

FDE 418
FOOD QUALITY CONTROL
LESSON-10

Prof. Dr. Kezban Candoğan

E-mail: candogan@eng.ankara.edu.tr,
kcandog@hotmail.com

Phone: 2033300 (3647 ext.)

Food quality control and sensory evaluation

- ✓ Food quality is “which the consumer likes best”
- ✓ *The grades of quality*: the degree of desirable attributes and absence of undesirable characteristics
 - ✓ A good method of deciding quality of a food is through sensory evaluation
- ✓ Definition of sensory evaluation (by IFT):

*“A scientific discipline used to **evoke, measure, analyze and interpret** those responses to products as perceived through **the senses of sight, smell, touch, taste and hearing**”*

Food quality control and sensory evaluation

- ✓ Sensory analysis is applicable to a variety of areas such as;
 - ✓ inspection of raw materials
 - ✓ product development
 - ✓ product improvement
 - ✓ cost reduction
 - ✓ quality control
 - ✓ selection of packaging material
 - ✓ shelf life/storage studies
 - ✓ establishing analytical/instrument/sensory relationship
 - ✓ process development

Food quality control and sensory evaluation

Why is sensory evaluation used?

- ✓ Reduces uncertainty and risks in decision making
- ✓ Ensures a cost-efficient delivery of new products with high consumer acceptability
- ✓ Human observers as good measuring instruments
 - People can sometimes detect odorants at levels lower than what can be detected by an instrument
 - Instruments can not measure liking (although they can be used to determine what characteristics of a food correlate with liking - e.g. with many beverages – up to a point - as sweetness increases so does liking)

Food quality control and sensory evaluation

- ✓ There are many types of sensory analysis methods, the most popular being;
 - ✓ Difference tests
 - ✓ Descriptive analysis
 - ✓ Consumer acceptance testing

Food quality control and sensory evaluation

Difference (or discrimination) Tests

- ✓ Are two products different from one another?
 - Quick and simple, Limited results – only yes they are different or no they are not
 - Estimate the *magnitude* of sensory differences between samples
- ✓ The most commonly used difference tests;
 - ✓ Triangle test, where the panel member attempts to detect which one of three samples is different from the other two,
 - ✓ Duo-trio tests, where the panel member selects which one of two samples is different from the identified standard (reference)
- ✓ Other common difference tests are paired-comparison test, two-out-of-five test, A, Not-A test

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Descriptive Tests

- ✓ How do products differ in all sensory attributes?
- ✓ The detection and the description of both the qualitative and quantitative sensory aspects of a product by trained panels.
- ✓ Small panels of 5 to 10 subjects
- ✓ The larger panels are used for products of mass production

Food quality control and sensory evaluation

- ✓ A flavor lexicon is a set of word descriptors that describe a product's flavor
 - ✓ A lexicon provides a source of possible terms with references and definitions for clarification
- ✓ Descriptive tests are used to obtain detailed description of
 - aroma, flavor, and oral texture of foods and beverages
 - skinfeel of personal care products
 - handfeel of fabrics and paper products
 - appearance and sound of any product



Commonly Used Descriptive Test Methods

- ✓ Flavor profile analysis
- ✓ Texture profile analysis
- ✓ Quantitative Descriptive Analysis (QDA®)
- ✓ The Spectrum™ Descriptive Analysis
- ✓ Time-Intensity Descriptive Analysis
- ✓ Free-choice Profiling

CONSUMER TESTS

- Product maintenance
- Product improvement/optimization
- Development of new products
- Assessment of market potential
- Product category review
- Support for advertising claims

Food quality control and sensory evaluation

Consumer acceptance (Affective) testing

✓ can be used in three different ways:

➤ Preference tests

➤ Acceptance tests

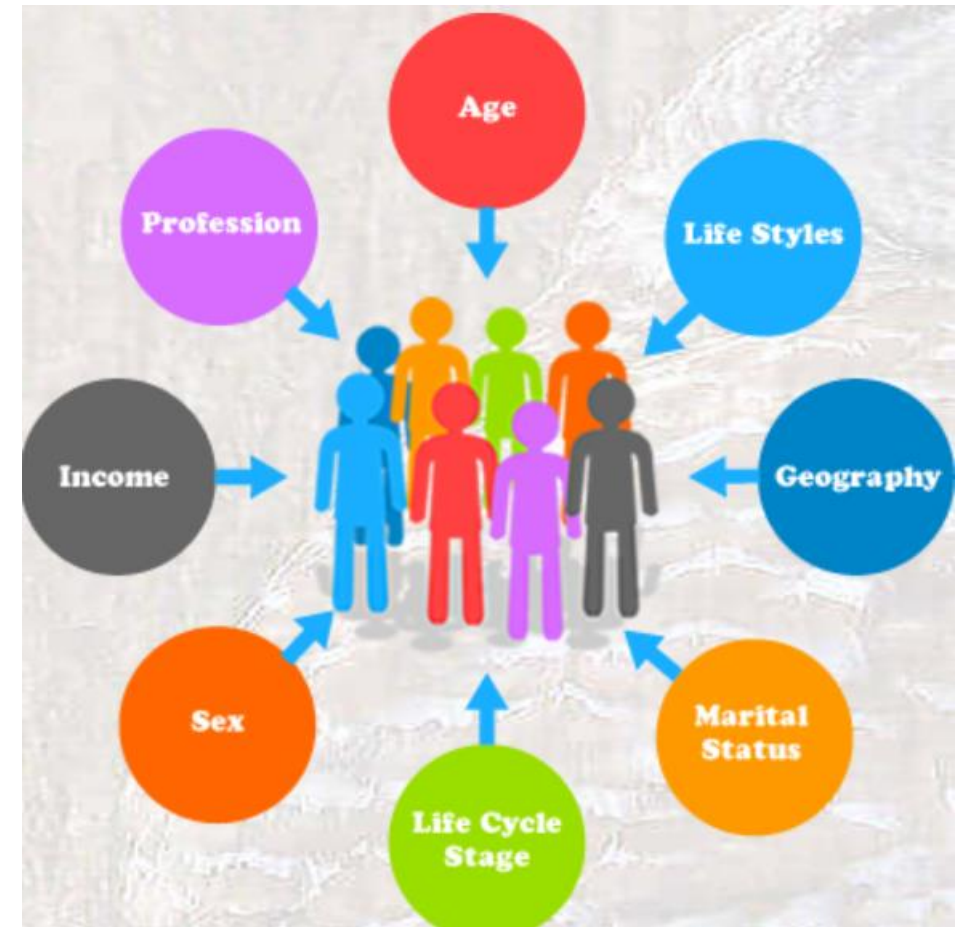
➤ Ranking tests

The Subjects/Consumers in Affective Tests

Sampling and Demographics

✓ Among the demographics to be considered in selecting sample subjects are:

- User group
- Age
- Gender
- Income
- Geographic location
- Nationality, region, race, religion, education, employment



Affective Tests

✓ **Central Location Tests:** Typically, 50 to 300 responses are collected per location.

✓ **Home Use Tests:** The product is tested under its normal conditions of use

✓

Affective Methods: Qualitative

- ✓ Examples: interviews and focus groups
- ✓ A highly trained interviewer/moderator is required.

Affective Methods: Quantitative

- To determine *overall preference or liking* for a product or
- To determine *preference or liking for broad aspects* of product sensory properties
- To measure *consumer responses to specific sensory attributes* of a product.

1. Preference Tests

2. Acceptance Tests