

JRC TECHNICAL REPORT

Results of an EU wide comparison of quality related characteristics of branded food products. Part 2 – Sensory testing



2021



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Executive summary

In 2017, comparative tests carried out in several Member States, showed that certain food products sold under the same brand and with the same or similar packaging in different Member States, in fact differed in composition. Consumers however, who mostly rely on front of pack information were not aware of such differences and could be misled. The Commission issued a comprehensive guidance¹ as to how such marketing practices can be addressed in accordance with the Unfair Commercial Practices Directive 2005/29/EU and EU food law instruments. At the same time, the Commission tasked its Joint Research Centre to gather authoritative and comparable evidence on the issue soon referred to as “dual quality”.

As a first step, the Joint Research Centre, together with representatives from the Member States’ competent authorities, consumer organisations and the industry, developed a [common methodology](#) to compare the composition of products that were marketed in a similar manner by manufacturer and retailer brands across the EU.

An EU wide comparison of samples of products sold under the same brand and with the same or similar packaging in various markets across the Union was initiated in 2018. In a first step, [label comparisons, using this methodology and covering 128 food products sold across 19 Member States, was carried out](#). The examination of labels revealed a difference in composition for almost one third of the products tested, but a visual comparison of their front of pack revealed that the presentation was either the same or similar. However, these results also showed that the composition differences found did not follow a geographical pattern.

In parallel, the Commission proposed to update the Unfair Commercial Practices Directive by adding, amongst others, a specific provision to clarify that misleading marketing of a product as being identical to a product sold in other Member States while that product has significantly different composition or characteristics can constitute an unfair commercial practice that is prohibited under EU law. The respective amendment to the Unfair Commercial Practices Directive was adopted as part of Directive (EU) 2019/2161 on Better enforcement and modernisation of EU consumer protection rules. It has to be transposed into national law by 28 November 2021 and Member States must apply it from 28 May 2022.

The present study is the second part of the testing effort produced by the Joint Research Centre. It analyses the sensory properties of a subset of the same products that formed part of the 2018/19 label comparison samples to find out whether different recipes used for preparing a product lead to noticeable sensory differences.

For this purpose, the competent authorities of the EU Member States who participated in the 2018/19 label comparison, were invited to prioritise products that were offered with differences in composition so that they could be included for sensory testing. As a result, 20 branded products, each comprising samples collected in 5-10 EU Member States, were included in the assessment performed by a panel of trained experts. The chosen sensory testing technique is called Structured Napping and was followed by Free Choice Profiling, which is a holistic assessment of sensory properties, whereby the tested samples are grouped according to their degree of similarity.

¹ Commission Notice on the application of EU food and consumer protection law to issues of Dual Quality of products — The specific case of food’ (2017/C 327/01), available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52017XC0929%2801%29>.

For 10 out of the 20 food products evaluated, differences in the sensory properties among the national versions were noticeable. They mostly reflected the related compositional differences. No noticeable differences in the sensory properties were found for the remaining 10 products, though their composition differed to a certain extent. As was the case in the 2018/19 study, the observed differences did not show a geographical trend.

Furthermore, the sensory testing revealed that larger differences in composition (i.e. different quantities and kinds of ingredients) led more frequently to noticeable, i.e. significant, differences in the sensory characteristics of different national versions of the same product. Smaller composition variations were mostly not noticeable.

It should be noted that the sensory perception of a food product is only one of the elements that may affect consumers' choice of products. For example, certain consumers may want to avoid certain types of ingredients for various reasons other than those linked to their health (e.g. allergens). In particular, consumers increasingly attach importance to the environmental impact of certain ingredients, their geographical origin, mode of manufacturing, chemical compositions, etc.

Background and context

Consumer protection authorities and consumer associations of several EU Member States reported during 2016–2018 differences in the composition and/or sensory properties of certain food products offered on their markets in comparison to the same products offered in other Member States. President Juncker announced in his 2017 State of the Union address that the European Commission will take initiatives to tackle this issue, referred to as ‘dual quality’ of products in the EU market. Following this, the Commission issued guidance on the application of EU food and consumer protection law to the specific case of dual quality of food¹. Other initiatives include the development of a harmonised methodology for assessing quality related characteristics of food². The EU harmonised testing methodology builds on general principles to ensure transparency, comparability, inclusiveness, and fairness vis-à-vis all food chain stakeholders, including consumers. Furthermore, it contains a number of key recommendations for the selection of products, sampling, testing (including sensorial aspects) and data interpretation regarding the comparative assessment of branded food products offered on several markets in the EU. The main features of the EU harmonised testing methodology are summarised in Figure 1.

Figure 1: The EU harmonised methodology for assessing quality related characteristics of food.

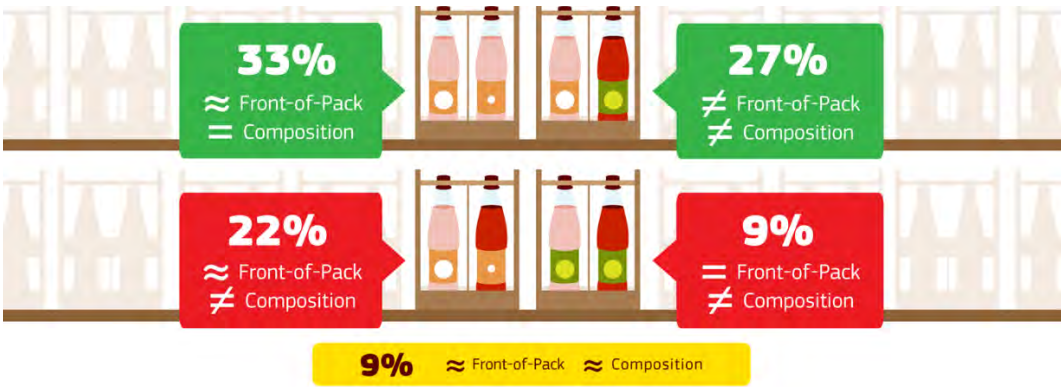


² EU harmonised testing methodology: Framework for selecting and testing of food products to assess quality related characteristics. https://knowledge4policy.ec.europa.eu/food-fraud-quality/eu-harmonised-methodology-testing-food-products_en#euharmonisedtestingmethodology

In 2018/19 the EU methodology was used by the JRC for a comparative assessment of food products in an EU wide study³. Nineteen EU Member States submitted information provided on the product labels and the front-of-pack appearance of 113 branded and 15 private label products. In total, information for 1380 products formed the basis of the data comparison. The product selection ranged from alcoholic and non-alcoholic beverages, to dairy and meat products, and all sorts of confectionery, salty snacks and baby food. Products were grouped into nine categories using as criteria whether the product composition and the front-of-pack were 'identical', similar' or 'different'. The appearance of the front-of-pack was visually examined by a panel of JRC assessors for similarity grading to reduce the effect of individual perceptions of differences in the graphical design of the front-of-pack.

The composition of 33 % of the evaluated products was identical but not all of them had an identical front-of-pack appearance; differences in composition but identical or similar front-of-pack were found for 9 % and 22 %, respectively, and 27 % had a different composition and also a different front-of-pack appearance. The rest of the products (9 %) had similar compositional characteristics (Figure 2). In this context it is important to stress that differences in composition cannot automatically be translated into different grades of quality. The issue at stake is marketing of different products as being identical and not their “quality” as such.

Figure 2: Outcome of the EU wide survey comparing front-of-pack appearance and composition of branded food products.



For those products where national variants of a branded product were differentiated, clusters were formed by grouping products together having the same composition. This clustering did not reveal any consistent pattern of product differentiation for particular geographical regions.

Next to analysing differences and similarities in the composition and appearance of food products, a behavioural economics study for reasons to differentiate food products market under the same

³ Results of an EU wide comparison of quality related characteristics of food products. <https://ec.europa.eu/jrc/en/publication/results-eu-wide-comparison-quality-related-characteristics-food-products>

brand in the Single Market was carried out⁴. In addition, the European Parliament and the Commission have funded several projects to increase knowledge and to enable Member States' competent authorities, NGOs and the industry to detect and eliminate misleading practices in this area.

In November 2019, the European Parliament and the Council adopted Directive (EU) 2019/2161 on better enforcement and modernisation of Union consumer protection rules⁵ that strengthened the existing legal framework by adding a specific provision on “dual quality” in the Unfair Commercial Practices Directive (UCPD)⁶. It specifies that Member States' competent authorities can prohibit misleading “dual quality” marketing practices on the basis of a case-by-case assessment. For this purpose, they need to take into account (1) the impact of the practice on consumers' transactional (purchase) decision – in other words, whether an average consumer would still have bought the product, had they been aware of the differences in composition or characteristics – as well as (2) legitimate and objective factors that may justify composition differences, such as different national rules on the composition of certain products.

Food quality is a complex concept integrating many different features such as the content of nutrients, taste, smell, mouth-feel, colour, but also aesthetical and ethical aspects and convenience-of-use. It is difficult to regulate, although marketing standards for certain agricultural products and requirements for specialties bearing a geographical indication exists⁷.

Research has shown that consumers regard the taste and other sensory characteristics of food, health, convenience and the production process (e.g. organic, animal welfare, etc.) as important determinants of food quality⁸. More than four in ten respondents participating in a 2020 Eurobarometer study say that taste (45%) is the most important factor in their food purchasing decisions, followed by food safety (42%) and cost (40%)⁹.

Therefore, it is appropriate to investigate whether differences in the composition of a food product offered in different Member States under the same branding has a clearly noticeable effect on the sensory characteristics of the product.

⁴ Economic analyses of differences in composition of seemingly identical branded food products in the Single Market: <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/economic-analyses-differences-composition-seemingly-identical-branded-food-products-single>

⁵ Directive (EU) 2019/2161 of the European Parliament and of the Council of 27 November 2019 amending Council Directive 93/13/EEC and Directives 98/6/EC, 2005/29/EC and 2011/83/EU of the European Parliament and of the Council as regards the better enforcement and modernisation of Union consumer protection rules. <https://eur-lex.europa.eu/eli/dir/2019/2161/oj>

⁶ Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market and amending Council Directive 84/450/EEC, Directives 97/7/EC, 98/27/EC and 2002/65/EC of the European Parliament and of the Council and Regulation (EC) No 2006/2004 of the European Parliament and of the Council ('Unfair Commercial Practices Directive'). <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32005L0029>

⁷ https://ec.europa.eu/info/food-farming-fisheries/food-safety-and-quality/certification/quality-labels/quality-schemes-explained_en

⁸ Brunso K., Ahle Fjord T., Grunert K.G. (2002) Consumers' food choice and quality perception. The Aarhus School of Business, Working paper no 77, ISSN 0907 2101

⁹ Special Eurobarometer 505 (2020) Making our food fit for the future – Citizens' expectations. <https://ec.europa.eu/commfrontoffice/publicopinion/index.cfm/survey/getsurveydetail/instruments/special/surveyky/224>

Objectives

The specific objectives of this research were:

- to select a subset of the products included in the 2018/19 EU wide survey for sensory testing;
- to select and apply an appropriate testing method to assess sensory similarities and dissimilarities of the selected products;
- to investigate whether variations in composition of a product offered under the same branding in several Member States lead to noticeable sensory differences.

Methodological approach

Selection and sampling of products for sensory testing

The competent authorities of the Member States participating in the 2018/19 survey were invited to prioritise products for sensory testing. They received a list of those products where differences in composition were observed in the 2018/19 survey and had to rank 20 products (1=highest priority, 2, 3, ..., 19, 20=lowest priority). Responses were received from 16 Member States. They were pooled and products were ranked, firstly, according to the frequency of being nominated by the Member States for sensory testing and, secondly, according to the average of priority points allocated. The ranked products are listed in Annex I.

According to information from the manufacturer the recipes of Alpro Soya Milk, HiPP Pumpkin, HiPP Apple Pear, Nescafé 3 in 1, and Becel/Flora Gold were meanwhile harmonised, which was confirmed by consulting product information provided by websites of on-line shops. Consequently, those products were not included in the final selection and replaced by the next highest ranking products of the priority list. The final product selection is depicted in Figure 3.

Figure 3: Products included in the sensory evaluation

Coca-Cola Original Taste	Kellogg's Special K Classic/Original
Danone Activia Nature	Kinder Pingui
Desperados	Lay's Potato Chips Salted/Nature
Dr Oetker/Cameo Pudding Powder Chocolate	Lipton Ice Tea Lemon
Fanta Orange	Milka Choco Cookies
Findus/Iglo Fish Fingers Alaskan Pollock	Milka Whole Hazelnuts
Freeway Orange	Nestlé NAN Optipro 2
Fuze Tea Peach Hibiscus	Nestlé Nesquik
Heinz Mayonnaise Seriously Good	Pepsi Cola
Jacobs Original/Classic 3 in 1	Philadelphia Cream Cheese Original

The national versions of a product were grouped using the quantitative ingredient declaration, the nutrition declaration and the ingredient list into clusters of products with identical (or similar) composition. As the selected sensory assessment technique works best with five to ten samples, the

number of versions per brand was adapted accordingly. Whenever possible more than one representative per cluster of identical (or similar) versions was selected. Products were sampled according to an agreed protocol by the competent authorities of BG, CZ, DE, DK, EE, ES, HR, HU, IT, LT, LV, MT, PL, SI and SK, and by JRC in BE and NL. They were shipped by over-night courier to JRC Geel for registration and photographic documentation, and then transported to a service provider for sensory testing¹⁰. Sampling was carried out in September 2020¹¹; sensory testing started on 12 October and lasted until end November 2020.

Sensory testing

The primary aim of the sensory assessment was to obtain sound and objective evidence whether food products offered under the same brand in several Member States differ in their characteristics. In case (a) difference(s) between the national versions of a given brand exist(s), the panel of assessors had to group the national versions according to their level of similarity into clusters and identify the nature of commonalities within a cluster and differences between the clusters.

Structured Napping in combination with Free Choice Profiling was selected as the sensory technique as it allows a holistic assessment of multiple samples, grouping them according to similarity and dissimilarity, and obtaining a sensory description of the groups of samples. All sensory characteristics of a product such as its smell, taste, appearance and texture were considered in the evaluation.

Briefly, samples were presented simultaneously to 10-12 trained panellist who had to arrange them on an A3 sheet in such a way that the more similar they were, the closer they should be positioned to each other on the sheet. Panellists were not aware of the compositional differences of the products. The sensory space was structured in two dimensions by sensory attributes agreed among the panellists in a training session preceding the evaluation session using the two most pertinent attributes describing the products. The x- and y-coordinates of the position of each sample in the sensory space was determined and used for statistical data evaluation. After positioning the samples, panellists were requested to describe up to three key characteristics for each sample or groups of samples using sensory descriptors of their own choice. Data were evaluated by mixed-model analysis of variance (product as fixed effect, panellist and [panellist x product] as random effects). If the resulting 95 % confidence ellipse around the mean value for a sample overlapped the ellipse of another sample, they did not differ significantly. The frequencies of attributes gathered by the Free Choice Profiling were aggregated by means of Multiple Factor Analysis (MFA). The technique creates a broad understanding why samples are separated and grouped in a specific way. Attributes located close to the position of a (group of) sample(s) in the sensory space are more strongly correlated to them than to samples farther away.

Selection and training of panellists was done in accordance with ISO 8586:2012¹², the sensory lab fulfilled the design requirements of ISO 8589:2007¹³, and sensory data were evaluated by SPSS and XLSTAT software.

¹⁰ Sensory testing was contracted to isi GmbH, Rosdorf/Göttingen, Germany

¹¹ Sampling and testing fell behind schedule due to restrictions to contain the spread of the SARS-CoV-2 virus

¹² ISO 8586:2012 Sensory analysis – General guidelines for the selection, training and monitoring of selected assessors and expert sensory assessors

¹³ ISO 8589:2007 Sensory analysis – General guidance for the design of test rooms

Results

Structured Napping in combination with Free Choice Profiling placed each assessed product in a sensorial map visualising similarities and dissimilarities among products. The data from the 10-12 panellists assessing the national versions of a given product were used to compute 95 % confidence ellipses around the mean values for each product. If the confidence ellipses overlap, no statistical difference exists between those products, which means that they belong to a group (or cluster) of products with similar sensory properties.

Figure 4: Panel (a) shows the Napping results of peach-hibiscus flavoured ice tea where the BE and NL versions contain 5 %, the DE 3 %, and the LV, PL, SI and SK versions 0.1 % peach juice. Panel (b) shows the Napping results for a carbonated soft drink where the DK, ES, LV and PL versions are sweetened with sugar (sucrose), and the HR, HU, SK versions with glucose-fructose syrup.

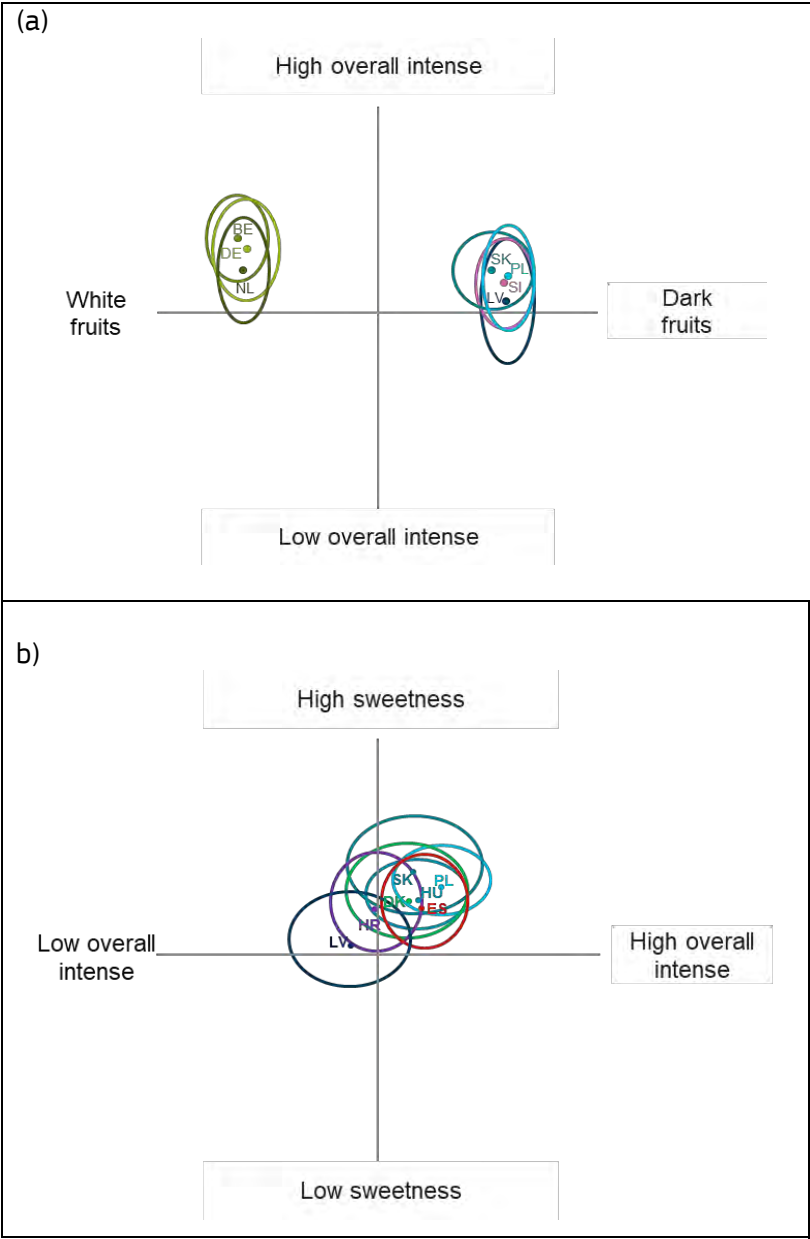


Figure 4 explains the outcome of the sensory analysis using (a) a product where a compositional difference (amount of peach juice) is reflected in the sensorial map by clearly separated clusters, and (b) where a compositional difference (nature of sweetener) did not create noticeable differences in sensory characteristics.

