Sensory evaluation of Innovative dairy products

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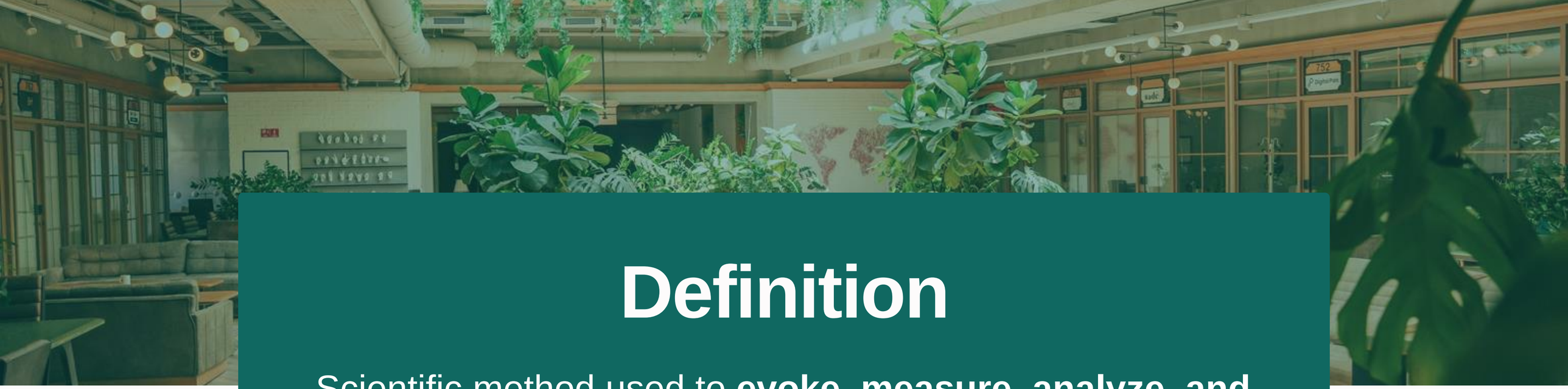
Sensory evaluation definition



Definition

Scientific method used to **evoke, measure, analyze, and interpret** responses to products perceived through the senses of sight, smell, touch, taste, and hearing

To evoke: Preparation and serving of samples under controlled conditions

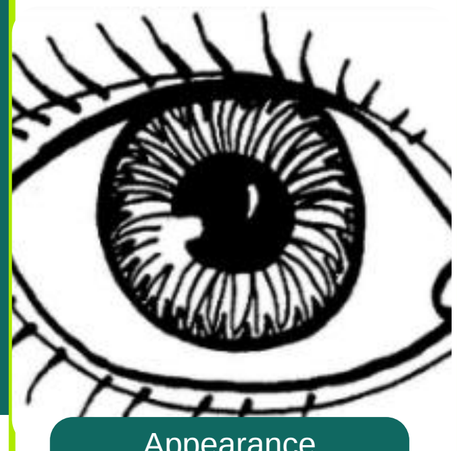
To measure: Numerical data are collected

To analyze mood, motivation, sensitivity, and memory and give variation in responses , we use statistics

To interpret: in the context of hypotheses, background knowledge and implications for decisions and actions to be taken

