

Chapter 12

Sensory Evaluation in Food Manufacturing: Practical Guidelines

Bogdan Florin Caliman
Unilever South Central Europe, Romania

Corina Ene
Petroleum-Gas University of Ploiesti, Romania

ABSTRACT

From the earliest moments in time, humans relied on their senses in order to survive. The mechanism of sensory evaluation was not only used to assess the environment where they were living but also the food they were consuming. Manufacturing good food is a direct result of having the right ingredients, recipe and process in place. In this chapter we aim to share some practical guidelines on how to manage when dealing with a bigger kitchen, as in food manufacturing there is always the need of having a systematized sensory evaluation. Given the high complexity of this topic, authors will tackle the subject by generally approaching sensory analysis and its role in organoleptic quality evaluation and will further go through the practical steps of setting the sensory panel room, selection and training of panel participants, setting up a testing panel and interpreting the results.

INTRODUCTION

Organoleptic characteristics of foodstuffs are based on the sensory connection between food and the human body, consisting of a complex system of information linkages, which is achieved through the consumer senses, depending on individual personality. These connections generate consumer's motivation and attitude towards food, i.e. eating behavior.

Food sensory quality establishes the first impact between consumers and foodstuffs, during which taste, odor, flavor, color, consistency etc. are assessed as decisive factors in perceiving nourishment quality.

Currently, despite all nutrition education efforts, consumers prioritizes food sensory quality during their food choice, therefore foods generating pleasurable sensations are selected for consumption because their quality produces appetite by simple recollection.

DOI: 10.4018/978-1-5225-0341-5.ch012

The increasing need for safe and nutritious food, together with the hedonic orientation of today's consumer, has led to rising the scientific interest in the extensive description of food quality (Matei et al., 2008) and to the development of specific standards and monitoring regulations.

Given the physiological and commercial importance of sensory quality of food, a particular attention is paid to developing sensory analysis as a specific method of products assessment, integrating modern sensory examination in the context of current analytical methods for assessing food quality.

The scope of this chapter is to describe how to perform a sensory evaluation of raw materials, semi-finished and finished products in order to judge whether the samples meet the specification. The judgment can be used to decide whether the product can be used in the production process or released to market. It describes the method used for sensory evaluation and how to interpret the results of this evaluation. The evaluation includes the three stages in manufacturing (raw materials receipt, semi-finished and finished products) with the use of human senses (sight, smell, taste, touch and hearing).

SENSORY EVALUATION OF FOOD: BACKGROUND

Sensory evaluation can be defined as *a scientific discipline used to evoke, measure, analyze and interpret those responses to products that are perceived by the senses* (Stone&Sidel, 1993).

As scientific discipline, food sensory evaluation analyses and measures human responses (sight, smell, taste, touch and hearing) aiming at evaluating foods and drinks in terms of appearance, touch, odor, texture, temperature and taste. Sensory analysis could also be defined by its main directions, as follows (Oliveira, 2011):

1. Identification of food product (s) properties;
2. Scientific measurement of food product(s) properties;
3. Analysis and interpretation of the identified and measured food product properties - as perceived through the five senses (sight, smell, taste, touch, hearing).

Sensory science rely on the fact that human beings are the best measuring instruments which can accurately describe and identify the sensory properties of products and materials related to the basic senses. Perceiving then quantifying these senses allows for relating them to product acceptance/preference - the ultimate goal in product development (Gacula, 1997).

Sensory science comprises a set of techniques for accurate measuring of human response to foods and ingredients and to minimize the potential biasing effects of other information influences on consumer perception.

The utility of food sensory evaluation derives from the array of its applications in:

- Assessing and improving the quality of food (cost reduction, ingredient/process change, ingredients/purchase specifications);
- Comparing similarities between raw materials or foodstuffs;
- Design and implementation of new products (cost-efficient delivery of new products with high consumer acceptability);
- Analyzing the modified/enhanced properties of foodstuffs;
- Collecting information on consumers' preference regarding manufactured food products;

19 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/sensory-evaluation-in-food-manufacturing/152450

Related Content

Design of an Agribusiness Innovative and Autonomous Robot System for Chemical Weed Control for Staple Food Crops Production in Sub-Saharan Africa

Jibril Abdullahi Bala, Olayemi Mikail Olaniyi, Taliha Abiodun Folorunso and Emmanuel Daniya (2021). *Opportunities and Strategic Use of Agribusiness Information Systems* (pp. 234-262).

www.irma-international.org/chapter/design-of-an-agribusiness-innovative-and-autonomous-robot-system-for-chemical-weed-control-for-staple-food-crops-production-in-sub-saharan-africa/266584

The Study of Luminescence Spectra of Seeds of Crop Species for Diagnostic Quality

Alexey Bashilov and Mikhail Belyakov (2020). *Handbook of Research on Energy-Saving Technologies for Environmentally-Friendly Agricultural Development* (pp. 454-479).

www.irma-international.org/chapter/the-study-of-luminescence-spectra-of-seeds-of-crop-species-for-diagnostic-quality/232104

Soil Moisture as One of the Limiting Factors in the Production of Medicinal Plants

Vladimir Filipovi and Nataša Kljaji (2015). *Agricultural Management Strategies in a Changing Economy* (pp. 119-137).

www.irma-international.org/chapter/soil-moisture-as-one-of-the-limiting-factors-in-the-production-of-medicinal-plants/125988

Trends and Transformations in European Agricultural Economy, Rural Communities and Food Sustainability in Context of New Common Agricultural Policy (CAP) Reforms

Andrei Jean-Vasile and Alexandra Alecu (2020). *Environmental and Agricultural Informatics: Concepts, Methodologies, Tools, and Applications* (pp. 967-990).

www.irma-international.org/chapter/trends-and-transformations-in-european-agricultural-economy-rural-communities-and-food-sustainability-in-context-of-new-common-agricultural-policy-cap-reforms/232998

Directions for Future Research and Innovation and Conclusion

(2019). *Optimizing the Use of Farm Waste and Non-Farm Waste to Increase Productivity and Food Security: Emerging Research and Opportunities* (pp. 192-202).

www.irma-international.org/chapter/directions-for-future-research-and-innovation-and-conclusion/221254