The nutrition declaration and the ingredient list of the 20 brands differed to a certain extent. Details how compositional differences of the investigated foods correlate with the outcome of the sensory testing are given in Annex II, and scorecards of the products, which provide information on product composition, front-of-pack appearance and further details of the sensory evaluation, are given in Annex III.

Sensory differences were observed for 10 of the 20 products (50 %) assessed. Larger differences in product composition (e.g. orange juice content of lemonade, peach juice content of ice tea, instant coffee content of hot coffee drink, fat content of mayonnaise, sugar content of breakfast cereal, salt content of cream cheese) were clearly recognised by the sensory panel, whereas smaller compositional variations (e.g. different fat content of potato crisps or cocoa content of an instant milk drink powder) led less frequently to significant sensory differences. Differences in the kind of ingredients used influenced the sensory characteristics of some products (e.g. different synthetic sweeteners in orange lemonade), while this was not the case for other products (e.g. different natural sweeteners in carbonated soft drink, edible oil source in mayonnaise, carbohydrate source in beer).

Other factors than differences in recipes can also influence the sensory characteristics of foods (e.g. crispiness). The properties of raw materials for manufacturing food inevitably vary to a certain degree and manufacturing processes – in particular if done in different plants using different equipment – cannot be controlled to such an extent that only uniform products are produced.

Conclusions

The sensory testing of 20 packaged food products sampled in several EU Member demonstrated that

- versions of a food product offered with the same branding but differing in composition (quantity of an ingredient, kind of ingredients) may have different sensory characteristics. For 10 of the 20 products (50 %) evaluated, the outcome of the sensory assessment revealed differences, which reflected the compositional variation of the samples;
- larger differences in composition were more likely to be recognised by the sensory assessors, whereas smaller variations were mostly not noticed;
- the observed differences in the sensory perception illustrate the impact a different composition of the product can have, which may affect the purchasing decisions of consumers. This does not mean, however, that compositional differences that do not lead to perceived sensory differences do not impact consumers' purchasing decisions, since sensory perception is only one aspect affecting consumers' choice of products;
- sensory differences were not associated to certain geographical regions;

- the selected sensory assessment technique proved to be an effective and efficient tool for distinguishing the sensory properties of different versions of a product and for describing its main characteristics;
- it is important to notice that the results of the study were obtained on a relatively low number of samples and should, therefore, not be generalised.

ANNEX I

Food products prioritised by the participating EU Member States for inclusion in the sensory testing campaign (final selection marked in grey). EU Member States prioritised products (1=highest priority, 2, 3, ..., 19, 20=lowest priority) and the responses were pooled and products were ranked according to (i) the frequency of being nominated by the Member States for sensory testing, and (ii) the average of priority points allocated.

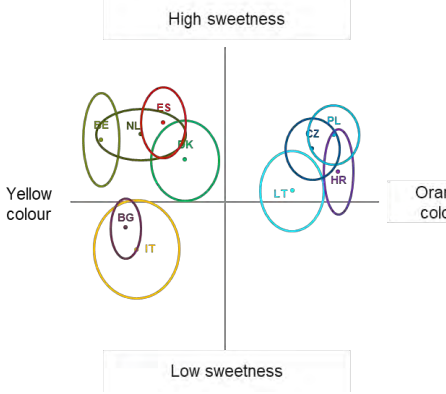
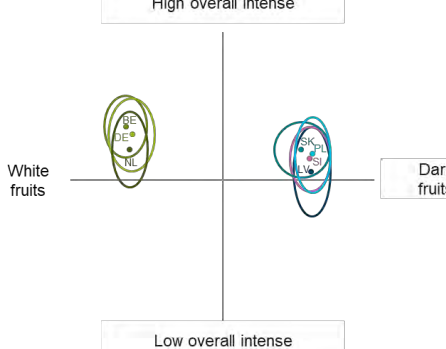
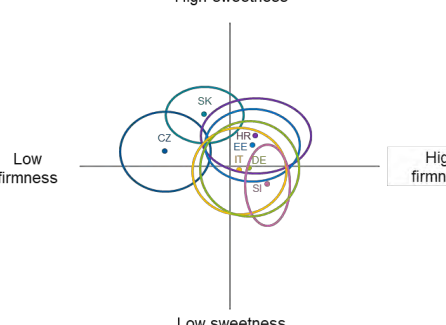
Rank	Brand	Frequency	Priority points
1	Fanta Orange	11	7.4
2	Alpro Soya Original (<i>differentiated versions no longer available</i>)	11	9.9
3	Fuze Tea Peach Hibiscus	10	7.4
4	Kinder Pingui	10	7.8
5	Freeway Orange	9	8.3
6	Coca-Cola Original Taste	9	10.9
7	Nestlé NAN Optipro 2	8	4.5
8	Milka Whole Hazelnuts	8	9.1
9	Dr Oetker/Cameo Pudding Powder Chocolate	8	11.9
10	Pepsi Cola	8	14.9
11	Hipp Pumpkin (<i>differentiated versions no longer available</i>)	7	5.1
12	Nescafé 3 in 1 (<i>differentiated versions no longer available</i>)	7	7.9
13	Lipton Ice Tea Lemon	7	9.6
14	Milka Choco Cookies	7	12.7
15	Hipp Apple and Pear Organic (<i>differentiated versions no longer available</i>)	6	7.2
16	Danone Activia Nature	6	8.0
17	Kellogg's Special K Classic/Original	6	8.3
18	Jacobs Original/Classic 3 in 1	6	11.0
19	Lay's Potato Chips Salted/Nature	6	11.7
20	Nestlé Nesquik	6	13.0
21	Becel/Flora Gold (<i>differentiated versions no longer available</i>)	6	13.2
22	Heinz Mayonnaise Seriously Good	6	15.0
23	Desperados	6	16.3
24	Findus/Iglo Fish Fingers Alaskan Pollock	5	7.8
25	Philadelphia Cream Cheese Original	5	8.6
26	Stella Artois	5	9.4
27	Nestea Lemon	5	11.8
28	Bahlsen Leibniz Minis Chocolate Biscuits	5	13.0
29	Bonduelle Corn	5	13.0
30	Teekanne Earl Grey	5	14.4
31	Haribo Goldbears	5	14.6
32	Tulip Pork Luncheon Meat	4	1.5
33	Philadelphia Cream Cheese Garlic & Herbs	4	8.0

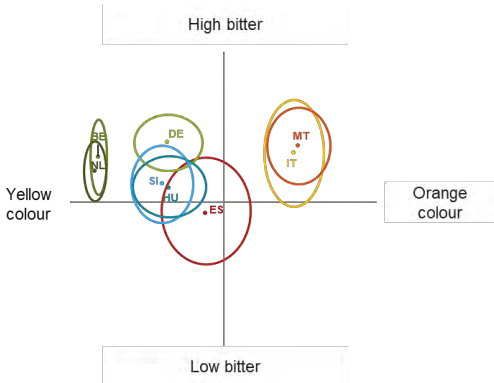
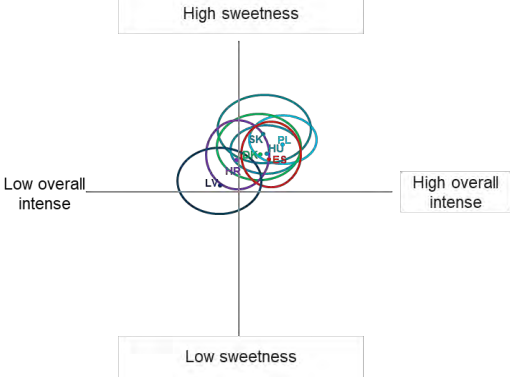
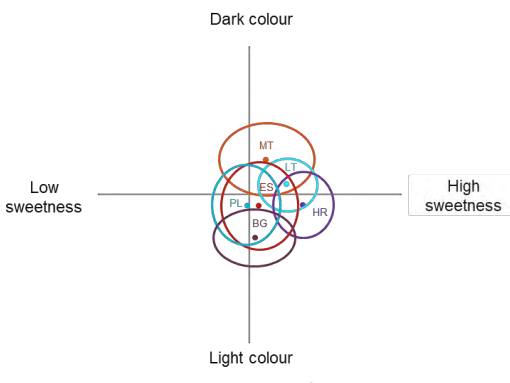
34	Lorenz Monster Munch Original	4	11.0
35	Almette Cheese Spread Herbs	4	12.5
36	Freshona Pineapple Slices	4	13.0
37	Capri-Sun Orange	3	3.7
38	Nutricia/Milupa Aptamil 1 Pronutra	3	4.7
39	Löwenbräu Original/Lager	3	7.0
40	Danone Activia Strawberry	3	8.3
41	Hipp Vegetables with Rice and Turkey Organic	3	8.7
42	Bahlsen Leibniz Zoo Original	3	11.0
43	Barilla Bolognese	3	12.3
44	Hellmann's Real	3	13.7
45	Lorenz Crunchips/Naturals Paprika	3	13.7
46	Corona Extra	3	15.0
47	Heineken Lager Beer	3	15.7
48	Nestlé Kitkat	3	17.7
49	Milbona Emmental Cheese Sliced	3	18.3
50	M&M's Chocolate	3	19.0
51	Knorr Beef Stock Cube	2	1.5
52	Nutricia/Milupa Aptamil 3 Pronutra+	2	1.5
53	Kellogg's Corn Flakes Original	2	3.5
54	Dr Oetker/Cameo Vitalis Crunchy muesli with chocolate	2	5.5
55	Lipton Ice Tea Peach	2	7.0
56	Maggi Beef Stock Cube	2	10.5
57	Lipton Green Tea Classic	2	11.0
58	Hellmann's Original	2	12.0
59	Knorr Fix Spaghetti Bolognese	2	13.5
60	Ocean Sea Fish Fingers	2	13.5
61	Bonduelle Peas and Carrots	2	14.0
62	Freshona Passata di Pomodoro	2	15.5
63	Cornetto Classic Vanilla	2	15.5
64	Dr Oetker/Cameo Pudding Powder Vanilla	2	17.5
65	Rio Mare Tonno all' Olio di Oliva	2	17.5
66	Pom-Bear Original	1	4.0
67	S-Budget Orange Juice 100%	1	5.0
68	Häagen-Dazs Vanilla	1	9.0
69	Mars	1	9.0
70	Ferrero Tic Tac Mint	1	11.0
71	Hipp Combiotic 3	1	11.0
72	Magnum Classic	1	13.0
73	Nestlé Nesquik Cereal	1	13.0
74	Knorr Beef Bouillon with Vermicelli	1	16.0
75	Ben & Jerry's Chocolate Fudge Brownie	1	17.0
76	Oreo Original	1	17.0
77	Snickers	1	17.0
78	Kellogg's Special K Red Fruits/Berries	1	18.0

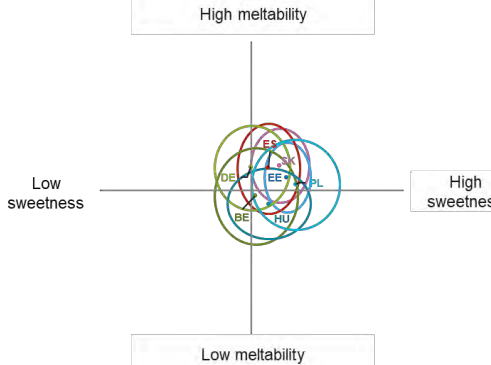
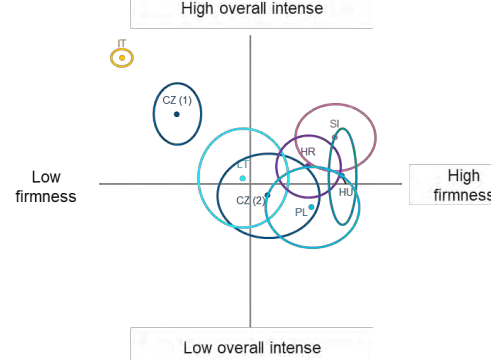
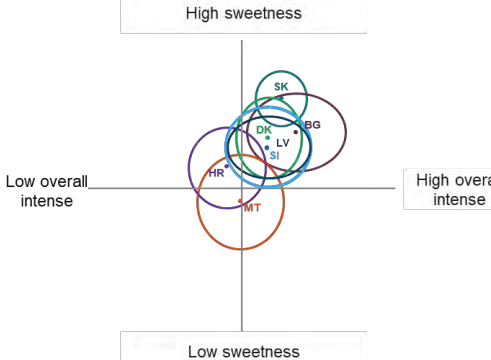
79	Maggi Chicken Stock Cube	1	20.0
80	Clever Pineapple Cubes	0	0.0
81	K-Classic Chips salted	0	0.0
82	Knorr Chicken Stock Cube	0	0.0
83	Knorr Vegetable Stock Cube	0	0.0
84	Lorenz Curly Peanut Classic	0	0.0
85	Maggi Vegetable Stock Cube	0	0.0

ANNEX II


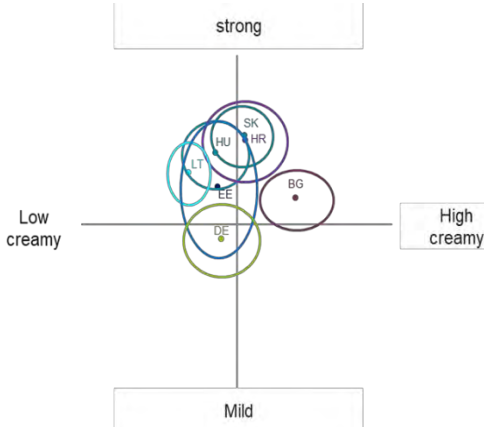
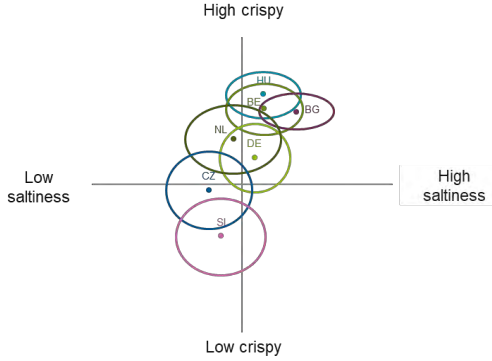
Relationship between compositional differences of branded products offered in several Member States and their sensory characteristics.


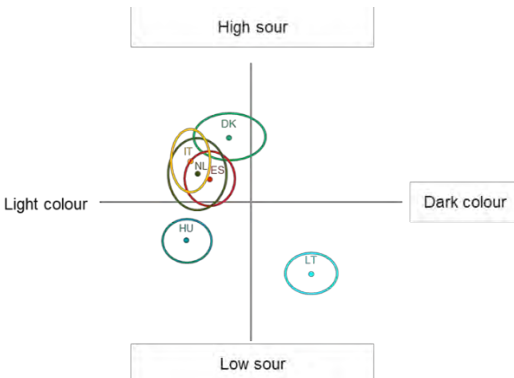
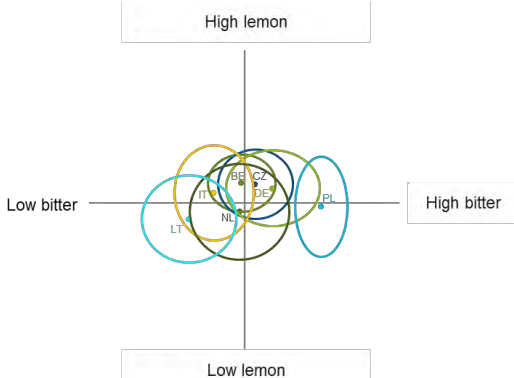
Brand	Main compositional difference	Structured Napping
Fanta Orange	<ol style="list-style-type: none"> 1) 4.5% orange juice, sugar, sweeteners (acesulfam-K, aspartame): DK 2) 5% orange juice, fructose-glucose syrup: BG 3) 5% orange juice, fructose-glucose syrup, sweeteners (cyclamate, saccharin): CZ, HU 4) 5% orange juice, sugar, sweeteners (cyclamate, saccharin): LT, PL 5) 6% orange juice, sugar: BE 6) 6% orange juice, sugar, sweeteners: (acesulfame-K, aspartame): NL 7) 8% orange juice, sugar, sweeteners (acesulfame-K, aspartame, neohesperidin-dihydrochalcone) : ES 8) 12% orange juice, sugar: IT 	 <p>Three clusters differentiated by orange juice content and by the type of sweeteners used.</p>
Fuze Tea Peach Hibiscus	<ol style="list-style-type: none"> 1) 0.1% peach juice, sugar, fructose,: LV, MT, PL, SI, SK 2) 3% peach juice, sugar: DE 3) 5% peach juice, sugar: BE, NL 	 <p>Two clusters differentiated by the content of peach juice.</p>
Kinder Pingui	<ol style="list-style-type: none"> 1) 21% milk: HR, IT 2) 24%: CZ, DE, EE, SI, SK 	