Isolate food characteristics

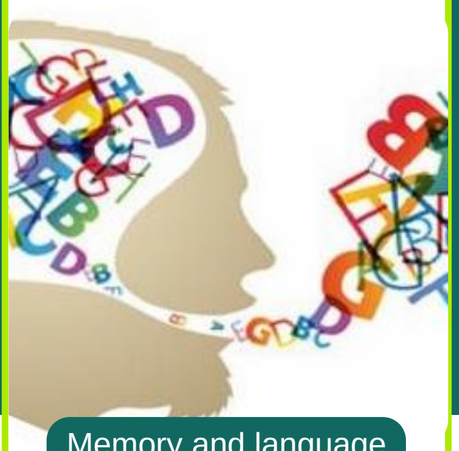
Texture



Appearance

Flavor and texture

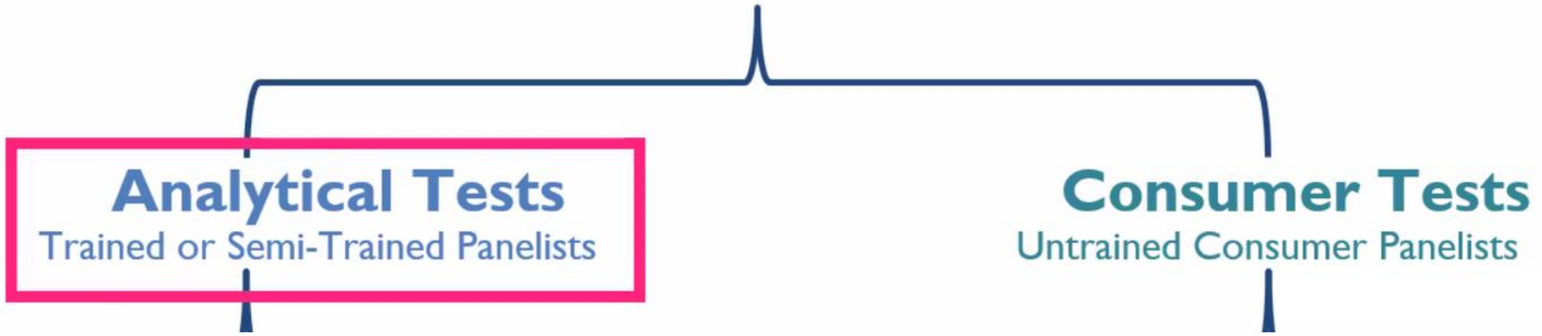
Smell



Memory and language

Sensory evaluation methods

Types of Sensory Analysis



Lawless and Heymann 2010; Dehlholm and others 2012

Difference testing

Triangular test

Discrimination Testing Examples

Triangle Test: Choose the sample that is most different

A B A′

387 456 892

OR OR

Duo-trio Test: Choose the sample that matches the reference

A B A′

(inspect) Ref 456 892 (test)

OR

Paired Comparison: Which sample is sweeter?

