

Sustainable sensory descriptive analysis

Rinsing products and lightings in booths are part of the solution

Authors

Delbende Marion, Boyer Romain, Senecal Coraline, Mesurolle Joshua, Dreyfuss Lise, Kern Martin, Sanderson Tracey, Taylor Yvonne, Tagore Pushan, Manfredi Paolo, Silva Patricia, Alex Thomas, Laparra Eva.

SAM Sensory and Consumer Research

Background

Among the different strategies for reducing carbon footprint in sensory and consumer research, SAM is looking at the usage of bottled water and lighting in the sensory lab. SAM has conducted two projects with the objective of selecting more sustainable lights and water consumption usage while respecting sensory norms and monitoring any possible impact on product characterisation.

Lighting in test booths

Objective:

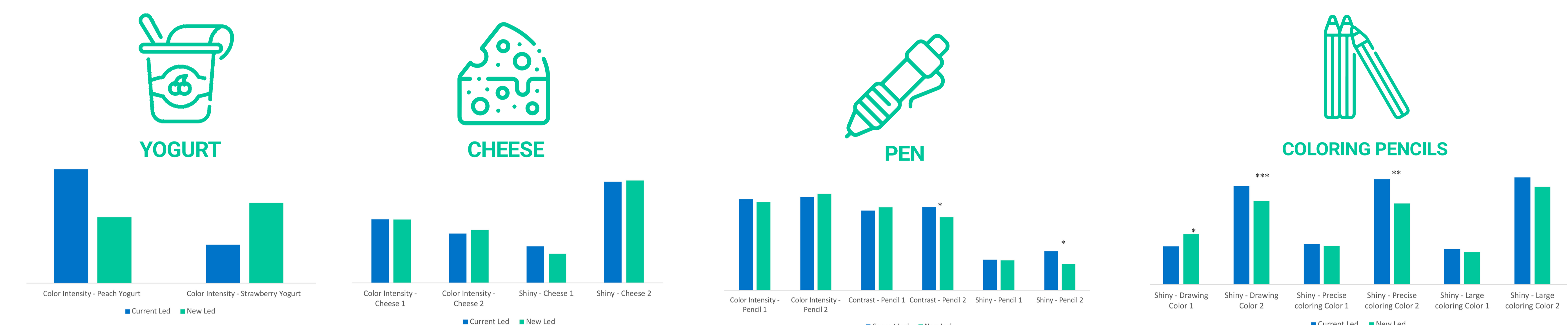
- Validate that there were no differences in conclusions on each descriptor notes and between two products.

Protocol: Tests on 5 categories of product, both food (yogurt, cheese, cereals) and non-food (pens & coloring pencils) with two comparisons:

- Current LED light vs new type LED light; 14 trained panelists, notation on specific appearance descriptors
- NEON light vs LED light; 12 trained panelists, comparative profile evaluation
- Randomization of lighting between participants and of products for each kind of lighting.
- Pair-comparisons via T-Student test for paired variables.

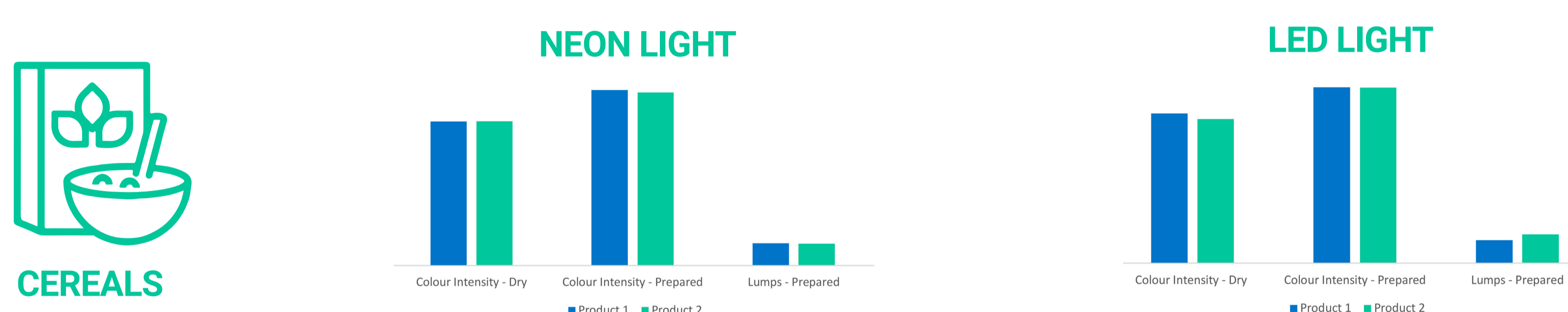
Results: Initial LED vs new LED on product characterization

- No differences on yogurt and cheese products
- Differences on pens and coloring pencils



Results: NEON vs LED on product comparison

- No differences on cereals



* < p-value 0.05; ** < p-value 0.01; *** < p-value 0.001

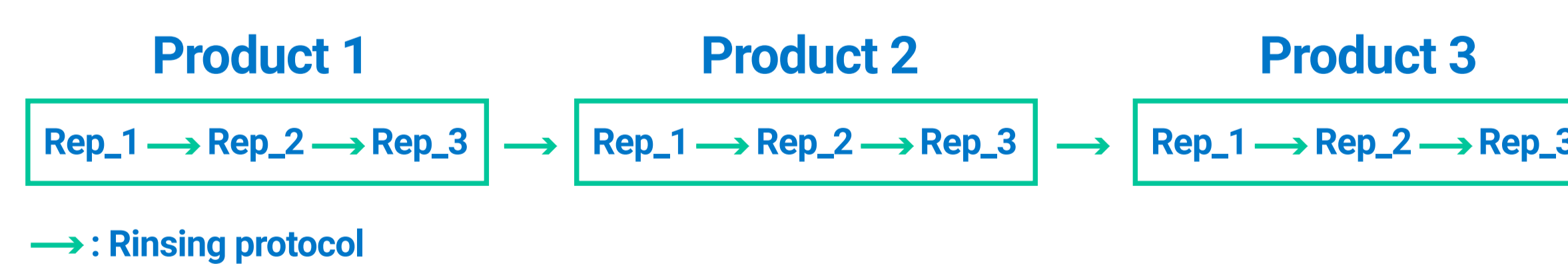
Water in mouth rinse protocol

Objective:

- Find a more sustainable solution than bottled water as rinsing agent that offers the same rinsing efficiency and has no impact on conclusions with sensory expert panel.

Protocol: Measurement of efficiency of different waters: bottled water, filtered tap water and tap water on a variety of food products and taste descriptors (aromas & flavors) with 3 steps:

- Triangular test: bottled water and filtered tap water
- Triangular test: tap water and filtered tap water
- Sensory characterization of products on scale with 3 replications



Results:

- Triangular tests: no differences between bottled water and filtered tap water; and similarity between tap water and filtered tap water ($\alpha = 5\%$).
- Sensory characterization: no significant difference in rating between bottled and tap water → Same efficiency as rinsing product (Anova p_values > 0.05)

Conclusion:

- Current LED lighting in booths is the best choice for a more sustainable alternative without having an impact on sensory trained panel conclusions.
- Bottled and tap water as rinsing agent have the same efficiency. If the change to tap water is considered, a protocol to monitor the stability of tap water should be put in place.
- Next step: test the efficiency of the other rinsing agents in combination with water (carrot, cucumber, unsalted crackers, etc.) to find the highest quality result with the best sustainable waste management.