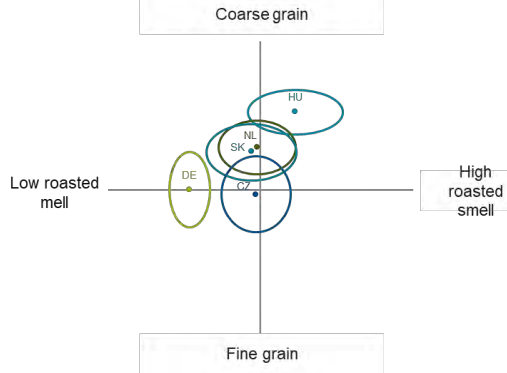
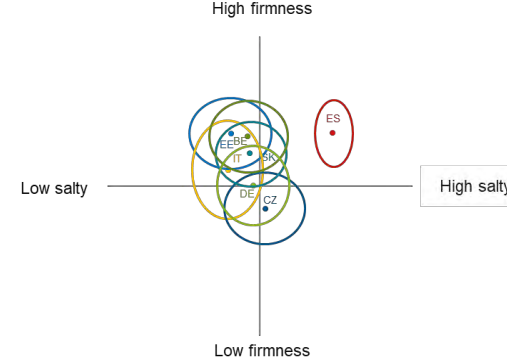
		No clear correlation between compositional differences and sensory characteristics
Freeway Orange	<ol style="list-style-type: none"> 3% orange juice: DE, HU, SI, 8% orange juice: BE, ES (contains sweeteners), NL 20% orange juice: IT, MT 	 <p>Three clusters differentiated by the content of orange juice and the use of sweeteners.</p>
Coca-Cola Original Taste	<ol style="list-style-type: none"> Sucrose: DK, ES, LV, PL Glucose-fructose syrup: HR, HU, SK 	 <p>No clear correlation between compositional differences and sensory characteristics.</p>
Nestlé NAN Optipro 2	<ol style="list-style-type: none"> 24.2% fat, 62.5% sugar, 8.5% protein: BG, ES, HR 23.6% fat, 61.9% sugar, 9.6% protein 	 <p>No statistically significant sensory differences.</p>

<p>Milka Whole Hazelnuts</p>	<p>1) 17% hazelnuts: BE, ES, PL 2) 20% hazelnuts: DE, EE, HU, SK</p>	 <p>No clear correlation between compositional differences and sensory characteristics.</p>
<p>Dr Oetker/Cameo Pudding Powder Chocolate</p>	<p>1) Chocolate powder: HU, PL 2) 9 % cocoa powder: CZ-1 3) 13% cocoa powder: HR, SI 4) 17% cocoa powder: CZ-2, LT</p>	 <p>Two clusters differentiated by cocoa content (chocolate containing versions did not differ significantly from those containing cocoa powder); IT product did not declare cocoa content.</p>
<p>Pepsi Cola</p>	<p>1) Contains gum Arabic: BG, HR, SI 2) Does not contain gum Arabic: DK, LV, MT, SK</p>	 <p>No clear correlation between compositional differences and sensory characteristics.</p>

<p>Lipton Ice Tea Lemon</p>	<p>1) Sugar: DE, MT 2) Sugar, inverted sugar syrup: BE 3) Sugar, fructose: BG, ES, LT, SK</p>	<p>No clear correlation between compositional differences (type of sugar) and sensory characteristics. The DE variant contained less sugar compared to all other products.</p>
<p>Milka Choco Cookies</p>	<p>1) 29% milk chocolate: LV, PL 2) 31% milk chocolate: DE 3) 35% milk chocolate: HR, SI 4) 36% milk chocolate: BE (XL Cookies)</p>	<p>Two clusters differentiated by the chocolate content, but BE variant branded XL Cookies, all others Choco Cookies.</p>
<p>Danone Activia Nature</p>	<p>1) Less than 4% protein: BE (3.5%), HR (3.5%), NL (3.9%), 2) More than 4% protein: CZ (4.5%), DE (4.9%), SI (4.9%), SK (4.5%)</p>	<p>Two clusters differentiated by the protein content, although NL (protein 3.9%) falls into cluster with protein content > 4%.</p>

<p>Kellogg's Special K Classic/Original</p>	<p>1) 11.9% sugar, non-fortified: BG, CZ, DE, SI 2) 15% sugar, fortified: IT, MT</p>	 <p>High sweetness</p> <p>Light colour</p> <p>Dark colour</p> <p>Low sweetness</p> <p>Three clusters, two explained by different sugar content.</p>
<p>Jacobs Original/Classic 3 in 1</p>	<p>1) 8% instant coffee, 54% sugar: DE 2) 10% instant coffee, 17% brown sugar: BG 3) 15% instant coffee, 62% sugar: EE, HR, HU, LT, SK</p>	 <p>strong</p> <p>Low creamy</p> <p>High creamy</p> <p>Mild</p> <p>Three cluster differentiated by instant coffee content; DE and EE version not significantly different.</p>
<p>Lay's Potato Chips Salted/Nature</p>	<p>1) 30% fat: BE 2) 33% fat: HU 3) 34% fat: CZ, DE, NL, SI 4) 35% fat: BG</p>	 <p>High crispy</p> <p>Low saltiness</p> <p>High saltiness</p> <p>Low crispy</p> <p>No clear correlation between compositional differences and sensory characteristics, although differences in crispiness: SI (least crispy), DE (medium crispy), HU (most crispy).</p>

<p>Nestle Nesquik</p>	<p>1) 20% cocoa: DK 2) 21% cocoa: CZ, EE, HR, LV, MT, PL 3) 22.1% cocoa: ES</p>	 <p>No clear correlation between compositional differences and sensory characteristics, but DK differs clearly from ES product.</p>
<p>Heinz Mayonnaise Seriously Good</p>	<p>1) 68% rapeseed oil: DK, HU, IT, NL 2) 68% soya oil: ES 3) 78% rapeseed oil: LT</p>	 <p>Two clusters differentiated by oil content. The type of oil (rapeseed vs. soya oil) had no influence on sensory characteristics.</p>
<p>Desperados Tequila flavoured</p>	<p>1) Glucose syrup, sugar: BE, DE, IT, LT, NL 2) Corn, sugar: CZ 3) Glucose syrup, corn, glucose-fructose: PL</p>	 <p>No clear correlation between compositional differences and sensory characteristics; PL more bitter than other products.</p>

<p>Iglo Fish Fingers</p>	<p>1) 58% fish meat: CZ, HU, SK 2) 65%: DE, NL</p>	 <p>No clear correlation between compositional differences and sensory characteristics.</p>
<p>Philadelphia Cream Cheese Original</p>	<p>1) 21% fat, 0.75% salt: BE, CZ, DE, EE, SK 2) 26% fat, 0.75% salt: IT 3) 26% fat, 1.05% salt: ES</p>	 <p>Two clusters differentiated by the salt content. The difference in fat content did not differentiate the products.</p>

ANNEX III

Scorecards of the products providing detailed information on product composition, front-of-pack appearance and the results of the sensory evaluation (as reported by the sensory testing panel).

Nutrients

Country	Energy Value	[Total Carb]	[Sugar]
DK	180	10.6	10.6
ES	180	10.6	10.6
HR	190	11.2	11.2
HU	190	11.2	11.2
LV	180	10.6	10.6
PL	180	10.6	10.6
SK	190	11.2	11.2

Energy values in kJ/100g; others in g/100g

Ingredients

DK	ES	HR	HU	LV	PL	SK
Water	Carbonated water	Water	Water	Water	Water	Water
Sugar	Sugar	Fructose-glucose syrup	Fructose-glucose syrup	Sugar	Sugar	Fructose-glucose syrup
Carbon dioxide	Colourants (E150d caramel)	Carbon dioxide	Carbon dioxide	Carbon dioxide	Carbon dioxide	Carbon dioxide
Colourants (E150d caramel)	Acids (phosphoric acid)	Colourants (caramel E150d)	Colourants (caramel E150d)	Colourants (caramel E150d)	Colourants (caramel E150d)	Colourants (caramel E150d)
Acids (E338 phosphoric acid,)	Natural flavourings (including caffeine)	Acids (phosphoric acid)	Acids (phosphoric acid)	Acids (phosphoric acid)	Acids (phosphoric acid)	Acids (phosphoric acid)
Natural flavourings (including caffeine)		Natural flavourings (including caffeine)	Natural flavourings (including caffeine)	Natural flavourings (including caffeine)	Natural flavourings (including caffeine)	Natural flavourings (including caffeine)

Front Label Pictures



DK



ES



HR



HU



LV

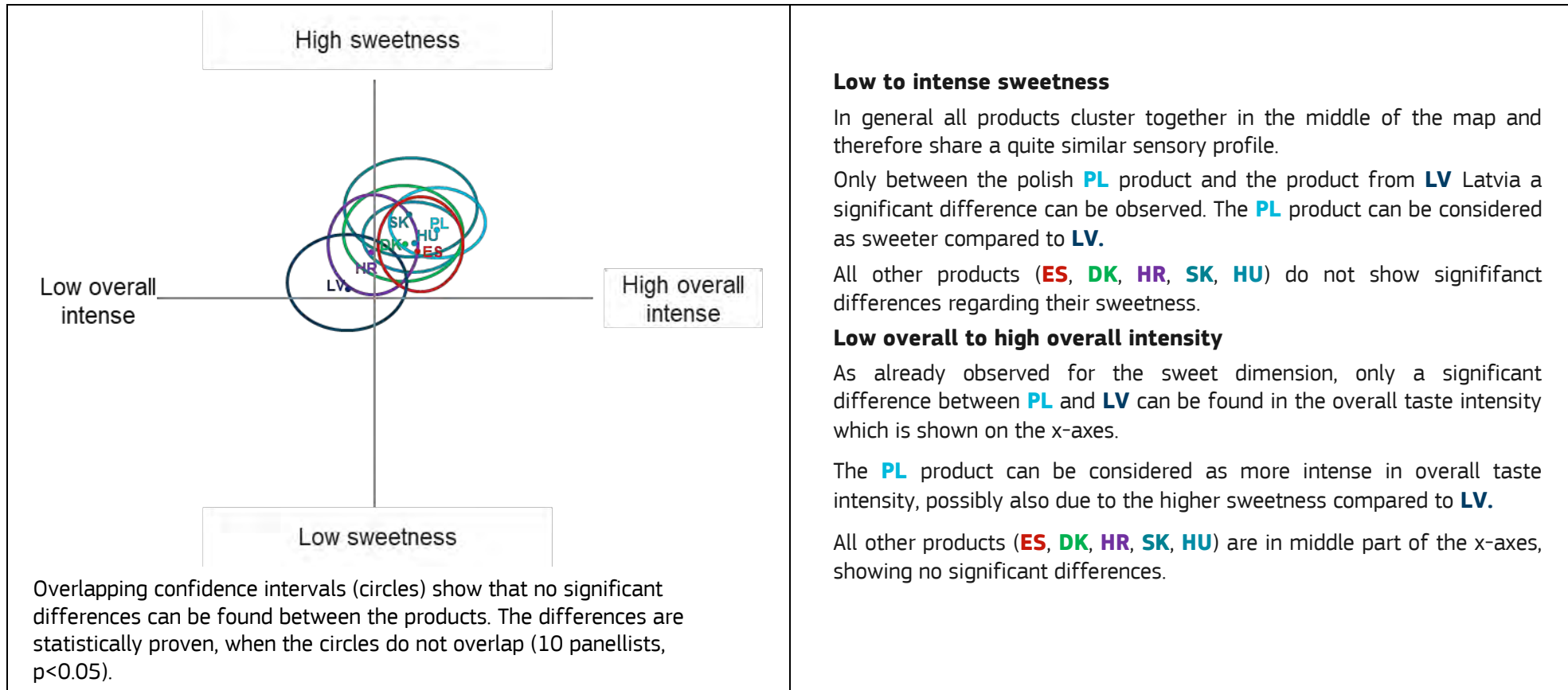


PL



SK

Sensory evaluation (Sorted Napping)

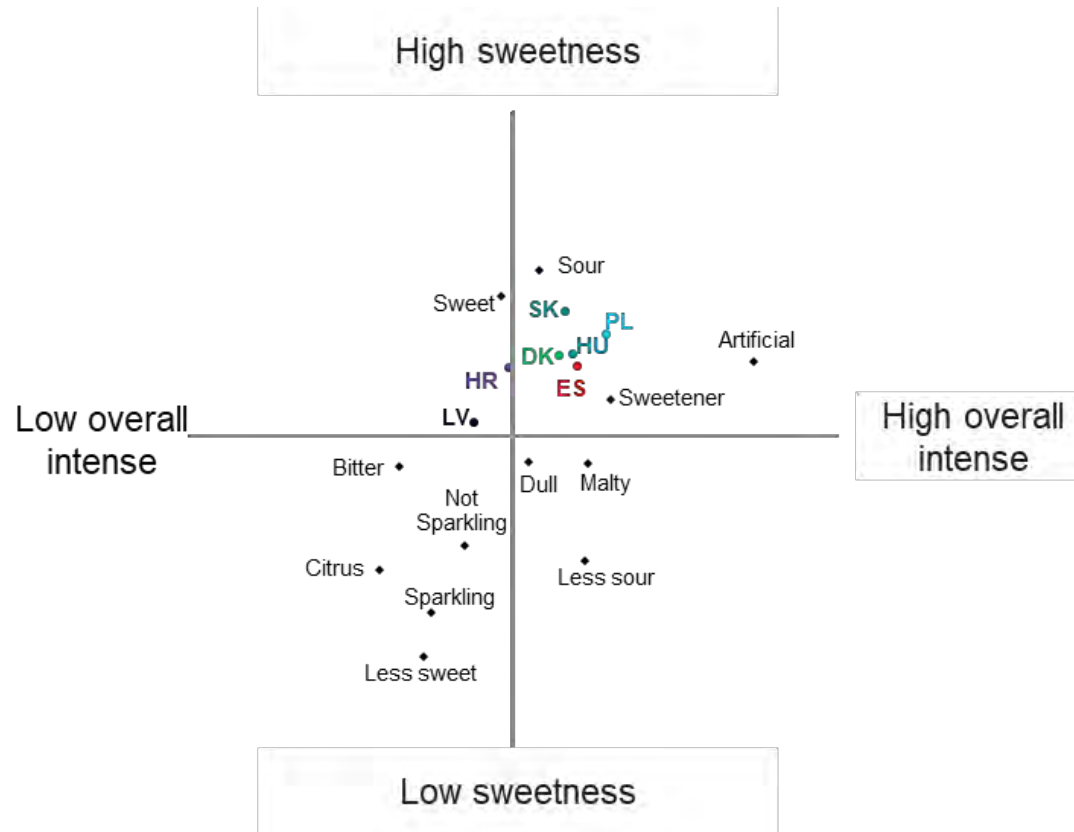


Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
SK	Sweet (5)	Sour, sparkling, malty, bitter (3)	Sparkling, malty, dull (1)
ES	Malty (6)	Bitter, dull, sweet (3)	Sour, sparkling (2)
DK	Sweet (4)	Sparkling, malty, bitter (3)	Not sparkling (2)
PL	Sparkling, malty, bitter, dull, sweet (3)	Sour (2)	Not Sparkling, artificial, sweetener, less sour, less sweet, citrus (1)
HR	Sweet (5)	Malty, bitter (4)	Sour, sparkling, (3)
HU	Malty, sweet, sparkling (5)	Dull (2)	Sour, bitter, artificial, less sour, less sweet (1)
LV	Sparkling (4)	Malty, bitter, dull , sweet (3)	Less sweet (2)

Associations were ranked according to the number of times they were mentioned by the 10 participating panellists.

Sensorial map/correlated characteristics



Comment by the brand owner

Coca-Cola Original Taste is available in more than 200 countries worldwide. It contains the same mix of ingredients and it can be sweetened with cane sugar, beet sugar, corn-derived sweeteners (including in the United States) or a blend of these. The nutritive sweeteners are substitutable as they feature a similar composition, contain almost the same calorie content and are also regulated equally by existing EU legislation.

The results of the sensory evaluation show one cluster and confirm that there is no significant difference among the samples tested.

The differences in sweetness and taste intensity identified between the samples from Poland and Latvia can be explained as random variations.

Nutrients

Country	Energy Value	[Total Fat]	[Fat Sat]	[Total Carb]	[Sugar]	[Protein]	[Salt]
BE	256	3.2	2.2	4.6	4.6	3.5	0.12
CZ	288	3.4	2.2	5.1	5.1	4.5	0.15
DE	310	3.5	2.3	5.7	5.7	4.9	0.18
HR	252	3.4	2.2	3.9	3.9	3.5	0.12
NL	276	3.5	2.2	4.7	4.7	3.9	0.10
SI	310	3.5	2.3	5.7	5.7	4.9	0.18
SK	288	3.4	2.2	5.1	5.1	4.5	0.15

Energy values in kJ/100g; others in g/100g

Quantitative Ingredients Declaration

Ingredient	Unit	BE	CZ	DE	HR	NL	SI	SK
Calcium	mg/100g	123	148	168	121	141	168	168

Ingredients

BE	CZ	DE	HR	NL	SI	SK
Yoghurt with Bifidus ActiRegularis (98 % milk)	Milk	Yoghurt with Bifidus ActiRegularis	Milk	Yoghurt	Yoghurt with Bifidus ActiRegularis	Milk
	Milk protein		Milk protein	Bifidus ActiRegularis		Milk protein
	Yoghurt culture		Yoghurt culture			Yoghurt culture
	Bifidus ActiRegularis		Bifidus ActiRegularis			Bifidus ActiRegularis

Front Label Pictures



BE



CZ

Not available

DE



HR



NL

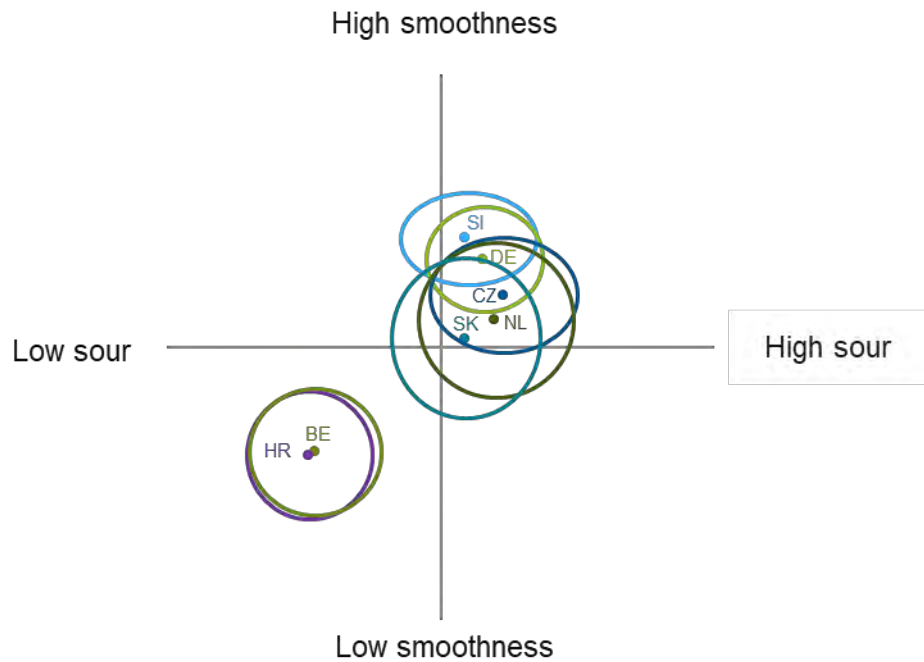


SI



SK

Sensory evaluation

**Low to high sourness**

Two clearly separated groups can be observed: products from **HR** and **BE** are perceived as least sour whereas all other products (**SI**, **DE**, **CZ**, **NL**) are significant sourer in taste.

Within the two different groups **SI**, **DE**, **CZ**, **NL**, **SK** and **HR** and **BE** not differences can be found.