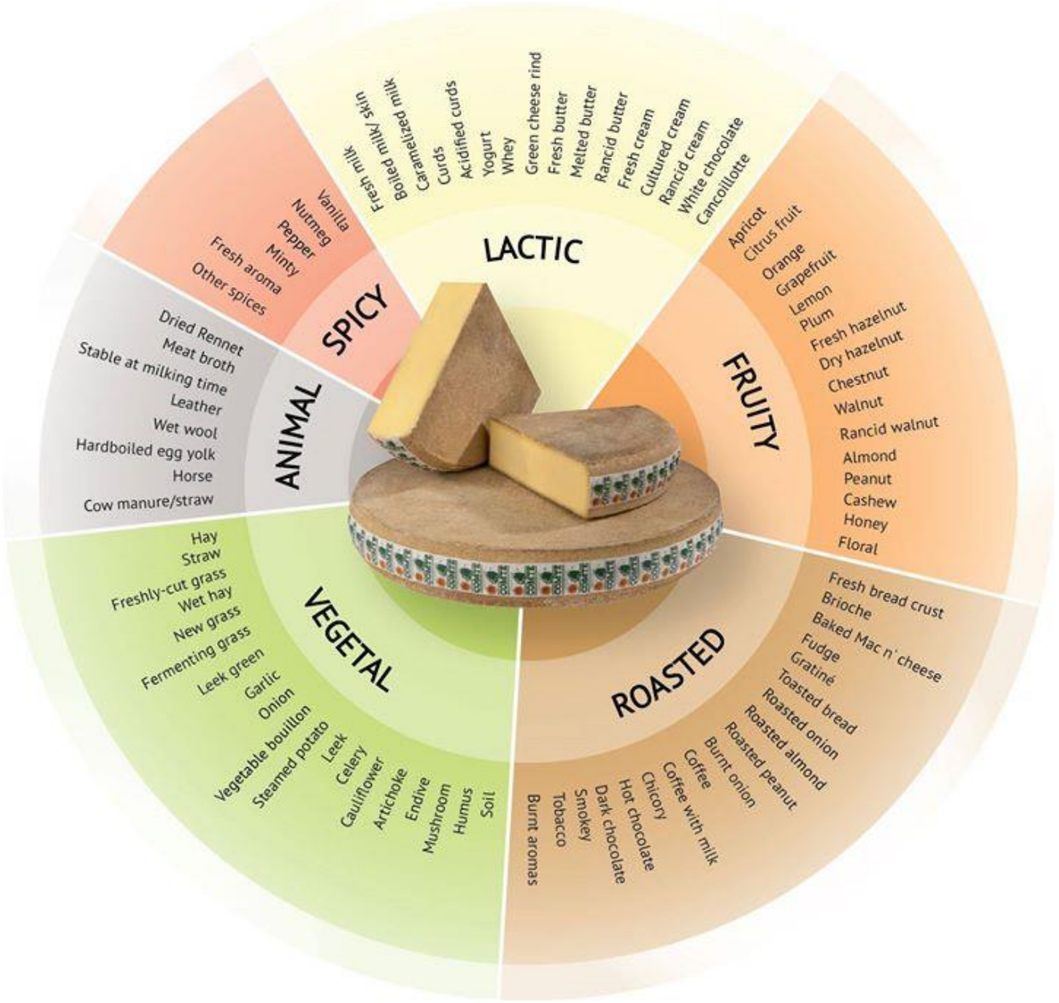
B A

456 892

OR

Descriptive analysis

Requires training

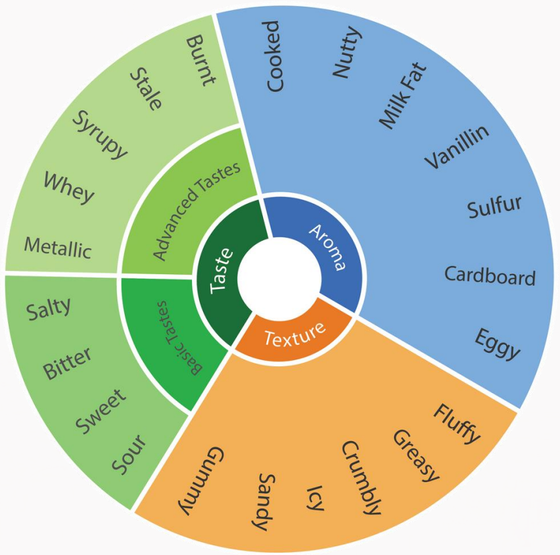


Check all that apply (CATA)

Rate all that apply (RATA)

Other wheels (Drake, 2018)

DRIED DAIRY INGREDIENTS



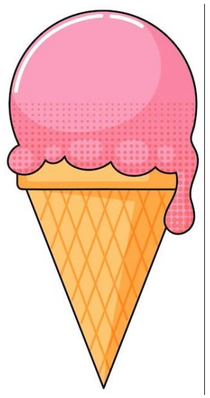
ICE CREAM

CHOCOLATE MILK

CHEESE

Affective methods

Hedonic scale



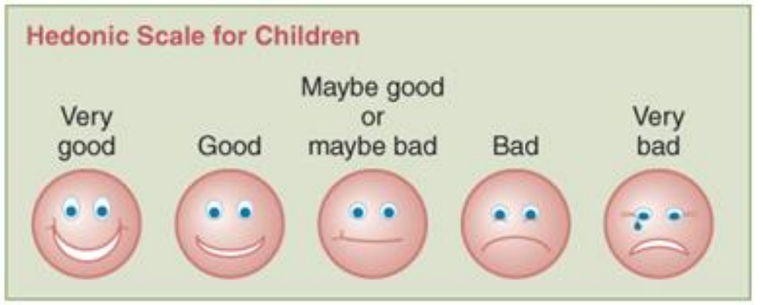
The 7-Point Hedonic Scale

Scale	Description
7	Excellent (E)
6	Very Good (VG)
5	Good (G)
4	Average (A)
3	Fair (F)
2	Poor (P)
1	Very Poor (VP)

The 9-Point Hedonic Scale

Scale	Description
9	Liked extremely (LE)
8	Liked very much (LVM)
7	Liked moderately (LM)
6	Liked slightly (LS)
5	Neither liked or disliked (NLD)
4	Disliked slightly (DS)
3	Disliked moderately (DM)
2	Disliked very much (DVM)
1	Disliked extremely (DE)

