- There are several types of sensory tests. The most classic is the sensory profile. In this test, each taster describes each product by means of a questionnaire. The questionnaire includes a list of descriptors (e.g., bitterness, acidity, etc.). The taster rates each descriptor for each product depending on the intensity of the descriptor he perceives in the product (e.g., 0 = very weak to 10 = very strong). In the method of Free choice profiling, each taster builds his own questionnaire.
- Another family of methods is known as *holistic* as they are focused on the overall appearance of the product. This is the case of the categorization and the napping.

# III. Sensory Testing

## Affective testing



- Also known as *consumer testing*, this type of testing is concerned with obtaining *subjective* data, or how well products are likely to be accepted. Usually large (50 or more) panels of untrained personnel are recruited for this type of testing, although smaller focus groups can be utilised to gain insights into products. The range of testing can vary from simple comparative testing (e.g. Which do you prefer, A or B?) to structured questioning regarding the magnitude of acceptance of individual characteristics (e.g. Please rate the "fruity aroma": dislike|neither|like).

## III. Sensory Testing



## Perception



- Perception involves the biochemical and psychological theories relating to human (and animal) sensations. By understanding the mechanisms involved it may be possible to explain why certain characteristics are preferred over others. When sensory analysts study the relationship between a given physical stimulus and the subject's response, the outcome is often regarded as a one-step process. In fact, there are at least three steps in the process. The stimulus hits the sense organ and is converted to a nerve signal that travels to the brain. The brain then interprets, organizes and integrates the incoming sensations into perceptions. Finally, a response is formulated based on the subject's perceptions.

## III. Sensory Testing

## Perception



- In dealing with the fact that humans often yield varied responses to the same stimulus, sensory professionals need to understand that differences between two people's verdicts can be caused either by a difference in the sensation they receive because their sense organs differ in sensitivity or by a difference in their mental treatment of the sensation, e.g., because of a lack of knowledge of the particular odor, taste, etc or because of lack in training in expressing what they sense in words and numbers. True training and the use of references, sensory professionals can attempt to shape the mental process so that subjects move toward showing the same response to a given stimulus.

# III. Sensory Testing