Low to high smoothness

As already observed with the sour taste intensity, same pattern can be found for the smoothness.

HR and **BE** appear as least smooth whereas the group of **SI**, **DE**, **CZ**, **NL** shows a significant higher smoothness.

Most different to each other are **HR/BE** compared to **SI/DE**.

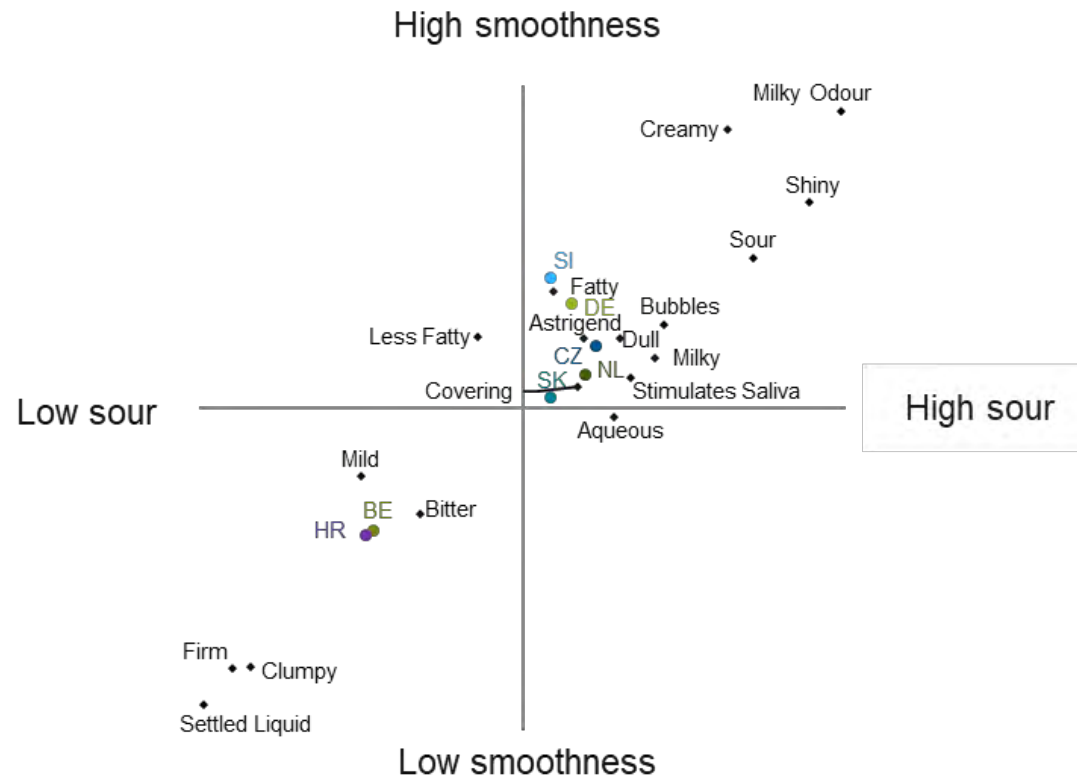
Overlapping confidence intervals (circles) show that no significant differences can be found between the products. The differences are statistically proven, when the circles do not overlap (11 panelists, $p < 0.05$).

Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
BE	Firm (9)	Settled Liquid (5)	Astringent, clumpy, mild, bitter (2)
CZ	Sour (8)	Creamy, shiny (4)	Dull, milky, aqueous (2)
DE	Creamy (7)	Shiny, mild (3)	Dull, firm, astringent (2)
HR	Firm, settled liquid, clumpy (5)	Dull (3)	Sour, creamy, mild (2)
NL	Sour (8)	Shiny (4)	Dull, bubbels, covering (3)
SI	Creamy (6)	Sour (5)	Dull (3)
SK	Sour (6)	Shiny (5)	Dull, aqueous (4)

Associations were ranked according to the number of times they were mentioned by the 11 participating panellists.

Sensorial map/correlated characteristics



Comment from the brand owner

As a leading food company Danone has a responsibility to offer healthy food products, but also to promote health and help consumers adopt healthy diets and habits. Our products respect high quality standards wherever they are crafted and proposed to our consumers.

It is important to highlight the fact that the products presented as ACTIVIA Nature in your assessment are actually two distinct products: ACTIVIA stirred plain and ACTIVIA set plain. They are different in terms of both their production process and recipe which explain the differences in taste and texture that are highlighted in your study.

We believe that it is important to highlight that the results of your study confirm that for comparable products – products within same category, e.g. stirred yogurts, set yogurts - no significant difference has been demonstrated, confirming the absence of any dual quality practices.

Nutrients

Country		Energy Value
BE		247
CZ		247
DE		247
IT		247
LT		247
NL		247
PL		233

Energy values in kJ/100g; others in g/100g

Quantitative Ingredients Declaration

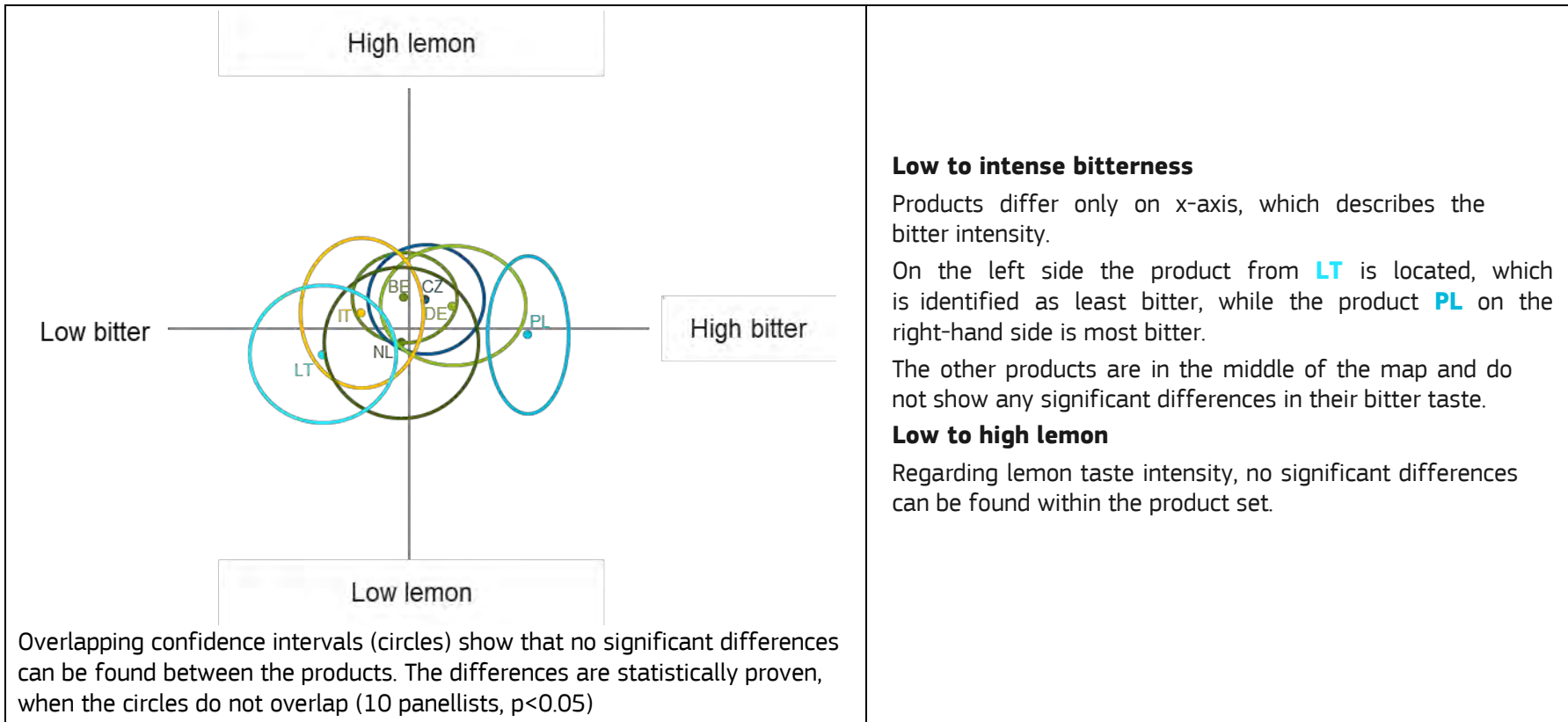
Ingredient	Unit	BE	CZ	DE	IT	LT	NL	PL
Alcohol	%	5.9	5.9	5.9	5.9	5.9	5.9	6.0

Ingredients

BE	CZ	DE	IT	LT	NL	PL
Water	Water	Water	Water	Water	Water	Water
Barley malt	Barley malt	Barley malt	Barley malt	Barley malt	Barley malt	Barley malt
Glucose syrup	Corn	Glucose syrup	Glucose syrup	Glucose syrup	Glucose syrup	Glucose syrup
Sugar	Sugar	Sugar	Sugar	Sugar	Sugar	Corn
Hop extract	Hop extract	Hop extract	Hop extract	Hop extract	Hop extract	Glucose-fructose syrup
Flavouring (75 % tequila)	Acid (citric acid)	Acid (citric acid)	Acid (citric acid)	Acid (citric acid)	Acid (citric acid)	Hop extract
Acid (citric acid)	Tequila	Flavouring (Tequila)	Flavouring (75 % Tequila)	Flavouring (75 % Tequila)	Flavouring (75 % tequila)	Flavouring
	Flavouring					Acid (citric acid)

Front Label Pictures



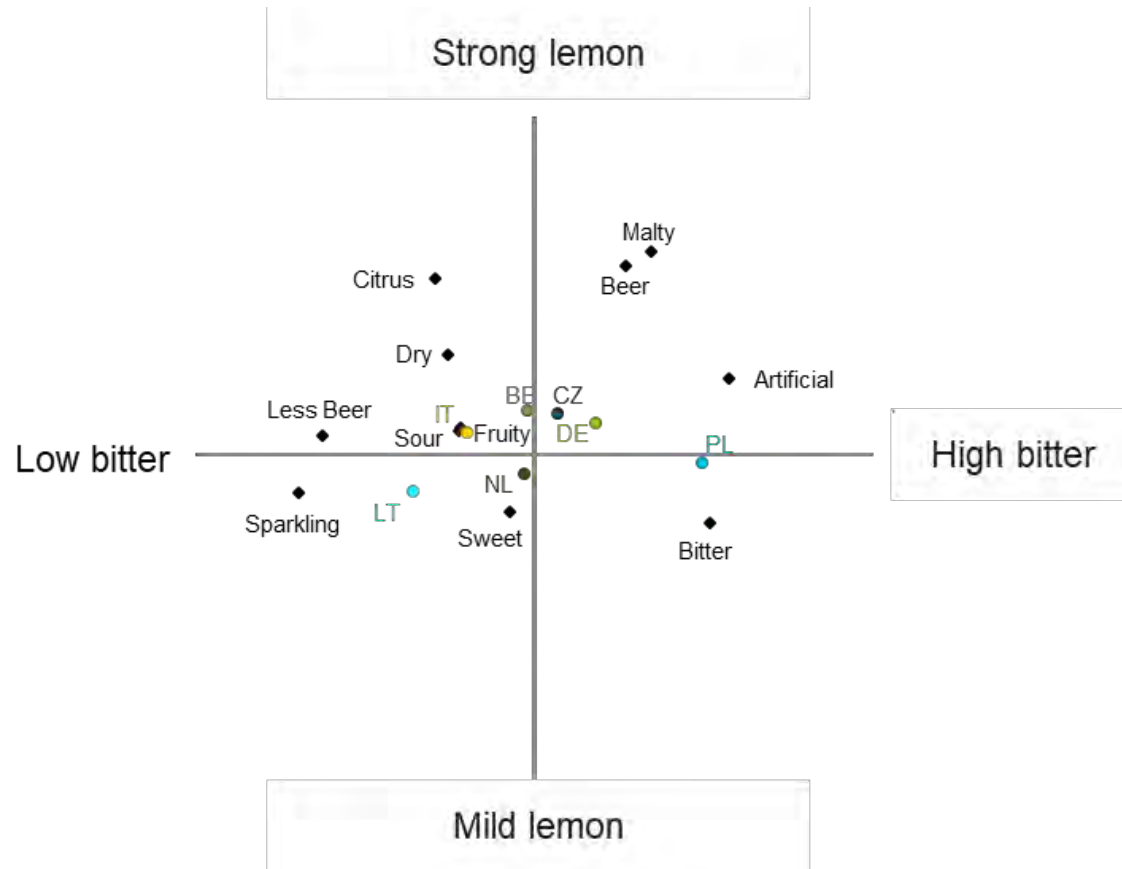
Sensory evaluation (Sorted Napping)

Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
BE	Artificial (6)	Less beer, malty, dry (5)	Citrus (3)
IT	Bitter, sweet (4)	Citrus (3)	Less beer, malty, dry (2)
PL	Bitter, artificial (6)	Sweet, malty (3)	Citrus (2)
DE	Bitter (6)	Citrus, artificial, beer (3)	Sparkling, malty, dry (2)
CZ	Bitter (5)	Sweet (4)	Citrus, fruity, sour (3)
NL	Sweet (5)	Bitter (4)	Less beer, fruity (2)
LT	Bitter (4)	Citrus, less beer, sparkling (3)	Sweet, dry, sour (2)

Associations were ranked according to the number of times they were mentioned by the 10 participating panellists.

Sensorial map/correlated characteristics



Comment from the brand owner

No comment received

Nutrients

Country	Energy Value	[Total Fat]	[Fat Sat]	[Total Carb]	[Sugar]	[Protein]	[Salt]
CZ-1	383	1.4	0.9	16	11	3.0	0.11
CZ-2	393	1.5	0.9	16	11	3.2	0.10
HR	424	1.5	1.0	18	12	3.4	0.14
HU	423	1.5	1.0	18	12	3.4	0.14
IT	482	1.8	1.2	20	19	4.1	0.19
LT	393	1.5	0.9	16	11	3.2	0.10
PL	388	1.9	1.1	15	9.5	3.3	0.14
SI	424	1.5	1.0	18	12	3.4	0.14

Energy values in kJ/100g; others in g/100g per ready-to-eat product

Quantitative Ingredients Declaration

Ingredient	Unit	CZ-1	CZ-2	HR	HU	IT	LT	PL	SI
Chocolate powder	%				3			1.1	
Low fat cocoa powder	%	9	17	13			17		13

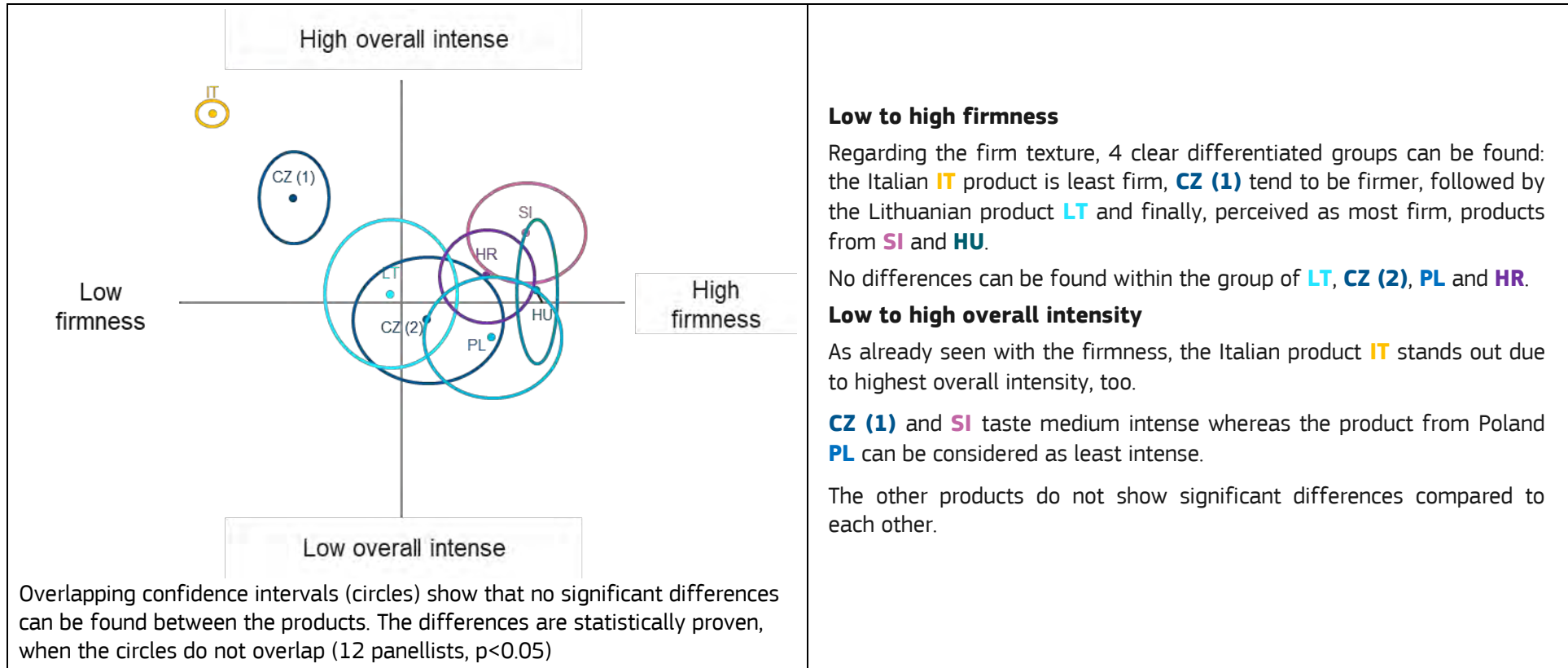
Ingredients

CZ-1	CZ-2	HR	HU	IT	LT	PL	SI
Corn starch	Corn starch	Corn starch	Corn starch	Sugar	Corn starch	Starch	Corn starch
Low fat cocoa powder	Low fat cocoa powder	Low fat cocoa powder	Low fat cocoa powder	Low fat cocoa powder	Low fat cocoa powder	Modified starch	Low fat cocoa powder
Salt	Flavouring	Chocolate powder	Chocolate powder	Starch	Flavouring	Low fat cocoa powder	Chocolate powder
Flavouring		Salt	Salt	Thickener (carrageenan)		Chocolate powder	Salt
		Flavouring	Flavouring	Salt		Flavouring	Flavouring
				Flavouring			