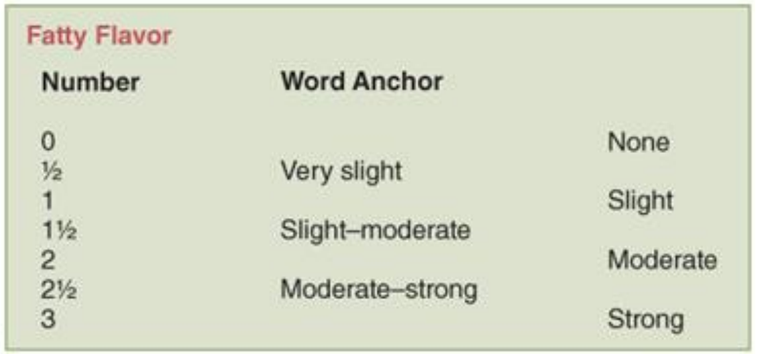
(a)



(b)

(c)

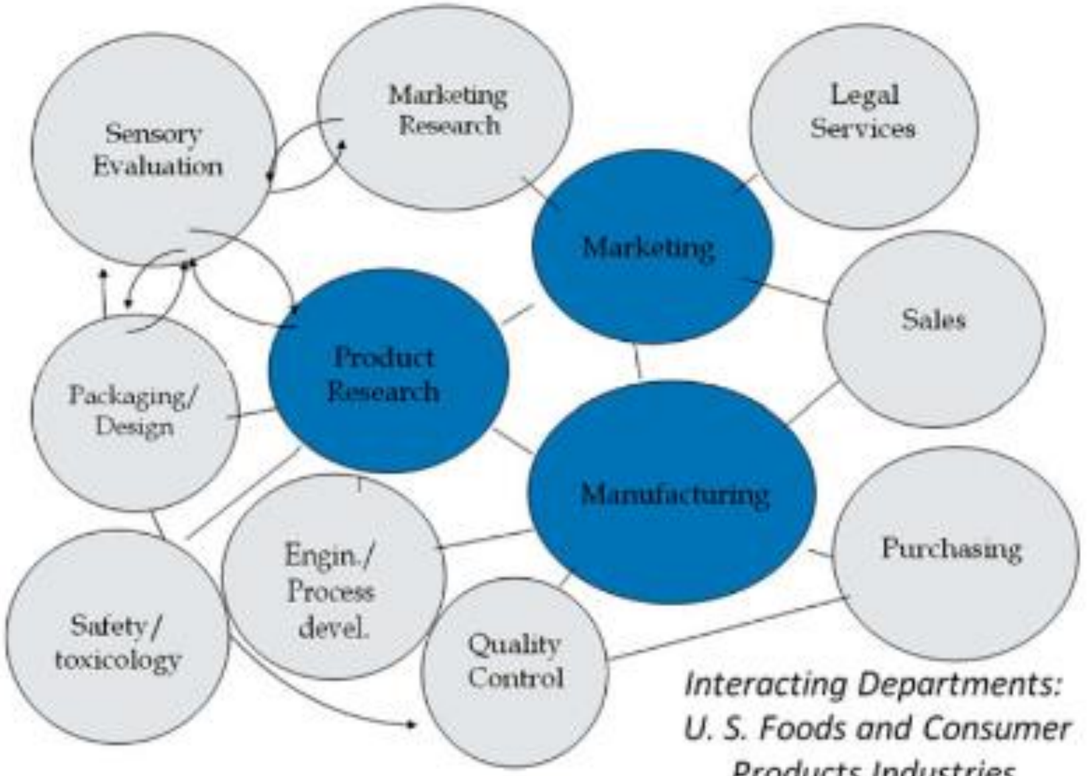
(d)



Analytic vs Hedonic

The test method should be matched to the objectives of the test

Fig. 1.3 A flowchart showing methods determination. Based on the major objectives and research questions, different sensory test methods are selected. Similar decision processes are made in panelist selection, setting up response scales, in choosing experimental designs, statistical analysis, and other tasks in designing a sensory test (reprinted with permission from Lawless, 1993).



What is most important

The objective (question) is the key!

