



Food Product Development and Sensory Evaluation Course: Reformulation, Panels and Shelf Life



Food Product Development and Sensory Evaluation Course: Reformulation, Panels and Shelf Life

Introduction:

Food product development and sensory evaluation is a 1-week course for food and beverage R&D, product development, sensory and quality staff that ends with a Product Development and Sensory Test Plan for a case food company. New and reformulated products stall because concepts pass gates without consumer evidence, sugar and salt cuts change taste unnoticed, and pilot batches lose texture or flavour before shelf life ends. Nominees already run bench trials or tastings and learn through case studies on trial records, panel scores and consumer data. CoreConcept Training Center delivers this food product development and sensory evaluation course.

Course Objectives:

- Structure a food or beverage development project into Stage-Gate stages with concept screening scores and evidence required at each gate
- Set up a sensory panel with screened assessors, coded samples, balanced presentation order and a descriptive attribute lexicon
- Reformulate recipes to cut sugar, salt or fat using ingredient functionality while testing parity with discrimination methods
- Plan bench-to-pilot scale-up and accelerated shelf-life studies with sensory failure criteria and sampling points
- Analyse sensory and consumer data with binomial tables, ANOVA, penalty analysis and preference mapping to support gate decisions
- Assemble a Product Development and Sensory Test Plan that links formulation trials, panel tests and shelf-life checks

Target Audience:

- Product development staff responsible for recipes, bench trials and formulation records
 - Sensory analysts responsible for running taste panels, training assessors and reporting results
 - Consumer insight staff responsible for acceptance studies and interpreting consumer scores
 - Quality staff responsible for shelf-life testing, retained samples and product release checks
 - Pilot plant technologists responsible for scaling recipes from bench batches to trial runs
-

Course Outline:

Day 1: Food NPD Pipeline, Consumer Needs and Product Design Brief

- Stage-Gate Process Map From Ideation to Launch Readiness Gate
- Fuzzy Front End Idea Screening With Weighted Concept Scorecard
- Consumer Need Statements and Product Concept Board Drafting
- Product Design Brief With Target Sensory and Nutrient Profile
- Current Pipeline Audit Against Gate Criteria and Kill Rates

Day 2: Sensory Science Methods, Panel Set-Up and Assessor Performance

- Analytical Versus Affective Sensory Test Selection Decision Tree
- Sensory Booth Conditions, Sample Coding and Presentation Order Balancing
- Assessor Screening Using Basic Taste and Odour Recognition Sets
- Quantitative Descriptive Analysis Lexicon Built With Reference Standards
- ISO 11132 Panel Performance Checks for Agreement and Repeatability

Day 3: Recipe Formulation, Sugar and Salt Reduction and Difference Testing

- Ingredient Functionality Matrix for Sweeteners, Hydrocolloids and Emulsifiers
- Sugar Reduction Trials Using Bulking Agents and Sweetness Enhancers
- Salt and Fat Reduction With Mineral Salts and Fat Mimetics
- Triangle, Duo-Trio and Tetrad Tests for Reformulation Parity
- Binomial Significance Tables and Assessor Numbers for Difference Tests

Day 4: Pilot Scale-Up, Shelf-Life Studies and Consumer Acceptance Statistics

- Bench-to-Pilot Scale-Up Protocol With Critical Formulation Parameters
- Accelerated Shelf-Life Testing Design With Sensory Failure Criteria
- ISO 13302 Packaging-Related Flavour Change Assessment Procedure
- Hedonic Scale and Just-About-Right Consumer Questionnaire Design
- ANOVA, Penalty Analysis and Preference Mapping of Consumer Scores

Day 5: Case Study on the Product Development and Sensory Test Plan

- Case Company Brief With Reformulation Target and Gate Sequence
 - Case Formulation Trial Matrix and Pilot Batch Schedule
 - Case Sensory Test Sequence From Discrimination to Consumer Acceptance
 - Case Shelf-Life Protocol With Sampling Points and Release Criteria
 - Product Development and Sensory Test Plan Completion and Peer Review
-

Skills You Will Gain:

- Concept Screening and Gate Evidence
- Sensory Panel Management
- Descriptive Lexicon Development
- Reduced-Sugar and Reduced-Salt Formulation
- Discrimination Test Design
- Shelf-Life Study Planning
- Sensory Data Statistics
- Consumer Acceptance Interpretation

Why Attend This Course:

- Hand a Product Development and Sensory Test Plan for a case product to the R&D or technical manager for use on the next development project
- Decide whether a reformulated recipe can replace the current one, using difference tests and consumer scores rather than a single tasting
- Avoid gate approvals without consumer evidence, taste complaints after sugar or salt cuts and pilot batches that fail before their shelf-life date
- Share panel screening sheets, lexicon templates, trial matrices and statistics worksheets with development and quality colleagues

Conclusion:

Back at work, the participant gives the R&D or technical manager a Product Development and Sensory Test Plan for one product. Development staff use it to sequence formulation trials and pilot batches, the sensory team uses it to choose and staff difference, descriptive and consumer tests, and quality uses its shelf-life protocol to set sampling points and release criteria. After the first gate review under the plan, the team should check how far panel results, consumer scores and shelf-life findings changed the decision, and adjust the test sequence.

Frequently Asked Questions FAQ:

What should participants know before a food product development and sensory evaluation course?

Participants should already run bench trials, tasting sessions or product quality checks in a food or beverage company. Basic spreadsheet skills help with the statistics exercises. Bringing an anonymised recipe sheet, panel score sheet or shelf-life record helps the case studies reflect real products.

How does food product development and sensory evaluation differ from a food processing or product launch course?

It concentrates on creating and proving the recipe: concepts, formulation, reformulation, sensory panels, consumer acceptance and shelf life. Food processing courses run production lines and equipment, and product launch courses cover pricing, channels and campaigns, so both appear here only at overview.

Why does food product development and sensory evaluation use a triangle or tetrad test before consumer testing?

A difference test shows whether trained assessors can detect a change at all. If a reduced-sugar recipe is not detectably different, a costly consumer study may be unnecessary; if it is different, the team knows to measure liking and attribute shifts before approving it.

What do participants take back from the food product development and sensory evaluation course?

Participants take back a Product Development and Sensory Test Plan for a case product, with a concept scorecard, assessor screening sheet, descriptive lexicon template, formulation trial matrix, shelf-life protocol and statistics worksheets they can adapt to their own products.