Front Label Pictures

 <p>CZ</p> <p>Dr. Oetker Original Puding</p> <p>Cokolada Pritchka aroma</p> <p>CZ-1</p>	 <p>CZ</p> <p>Dr. Oetker Puding</p> <p>Cokolada</p> <p>CZ-2</p>	 <p>HU</p> <p>Dr. Oetker Eredeti Puding</p> <p>Cokolada</p> <p>HR</p>	 <p>HU</p> <p>Dr. Oetker Eredeti Puding</p> <p>Cokolada</p> <p>HU</p>
 <p>IT</p> <p>cameo Budino cremoso</p> <p>Gusto Cioccolato</p> <p>2 Buste da 4 porzioni ognuna</p> <p>IT</p>	 <p>LT</p> <p>Dr. Oetker Original Puding</p> <p>Cokolada Pritchka aroma</p> <p>LT</p>	 <p>PL</p> <p>Dr. Oetker Budyn</p> <p>Cokolada</p> <p>PL</p>	 <p>SI</p> <p>Dr. Oetker Original Puding</p> <p>Cokolada</p> <p>SI</p>

Sensory evaluation (Sorted Napping)

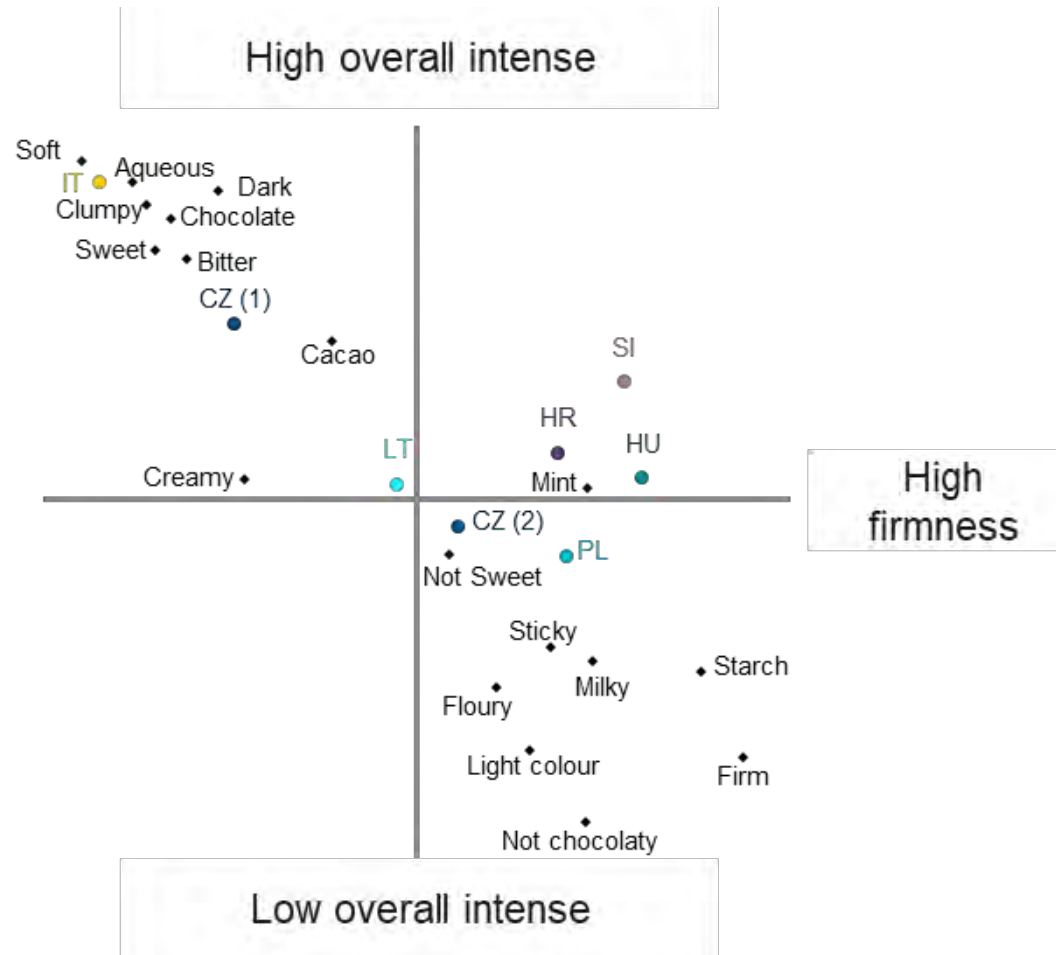


Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
CZ (1)	Chocolate (7)	Creamy (5)	Sweet (4)
CZ (2)	Light colour (8)	Sweet (4)	Chocolate, milky (3)
HR	Chocolate, sweet (5)	Firm (3)	Starch, light colour, creamy (2)
HU	Chocolate, firm (4)	Milky (3)	Sweet, starch, light colour (2)
IT	Chocolate, sweet (7)	Dark, clumpy (5)	Soft (4)
LT	Creamy (6)	Sweet (4)	Chocolate, firm, not sweet (3)
PL	Firm, (6)	Chocolate (5)	Sweet, light colour (4)
SI	Firm (5)	Chocolate, sweet, dark (4)	Cacao, milky, bitter (2)

Associations were ranked according to the number of times they were mentioned by the 12 participating panellists.

Sensorial map/correlated characteristics



Comment by the brand owner

All product development at Dr. Oetker always begins with the Consumer.

Our aim via market specific product and consumer research is to produce category leading products that consistently meet and ideally exceed the consumer needs regarding taste, quality perception and value expectations.

We know via our research that the usage of our famous Pudding products varies by market, however these family favorite products for many generations continue to remain as popular now as ever before.

Consumer research also confirms that our localized recipe development ensures that our consumers can buy with confidence as they know exactly what to expect when they purchase a Dr. Oetker product, whatever the flavor.

As the clear market leader, we take pride in ensuring that all Dr. Oetker products are consistently reviewed and adjusted in line with any changes to consumer needs and also that they meet any localized legal requirements regarding ingredient claims.

Our iconic Pudding packaging design acts as a category sign-post for shoppers whilst obviously supporting the general product concept and flavor detail. Where applicable local aspects are added to the pack front to aid shoppers to identify their specific choice (*CZ).

*original recipe denotes historic recipe product only available in CZ.

Nutrients

Country	Energy Value	[Total Carb]	[Sugar]	[Salt]
BE	203	11.7	11.7	0
BG	187	10.8	10.8	0
CZ	121	6.9	6.9	0.02
DK	126	7.2	7.2	0
ES	81	4.5	4.5	0.02
HR	121	6.9	6.9	0.02
IT	205	11.8	11.8	0
LT	115	6.5	6.5	0.02
NL	139	7.9	7.6	0.01
PL	115	6.5	6.5	0.02

Energy values in kJ/100g; others in g/100g

Quantitative Ingredients Declaration

Ingredient	Unit	BE	BG	CZ	DK	ES	HR	IT	LT	NL	PL
Orange juice from concentrate	%	6	5	5	4.5	8	5	12	5	6	5

Ingredients

BE	BG	CZ	DK	ES
Sparkling water	Water	Water	Water	Sparkling water
Sugar	Fructose-glucose syrup	Fructose-glucose syrup	Sugar	Orange juice from concentrate
Orange juice from concentrate	Orange juice from concentrate	Orange juice from concentrate	Orange juice from concentrate	Sugar
Acids (citric acid, sodium citrate)	Carbon dioxide	Carbon dioxide	Carbon dioxide	Acids (citric acid, malic acid)
Preservative (potassium sorbate)	Acids (citric acid)	Acids (citric acid, malic acid)	Acidity regulators (citric acid)	Stabilisers (gum arabic, sucrose acetate isobutyrate, glycerol esters of wood resins)
Natural orange flavouring and other natural flavourings	Natural orange flavouring and other natural flavourings	Acidity regulator (sodium gluconate)	Natural orange flavouring with other natural flavourings	Sweeteners (acesulfame-K, aspartame, neohesperidin-dihydrochalcone)
Antioxidants (ascorbic acid)	Antioxidants (ascorbic acid)	Natural flavouring	Sweeteners (acesulfam K, aspartame)	Preservative (potassium sorbate)
Carrot concentrate	Colourants (carotene)	Sweeteners (sodium cyclamate, saccharin)	Stabilisers (gum arabic, glycerol esters of wood resins, guar gum)	Acidity regulator (sodium citrate)
Stabilisers (guar gum)	Stabilisers (guar gum)	Antioxidant (ascorbic acid)	Antioxidants (ascorbic acid)	Natural orange flavouring and other natural flavourings
		Stabiliser (guar gum)	Fruit and vegetable concentrates (carrot, blackcurrant)	Antioxidant (ascorbic acid)
		Colorant (carotene)	Colorant (carotene)	Colorant (carotene)

Ingredients continued

HR	IT	LT	NL	PL
Water	Water	Water	Sparkling water	Water
Fructose-glucose syrup	Orange juice from concentrate	Sugar	Sugar	Sugar
Orange juice from concentrate	Sugar	Orange juice from concentrate	Orange juice from concentrate	Orange juice from concentrate
Carbon dioxide	Carbon dioxide	Carbon dioxide	Acids (citric acid, malic acid, sodium citrate)	Carbon dioxide
Acids (citric acid, malic acid)	Acid (citric acid)	Acids (citric acid, malic acid)	Preservative (sodium sorbate)	Acids (citric acid, malic acid)
Acidity regulator (sodium gluconate)	Natural citrus flavouring	Acidity regulator (sodium gluconate)	Natural orange flavouring and other natural flavourings	Acidity regulator (sodium gluconate)
Natural flavouring	Stabiliser (gum arabic)	Natural flavouring	Antioxidants (ascorbic acid)	Natural flavouring
Sweeteners (sodium cyclamate, sodium saccharin)	Antioxidant (ascorbic acid)	Sweeteners (sodium cyclamate, sodium saccharin)	Sweeteners (acesulfame-K, aspartame)	Sweeteners (cyclamate, saccharin)
Antioxidant (ascorbic acid)		Antioxidant (ascorbic acid)	Stabilisers (guar gum)	Antioxidant (ascorbic acid)
Stabiliser (guar gum)		Stabiliser (guar gum)	Carrot concentrate	Stabiliser (guar gum)
Colorant (carotene)		Colorant (carotene)	Colorant (carotene)	Colorant (carotene)

Front Label Pictures



BE



BG



CZ



DK



ES



HR



IT



LT

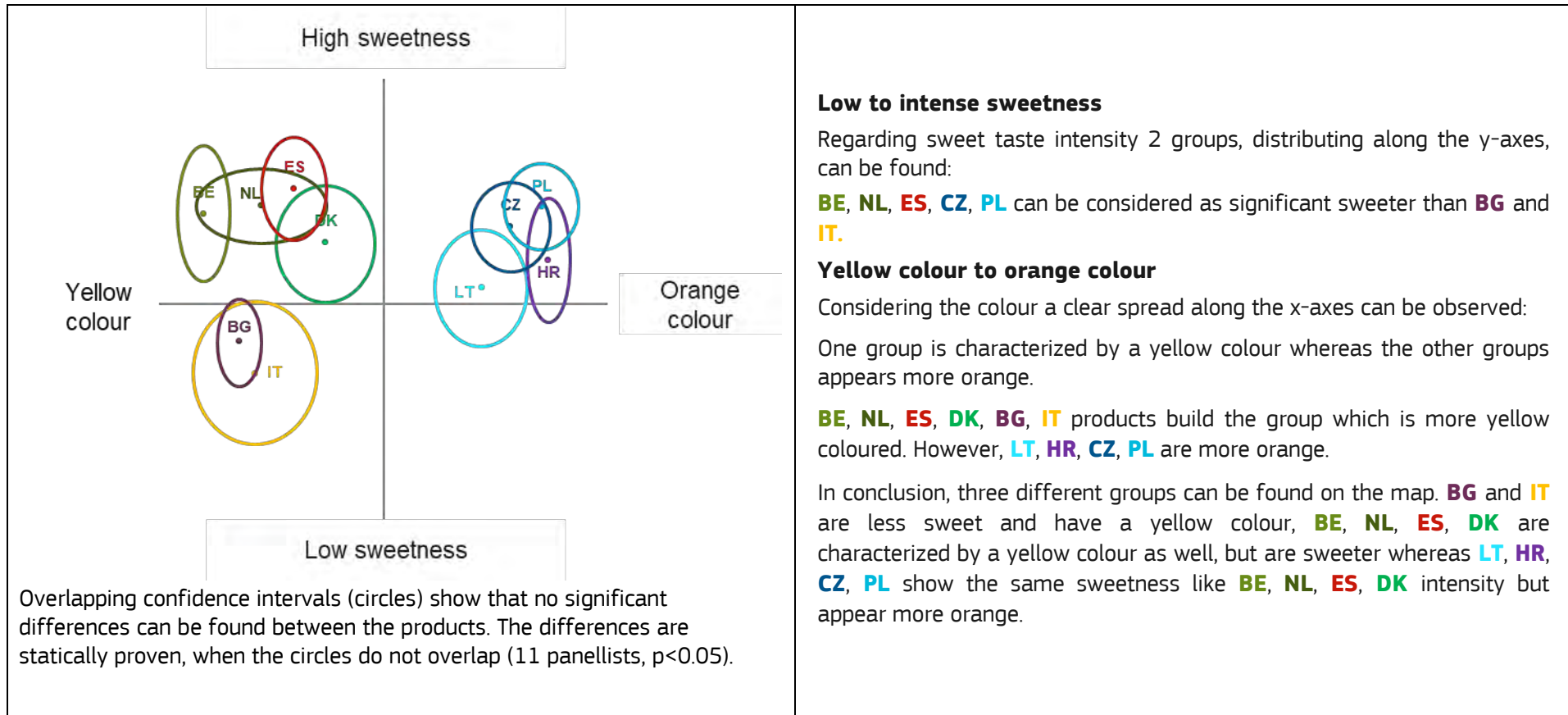


NL



PL

Sensory evaluation (Sorted Napping)

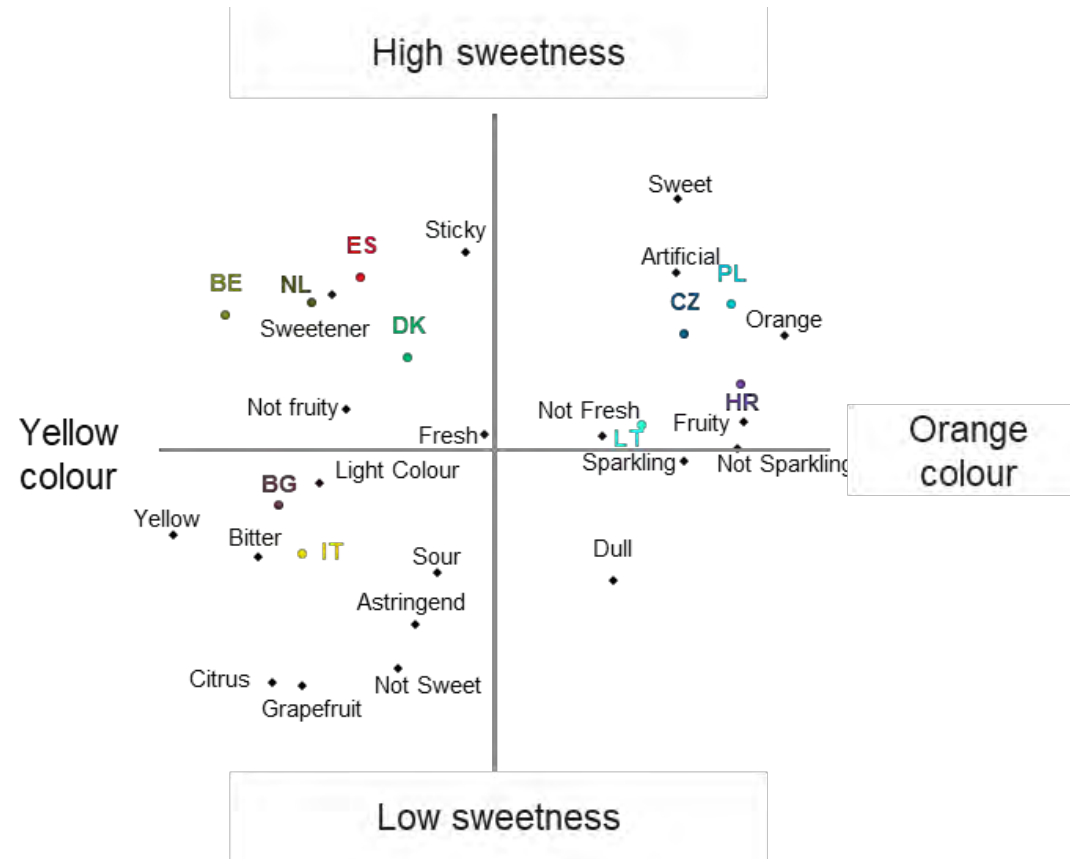


Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
ES	Bitter (8)	Sweet (5)	Artificial, sweetener (3)
HR	Orange (7)	Sweet (5)	Artificial, sparkling (3)
NL	Bitter (6)	Orange (5)	Sweet (4)
CZ	Orange (6)	Sweet (4)	Bitter, artificial, fruity, not sparkling (2)
BG	Bitter (5)	Yellow, citrus, not sweet (3)	Sour, artificial, orange, dull, not sparkling, grapefruit (2)
LT	Orange (7)	Sweet (5)	Bitter, artificial, fruity, dull (3)
PL	Orange (8)	Sweet (6)	Bitter, artificial, not sparkling (3)
BE	Sweet (5)	Bitter (4)	Yellow (3)
IT	Bitter (10)	Grapefruit (6)	Yellow (3)
DK	Bitter (6)	Sweet, artificial, orange (3)	Sweetener, dull (2)

Associations were ranked according to the number of times they were mentioned by the 11 participating panellists.

Sensorial map/correlated characteristics



Comment by the brand owner

Fanta Orange is currently available in several recipes across the European Union and around the world, with differences in recipes ensuring that we meet local consumer preferences and expectations, source some ingredients locally, adhere to local regulation and that we can further accelerate our efforts to reduce added sugars in our beverages. All our Fanta Orange recipes contain orange juice, and although juice quantities vary due to reasons such as past regulations, they remain in line with comparable local products in each country. Our sugar reduction efforts also remain an important priority as we contribute towards soft drinks industry pledges to the EU,

and over the past decade we have reduced added sugar in Fanta recipes in several EU countries by up to 30%. This is a gradual and ongoing process as recognized by the Council conclusions on food product improvement (2016) to “ensure consumer acceptance of improved products” and recognizing “cultural differences in preferences”.

The results of the sensory evaluation reflect the above diverse market reality and confirm differences for which there are legitimate reasons.