SENSORY EVALUATION WEBINAR SERIES

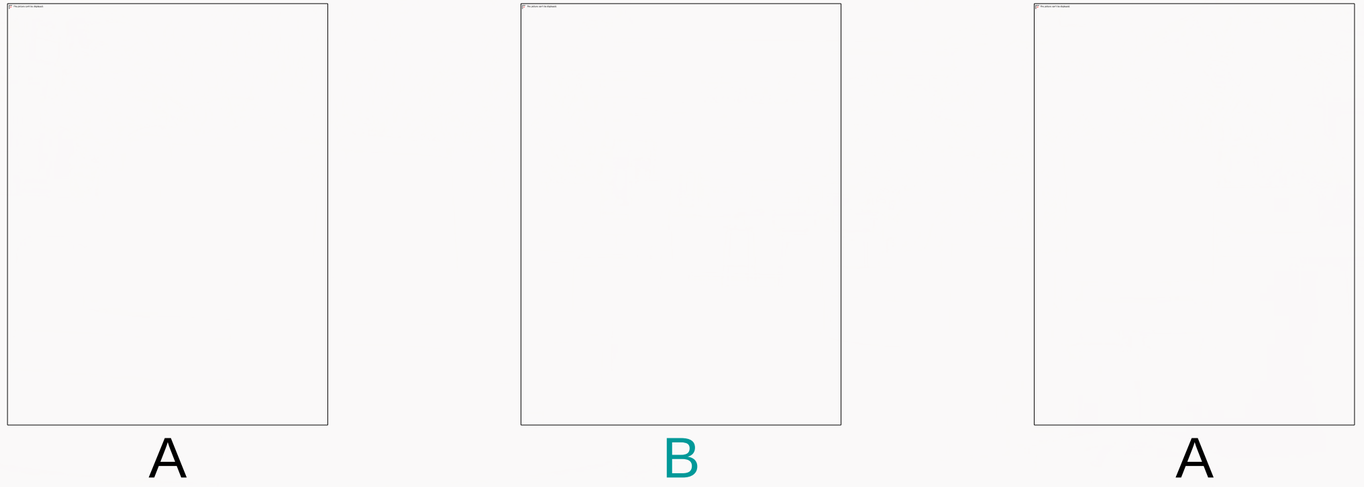
https://www.dairypcc.net/elearning-hub/#resources

Let’s practice!

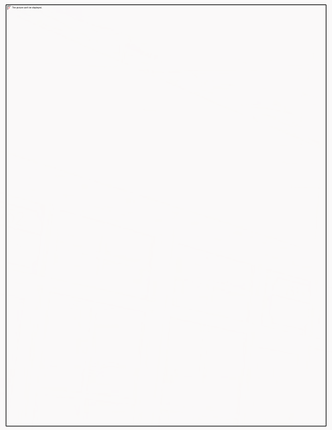
Triangular test

A dairy processor receives reports from the market that their lactose-free milk (sample A) is too sweet, so a test lactose-free milk (sample B) is made using a different process. The manufacturer wants to produce lactose-free milk that is not perceptibly sweeter.

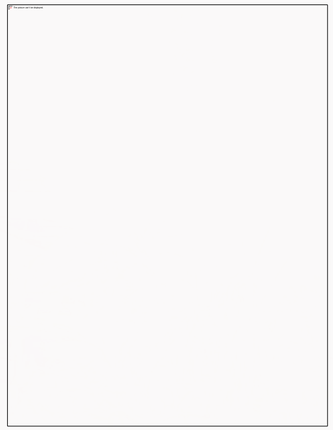
The test objective is to **compare sample A with sample B** to determine whether a small but significant increase in sweetness has been attained.



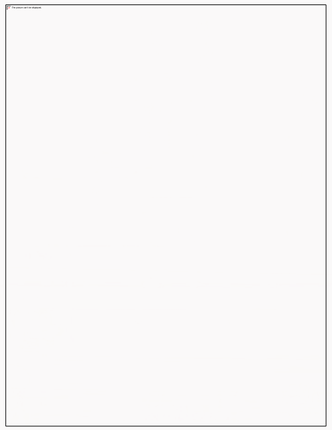
Triangular test



A



B



A

Different serving possibilities:

AAB

ABA

BAA

BBA

BAB

ABB

Randomized across participants, appearing an equal number of times

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The Metrics of Sweetness: How to design the sweetness you want.

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