Nutrients

Country	Energy Value	[Total Fat]	[Fat Sat]	[Total Carb]	[Sugar]	[Protein]	[Salt]
BE	206	<0.1	<0.1	11.7	11.7	<0.1	0.02
DE	162	<0.1	<0.1	9.2	9.2	<0.1	0.01
ES	137	<0.1	<0.1	7.7	7.7	0	0.01
HU	168	<0.1	<0.1	9.2	9.2	<0.1	<0.01
IT	185	0	0	10.4	10.4	0	0
MT	185	0	0	10.4	10.4	0	0
NL	206	<0.1	<0.1	11.7	11.7	<0.1	0.02
SI	171	0.1	0.1	9.8	9.8	0.1	0.01

Energy values in kJ/100g; others in g/100g

Quantitative Ingredients Declaration

Ingredient	Unit	BE	DE	ES	HU	IT	MT	NL	SI
Concentrated orange extract	%				0.028				0.028
Orange juice from concentrate	%	8	3	8	3	20	20	8	3

Ingredients

BE	DE	ES	HU	IT	MT	SI
Water	Water	Carbonated water	Water	Water	Water	Water
Sugar	Sugar	Orange juice from concentrate	Sugar	Orange juice from concentrate	Orange juice from concentrate	Sugar
Orange juice from concentrate	Orange juice from concentrate	Sugar	Orange juice from concentrate	Sugar	Sugar	Orange juice from concentrate
Carbon dioxide	Carbon dioxide	Food acids (citric acid,	Carbon dioxide	Carbon dioxide	Carbon dioxide	Carbon dioxide
Food acid (citric acid)	Food acid (citric acid)	Stabilisers (gum arabicum, glycerol esters of wood rosins, guar gum)	Food acid (citric acid)	Concentrated orange extract	Concentrated orange extract	Food acid (citric acid)
Antioxidant (ascorbic acid)	Natural orange flavouring with other	Antioxidants (ascorbic acid)	Concentrated orange extract	Food acid (citric acid)	Food acid (citric acid)	Concentrated orange extract
Flavouring	Concentrated citrus extract	Natural orange flavouring with other natural flavouring	Natural orange flavouring with other natural flavouring	Antioxidant (ascorbic acid)	Antioxidant (ascorbic acid)	Natural orange flavouring with other natural flavouring
Acidity regulator (sodium citrate)	Antioxidants (ascorbic acid)	Preservative (potassium sorbate)	Antioxidants (ascorbic acid)	Natural orange flavouring	Natural orange flavouring	Antioxidants (ascorbic acid)
Stabilisers (pectin, locust bean gum)	Stabilisers (locust bean gum)	Sweeteners (acesulfame-K, aspartame)	Stabilisers (guar gum)	Stabilisers (locust bean gum)	Stabilisers (locust bean gum)	Stabilisers (guar gum)
Colour (carotene)	Colour (carotene)	Colours (carotenes)	Colour (carotene)	Colour (carotene)	Colour (carotene)	Colour (carotene)
				Preservative (potassium sorbate)	Preservative (potassium sorbate)	

Front Label Pictures



BE



DE



ES



HU



IT

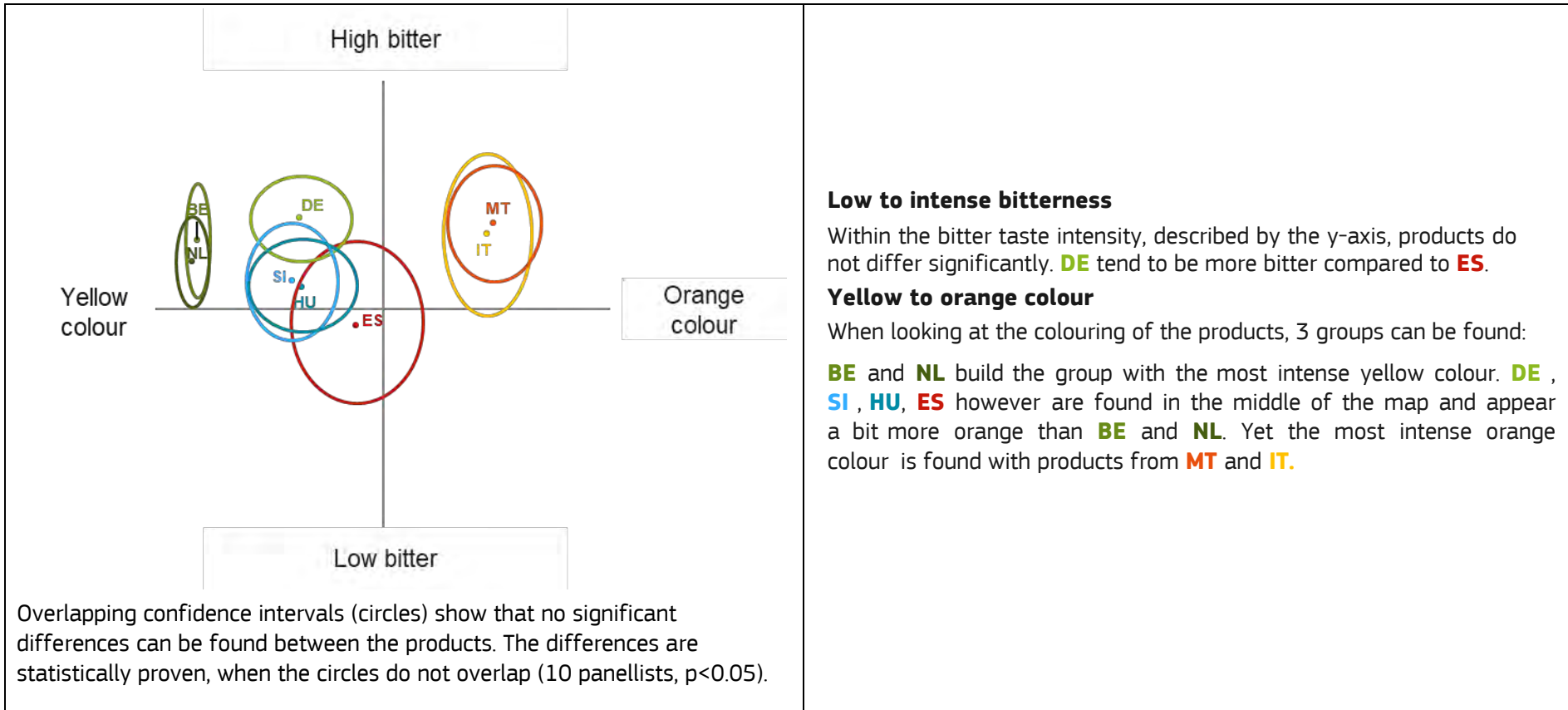


MT



SI

Sensory evaluation (Sorted Napping)

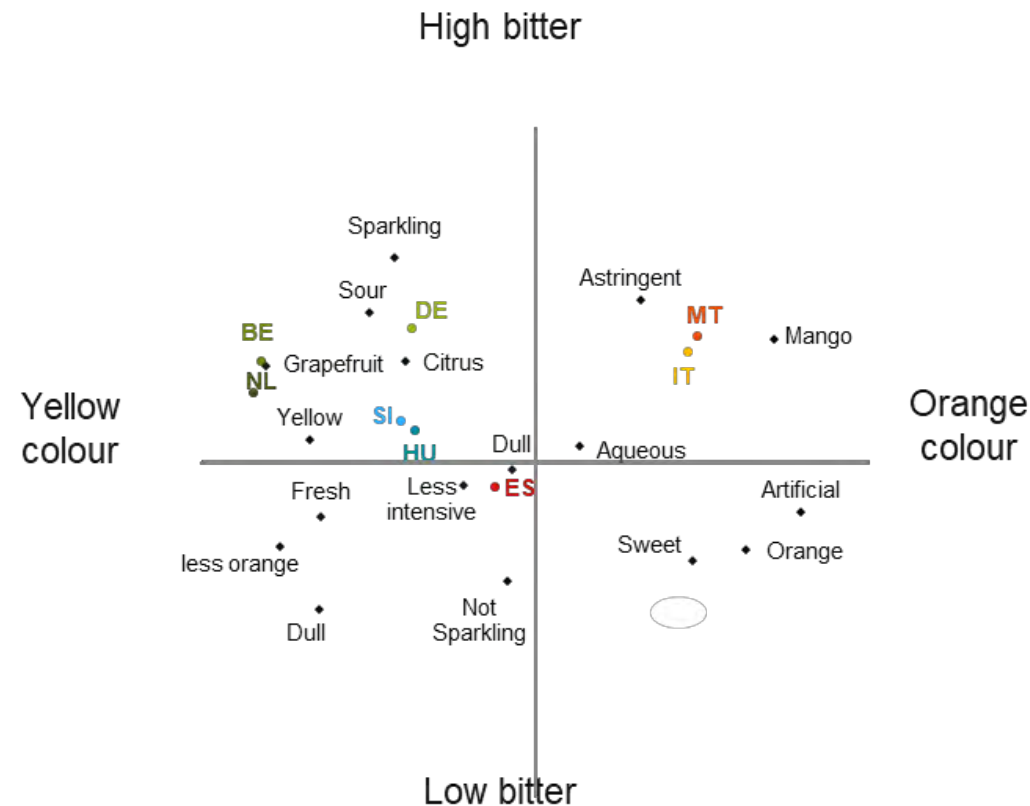


Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
NL	Sweet (6)	Sparkling (4)	Bitter, sour, grapefruit (3)
SI	Orange (6)	Sweet (5)	Bitter, sour, fresh (3)
IT	Sweet (8)	Orange (6)	Bitter, mango (4)
HU	Orange (8)	Sweet, bitter (4)	Astringent (3)
ES	Sweet (11)	Orange (6)	Bitter (5)
MT	Sweet (9)	Orange (6)	Bitter (4)
BE	Sweet (7)	Bitter (4)	Sparkling, grapefruit (3)
DE	Sparkling, orange (5)	Sour (4)	Sweet, bitter, astringent (3)

Associations were ranked according to the number of times they were mentioned by the 10 participating panellists.

Sensorial map/correlated characteristics



Comment from the brand owner

On the one hand, the differences in sensory profiles follow from the fact that different taste habits and consumer acceptances prevail in the individual countries. This was taken into account of when developing recipes for the Freeway Orangeade for individual countries, which is why a different fruit juice content was deliberately used. In addition, legal requirements of the national market are taken into account, resulting in a fruit juice share of 20% for the Freeway Orangeade, which is intended for the Italian market. On the other hand, we purchase the products from several producers, which are mainly located in the country of sale, due to the high quantities we require for the individual countries. Each product type may be subject to different production conditions, which again may affect the recipe and thus the sensory profiles. However, this is always the same product with consistent quality requirements for a standard Orangeade. The allocation as to which producer supplies which country is particularly affected by logistics routes and production capacities of the manufacturer.

Nutrients

Country	Energy Value	[Total Carb]	[Sugar]	[Salt]
BE	79	4.3	4.3	0.03
DE	79	4.3	4.3	0.03
LV	80	4.4	4.4	0.02
NL	79	4.3	4.3	0.03
PL	80	4.4	4.4	0.02
SI	80	4.4	4.4	0.02
SK	80	4.4	4.4	0.02

Energy values in kJ/100g; others in g/100g








Quantitative Ingredients Declaration

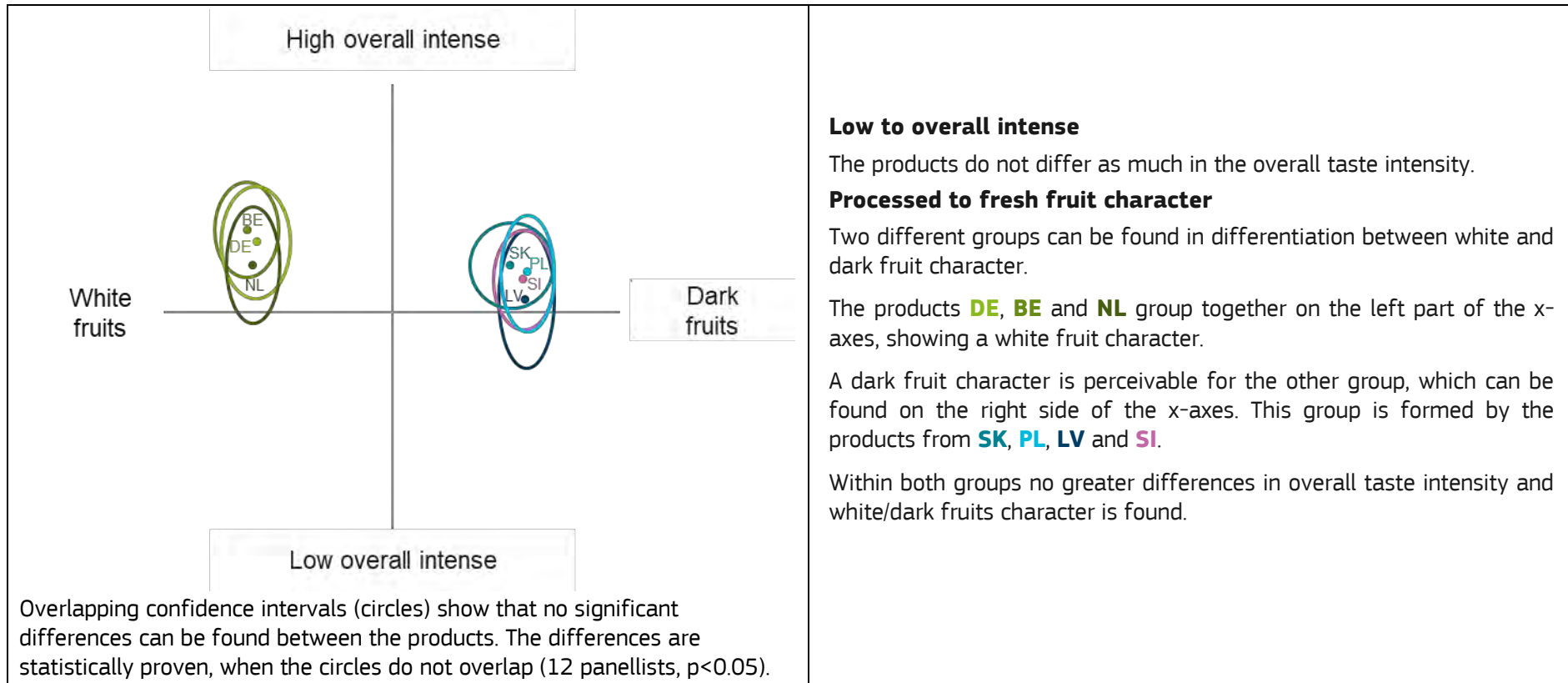
Ingredient	Unit	BE	DE	LV	NL	PL	SI	SK
Black tea infusion (water, concentrated black tea infusion)	%	91	93		91			
Black tea extract	%			0.12		0.12	0.12	0.12
Hibiscus extract	%			0.01		0.01	0.01	0.01
Peach juice from concentrate	%	5	3	0.1	5	0.1	0.1	0.1

Ingredients

BE	DE	LV	NL	PL	SI	SK
Black tea infusion (water, concentrated black tea infusion)	Black tea infusion (water, concentrated black tea infusion)	Water	Black tea infusion (water, concentrated black tea infusion)	Water	Water	Water
Sugar	Sugar	Sugar	Sugar	Sugar	Sugar	Sugar
Peach juice from concentrate	Peach juice from concentrate	Fructose	Peach juice from concentrate	Fructose	Fructose	Fructose
Acids (citric acid, sodium citrate, malic acid)	Acids (citric acid, malic acid)	Acids (citric acid, malic acid)	Sugar	Acids (citric acid, malic acid)	Acids (citric acid, malic acid)	Acids (citric acid, malic acid)
Natural peach flavouring	Natural peach flavourings with other natural flavourings	Black tea extract	Acids (citric acid, sodium citrate, malic acid)	Black tea extract	Black tea extract	Black tea extract
Natural flavourings	Acidity regulators (sodium citrate)	Peach juice from concentrate	Natural peach flavouring	Peach juice from concentrate	Peach juice from concentrate	Peach juice from concentrate
Antioxidants (ascorbic acid)	Antioxidants (ascorbic acid)	Natural flavourings	Natural flavourings	Natural flavourings	Natural flavourings	Natural flavourings
Hibiscus extract	Hibiscus extract	Acidity regulators (sodium citrate)	Antioxidants (ascorbic acid)	Acidity regulators (sodium citrate)	Acidity regulators (sodium citrate)	Acidity regulators (sodium citrate)
Sweeteners (steviol glycosides)	Sweeteners (steviol glycosides)	Antioxidants (ascorbic acid)	Hibiscus extract	Antioxidants (ascorbic acid)	Antioxidants (ascorbic acid)	Antioxidants (ascorbic acid)
		Hibiscus extract	Sweeteners (steviol glycosides)	Hibiscus extract	Hibiscus extract	Hibiscus extract
		Sweeteners (steviol glycosides)		Sweeteners (steviol glycosides)	Sweeteners (steviol glycosides)	Sweeteners (steviol glycosides)

Front Label Pictures

 <p>BE</p>	 <p>DE</p>	 <p>LV</p>	 <p>NL</p>
 <p>PL</p>	 <p>SI</p>	 <p>SK</p>	

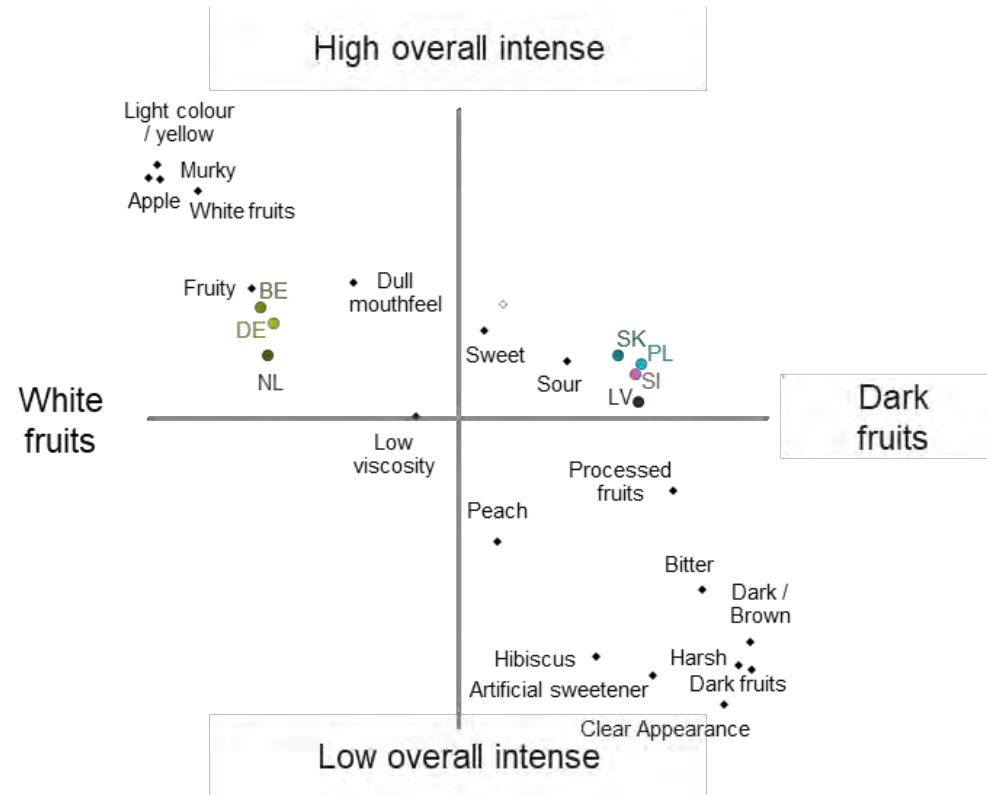
Sensory evaluation (Sorted Napping)

Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
NL	Sweet, light colour / yellow, murky (4)	Clear appearance (3)	White fruits, dull mouthfeel, apple, artificial sweetener (2)
PL	Sweet (8)	Dark / brown (6)	Berries / dark fruits (5)
LV	Sweet (8)	Clear appearance (6)	Berries / dark fruits (5)
DE	Sweet (8)	Light colour / yellow, murky (6)	White fruits (5)
SI	Sweet, clear (6)	Sour, dark / brown (4)	Berries / dark fruits, bitter (3)
BE	Sweet (9)	Light colour / yellow, sour (5)	Murky (4)
SK	Sweet (7)	Sour (5)	Sweet, clear (4)

Associations were ranked according to the number of times they were mentioned by the 12 participating panellists.

Sensorial map/correlated characteristics



Comment by the brand owner

Fuzetea Peach Hibiscus was launched in Europe in 2018 and is now available in two different recipes. One recipe is made with tea extract, the second recipe contains brewed tea and each recipe contains a different mix of other ingredients.

Both products, whether made with tea extract or with brewed tea, are of the high quality and standard that we seek for all of our products. The results of the sensory evaluation show two clusters and confirm differences between the two recipes.

The two products are marketed in a clearly different way and therefore it's not appropriate to compare them under the scope of this assessment.

Nutrients

Country	Energy Value	[Total Fat]	[Fat Sat]	[Total Carb]	[Sugar]	[Protein]	[Salt]
DK	2650	70	5.3	3	1.5	0.8	1
ES	2650	70	5.3	3	1.5	0.8	1
HU	2650	70	5.3	3	1.5	0.8	1
IT	2650	70	5.3	3	1.5	0.8	1
LT	3080	80	6.1	2.8	2.8	1.0	0.8
NL	2650	70	5.3	3	1.5	0.8	1

Energy values in kJ/100g; others in g/100g

Quantitative Ingredients Declaration

		DK	ES	HU	IT	LT	NL
Egg yolk	%	5	5	5	5	6.7	5
Rapeseed oil	%	68		68	68	78	68
Soy oil	%		68				

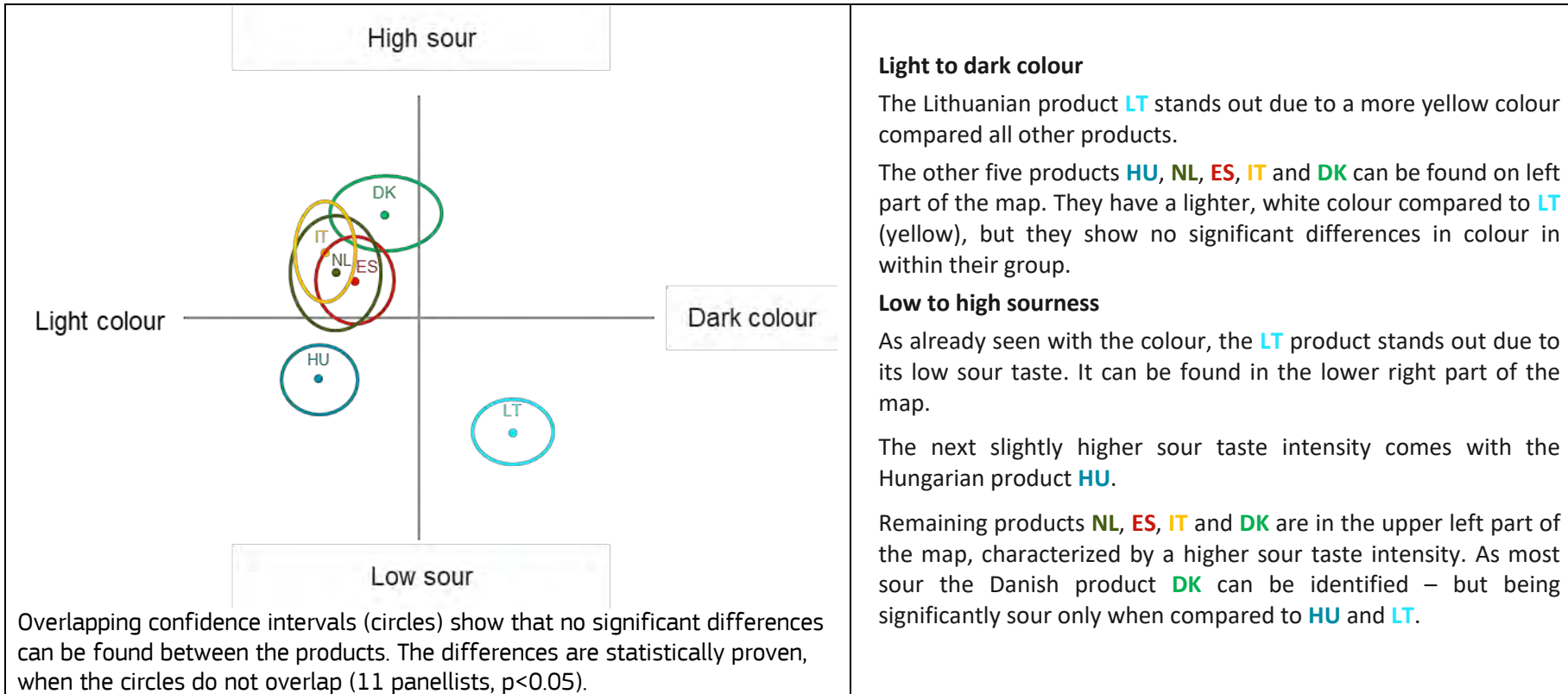
Ingredients

DK	ES	HU	IT	LT	NL
Rapeseed oil	Soy oil	Rapeseed oil	Rapeseed oil	Rapeseed oil	Rapeseed oil
Water	Water	Water	Water	Egg yolk	Water
Egg yolk	Egg yolk	Egg yolk	Egg yolk	Water	Egg yolk
Vinegar	Vinegar	Vinegar	Vinegar	Vinegar	Vinegar
Sugar	Sugar	Sugar	Sugar	Sugar	Sugar
Starch	Starch	Starch	Starch	Salt	Starch
Salt	Salt	Salt	Salt	Mustard seed	Salt
Mustard seed	Mustard seed	Mustard seed	Mustard seed	Antioxidant (calcium disodium EDTA)	Mustard seed
Spices	Spices	Spices	Spices	Turmeric	Spices
Antioxidant (calcium disodium EDTA)	Antioxidant (calcium disodium EDTA)	Antioxidant (calcium disodium EDTA)	Antioxidant (calcium disodium EDTA)		Antioxidant (calcium disodium EDTA)

Front Label Pictures



Sensory evaluation (Sorted Napping)

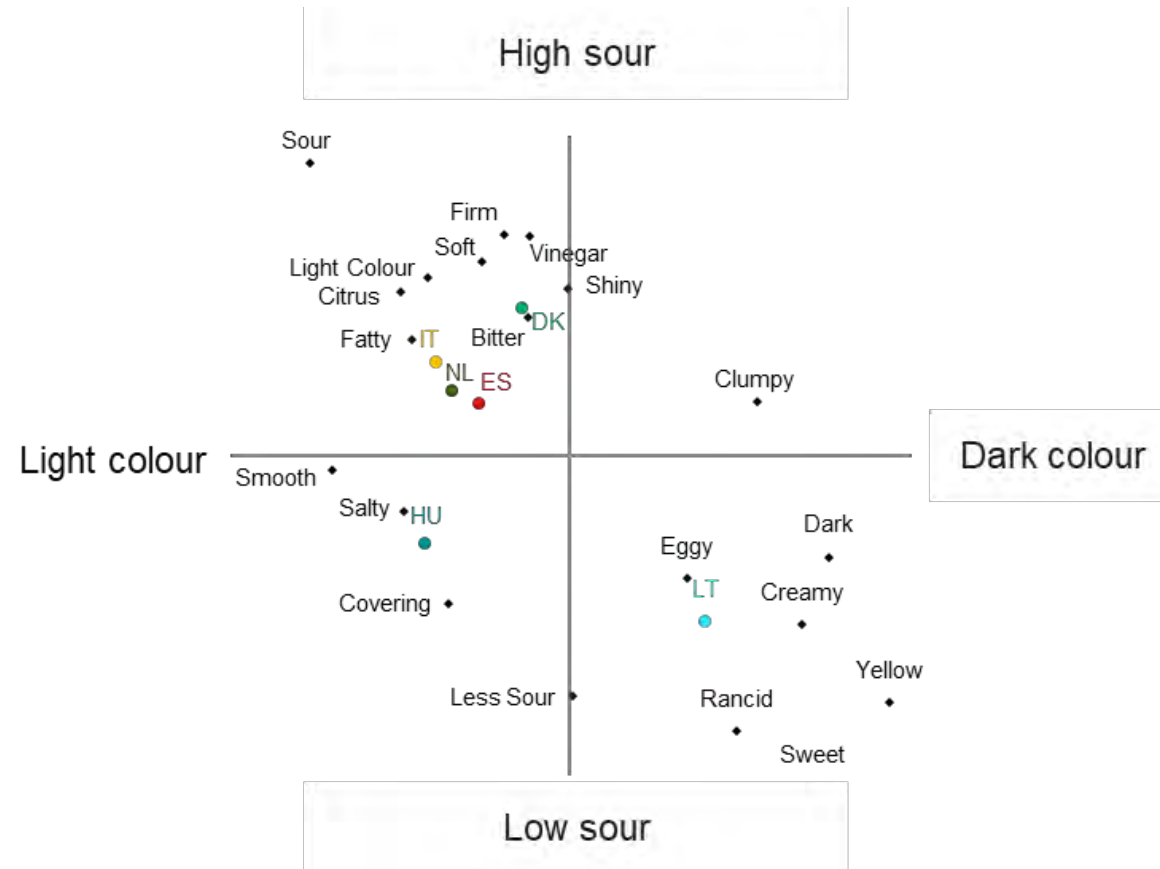


Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
HU	Sweet (5)	Sour, smooth (4)	Less sour, bitter, fatty (3)
DK	Sour (6)	Bitter (5)	Shiny (4)
ES	Sour, bitter (6)	Smooth, fatty (3)	Sweet, salty, vinegar (2)
LT	Sweet (9)	Yellow (4)	Dark, creamy (3)
NL	Sour (7)	Fatty, light colour (4)	Shiny, less sour, bitter, citrus (2)
IT	Sour (9)	Shiny, smooth, light colour (3)	Bitter, fatty, soft, citrus, creamy (2)

Associations were ranked according to the number of times they were mentioned by the 11 participating panellists.

Sensorial map/correlated characteristics



Comment by the brand owner

In relation to Heinz Mayonnaise we like to clarify that the product related to LT market in this testing is not part of the 'Seriously Good' Mayo Range. Please see the corresponding label which is stating 'Mayo Classic'. For this reason, the product related to LT market is of a different recipe compared to all the other Heinz Mayonnaise (Seriously Good) tested by the EC. The recipe is containing a higher oil as well as egg yolk level compared to the other (Seriously Good) Mayonnaise involved here. This will explain the different sensory outcome in relation to color and taste.

Nutrients

Country	Energy Value	[Total Fat]	[Fat Sat]	[Total Carb]	[Sugar]	[Protein]	[Salt]	[Fibre]
CZ	905	9.1	0.7	21	1.1	12	0.89	0.9
DE	818	7.7	0.6	18	0.8	13	1	0.8
HU	905	9.1	0.7	21	1.1	12	0.89	0.9
NL	826	7.9	0.7	18	0.8	13	1	0.8
SK	905	9.1	0.7	21	1.1	12	0.89	0.9

Energy values in kJ/100g; others in g/100g

Micronutrients

		CZ	DE	HU	NL	SK
Selenium	µg/100g	12		12	13	
EPA, DHA	mg/100g		131		215	
Iodine	µg/100 g		59.4		59.4	
Vitamin B12	µg/100 g		0.78			

Quantitative Ingredient Declaration

Ingredient	Unit	CZ	DE	HU	NL	SK
Alaskan pollock (Theragra chalcogramma) fillet	%	58	65	58	65	58
Breadcrumbs (wheat flour, water, spices (paprika, curcuma), salt,	%				16	
Fish oil	%				0.2	

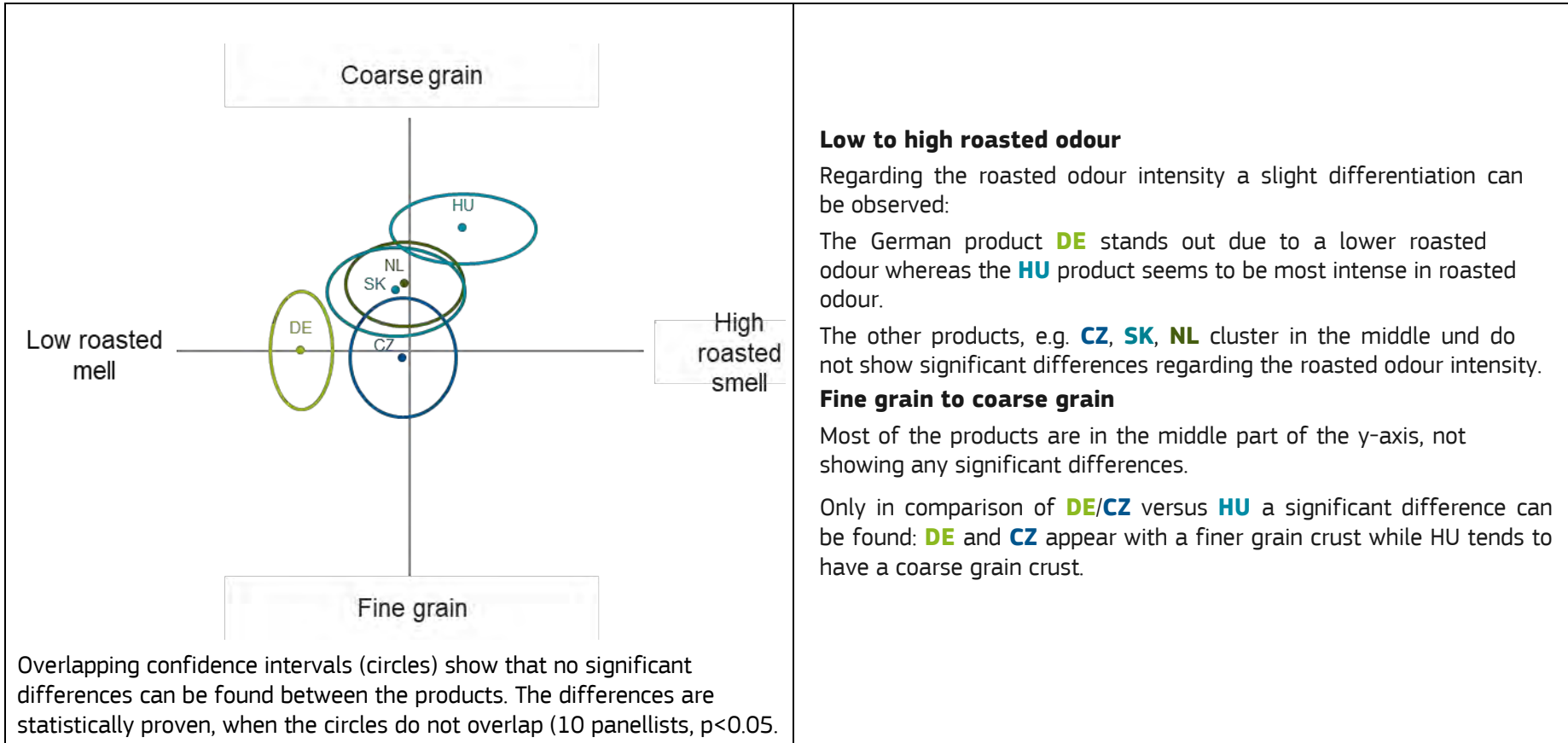
Ingredients

CZ	DE	HU	NL	SK
Alaskan pollock (Theragra chalcogramma)	Alaskan pollock (Theragra chalcogramma) fillet	Alaskan pollock (Theragra chalcogramma)	Alaskan pollock (Theragra chalcogramma)	Alaskan pollock (Theragra chalcogramma) fillet
Breadcrumbs (wheat flour, water, spices, salt, yeast)	Breadcrumbs (wheat flour, water, spices (paprika, curcuma), salt, yeast)	Breadcrumbs (wheat flour, water, spices, salt, yeast)	Breadcrumbs (wheat flour, water, spices), salt, yeast)	Breadcrumbs (wheat flour, water, spices, salt, yeast)
Rapeseed oil	Rapeseed oil	Rapeseed oil	Rapeseed oil	Rapeseed oil
Water	Water	Water	Wheat flour	Water
Wheat flour	Wheat flour	Wheat flour	Water	Wheat flour
Potato starch	Starch	Potato starch	Potato starch	Potato starch
Salt	Salt	Salt	Salt	Salt
			Fish oil	

Front Label Pictures

 <p>CZ</p>	 <p>DE</p>	 <p>HU</p>	 <p>NL</p>	 <p>SK</p>
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Sensory evaluation (Sorted Napping)

**Low to high roasted odour**

Regarding the roasted odour intensity a slight differentiation can be observed:

The German product **DE** stands out due to a lower roasted odour whereas the **HU** product seems to be most intense in roasted odour.

The other products, e.g. **CZ**, **SK**, **NL** cluster in the middle and do not show significant differences regarding the roasted odour intensity.

Fine grain to coarse grain

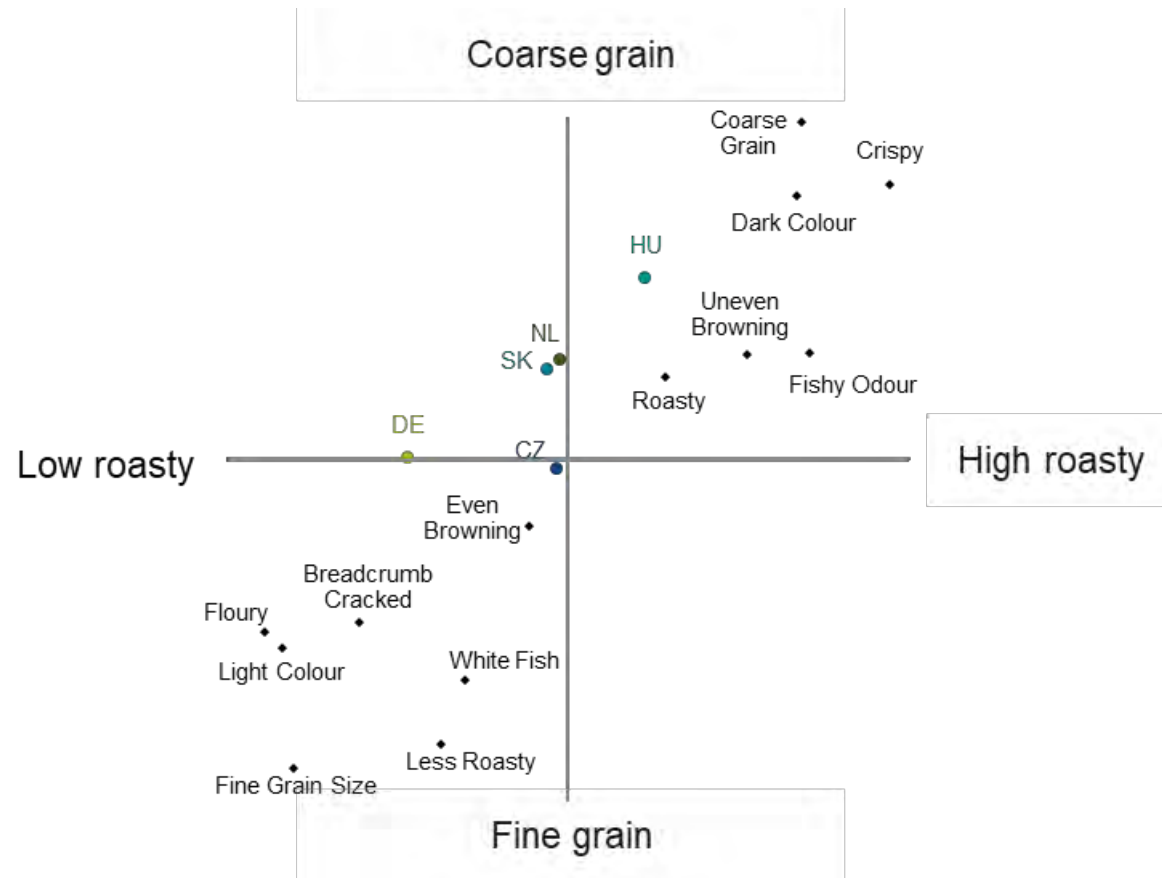
Most of the products are in the middle part of the y-axis, not showing any significant differences.

Only in comparison of **DE/CZ** versus **HU** a significant difference can be found: **DE** and **CZ** appear with a finer grain crust while HU tends to have a coarse grain crust.

Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
DE	Fine grain size, light colour (4)	Breadcrumb cracked (3)	Floury, roasty, coarse grain (2)
NL	Coarse grain (4)	Breadcrumb cracked (3)	Uneven browning, crispy (2)
CZ	Fine grain size (3)	Less roasty, white fish, breadcrumb cracked, roasty, crispy (2)	Light colour, floury, even browning, coarse grain, uneven browning, fishy odour (1)
SK	Breadcrumb cracked, coarse grain (4)	Light colour, crispy (3)	White fish (2)
HU	Coarse grain (7)	Crispy (3)	Roasty, dark colour (3)

Sensorial map/correlated characteristics



Nutrients

Country	Energy Value	[Total Fat]	[Fat Sat]	[Total Carb]	[Sugar]	[Protein]	[Salt]	[Fibre]
BG	1850	15.5	15.5	72	64	2.7	0.56	
DE	1815	10	10	81	59	1.8	0.15	2.2
EE	1825	13	13	74	65	3.2	0.07	4
HR	1825	13	13	74	65	3.2	0.07	4
HU	1825	13	13	74	65	3.2	0.07	4
LT	1825	13	13	74	65	3.2	0.07	4
SK	1825	13	13	74	65	3.2	0.07	4

Energy values in kJ/100g; others in g/100g

Quantitative Ingredients Declaration

		BG	DE	EE	HR	HU	LT	SK
Brown sugar	%	17						
Coffee whitener	%			22		22	22	
Instant coffee	%	10	8	15	15	15	15	15
Sugar	%		54	62	62	62	62	62

Ingredients

BG	DE	EE	HR	HU	LT	SK
Sugar	Sugar	Sugar	Sugar	Sugar	Sugar	Sugar
Brown sugar	Glucose syrup	Instant coffee	Instant coffee	Instant coffee	Instant coffee	Instant coffee
Fully hydrogenated coconut oil	Fully hydrogenated coconut oil	Fully hydrogenated coconut oil	Fully hydrogenated coconut oil	Fully hydrogenated coconut oil	Fully hydrogenated coconut oil	Fully hydrogenated coconut oil
Instant coffee	Instant coffee	Glucose syrup	Glucose syrup	Glucose syrup	Glucose syrup	Glucose syrup
Glucose syrup	Stabilizers (E340, E452)	Milk protein	Milk protein	Milk protein	Milk protein	Milk protein
Maltodextrin	Milk protein	Lactose	Lactose	Lactose	Lactose	Lactose
Milk protein	Emulsifiers (E471, E481)	Stabilizers (E340, E452)	Stabilizers (E340, E452)	Stabilizers (E340, E452)	Stabilizers (E340, E452)	Stabilizers (E340, E452)
Lactose	Anticaking agents (E551)	Emulsifiers (E471)	Emulsifiers (E471)	Emulsifiers (E471)	Emulsifiers (E471)	Emulsifiers (E471)
Stabilizers (E340, E452)		Anticaking agents (E341)	Anticaking agents (E341)	Anticaking agents (E341)	Anticaking agents (E341)	Anticaking agents (E341)
Emulsifiers (E471, E1450)						
Salt						
Anticaking agents (E341, E551)						

Front Label Pictures



BG



DE



EE



HR



HU

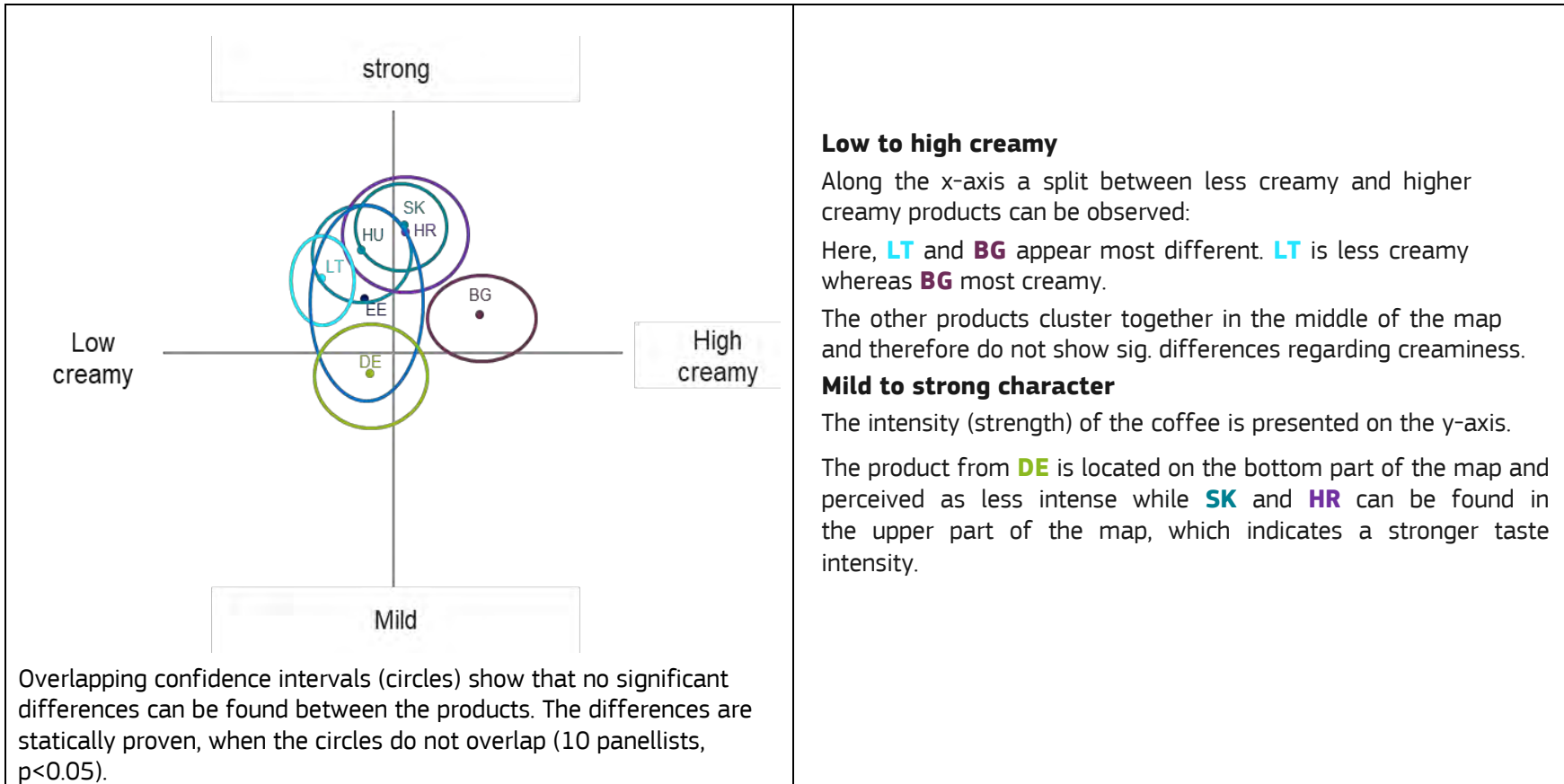


LT



SK

Sensory evaluation (Sorted Napping)

**Low to high creamy**

Along the x-axis a split between less creamy and higher creamy products can be observed:

Here, **LT** and **BG** appear most different. **LT** is less creamy whereas **BG** most creamy.

The other products cluster together in the middle of the map and therefore do not show sig. differences regarding creaminess.

Mild to strong character

The intensity (strength) of the coffee is presented on the y-axis.

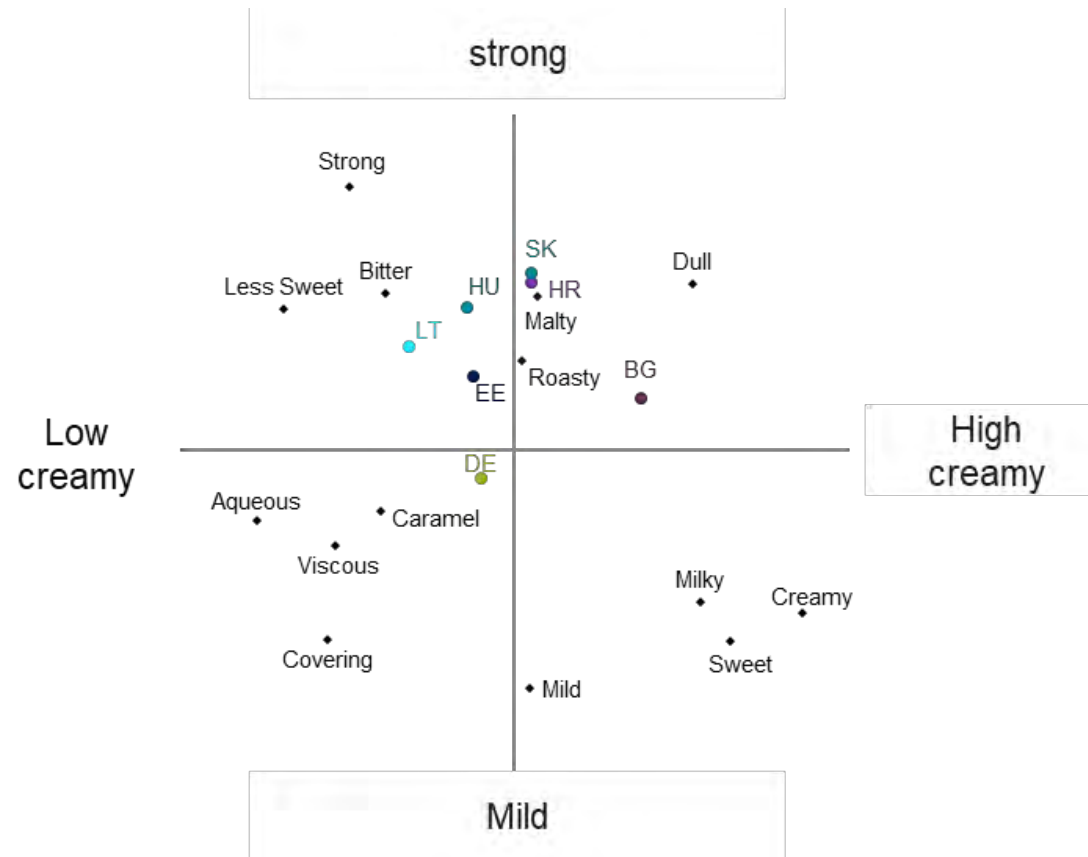
The product from **DE** is located on the bottom part of the map and perceived as less intense while **SK** and **HR** can be found in the upper part of the map, which indicates a stronger taste intensity.

Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
BG	Sweet (6)	Creamy, milky (4)	Roasty, bitter (3)
DE	Sweet (5)	Bitter, milky, mild (3)	Aqueous (3)
EE	Bitter (9)	Roasty (5)	Aqueous, strong (4)
HR	Bitter (5)	Strong (4)	Milky, aqueous (3)
HU	Bitter (7)	Roasty, sweet (4)	Strong (3)
LT	Bitter (5)	Aqueous, strong (4)	Less sweet (3)
SK	Bitter (8)	Roasty, strong (4)	Sweet (4)

Associations were ranked according to the number of times they were mentioned by the 10 participating panellists.

Sensorial map/correlated characteristics



Comment from the brand owner

No comment received

Nutrients

Country	Energy Value	[Total Fat]	[Fat Sat]	[Total Carb]	[Sugar]	[Protein]	[Salt]	[Fibre]
BG	1578	1.5	0.3	78	11.9	9.3	1	4.8
CZ	1578	1.5	0.3	78	11.9	9.3	1	4.8
DE	1578	1.5	0.3	78	11.9	9.3	1	4.8
IT	1588	1.5	0.3	79	15	9	1	4.5
MT	1588	1.5	0.3	79	15	9	1	4.5
SI	1578	1.5	0.3	78	11.9	9.3	1	4.8

Energy values in kJ/100g; others in g/100g

Quantitative Ingredients Declaration

	Unit	BG	CZ	DE	IT	MT	SI
Barley	%	5	5	5	5	5	5
Malted barley flour	%	4	4	4	3.5	3.5	4
Rice	%	48	48	48	46	46	48
Whole wheat	%	38	38	38	37	37	38

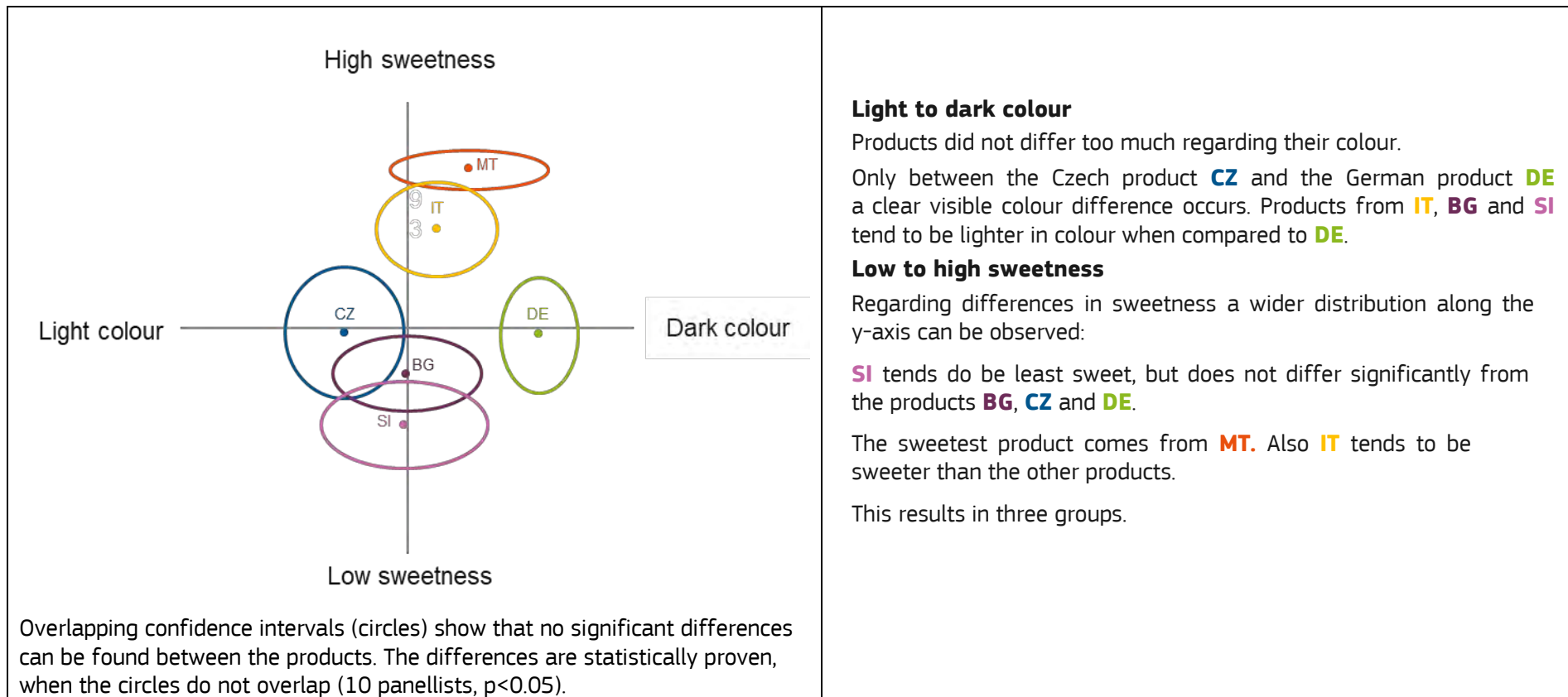
Ingredients

BG	CZ	DE	IT	MT	SI
Rice	Rice	Rice	Rice	Rice	Rice
Whole wheat	Whole wheat	Whole wheat	Whole wheat	Whole wheat	Whole wheat
Sugar	Sugar	Sugar	Sugar	Sugar	Sugar
Barley	Barley	Barley	Barley	Barley	Barley
Malted barley flour	Malted barley	Malted barley flour	Malted barley flour	Malted barley flour	Malted barley flour
Barley malt flavouring	Barley malt flavouring	Barley malt	Barley malt flavouring	Barley malt flavouring	Barley malt
Salt	Salt	Salt	Salt	Salt	Salt
			Vitamin B3	Vitamin B3	
			Iron	Iron	
			Zinc	Zinc	
			Vitamin B2	Vitamin B2	
			Vitamin B1	Vitamin B1	
			Vitamin B6	Vitamin B6	
			Vitamin B9	Vitamin B9	
			Vitamin D	Vitamin D	
			Vitamin B12	Vitamin B12	

Front Label Pictures



Sensory evaluation (Sorted Napping)

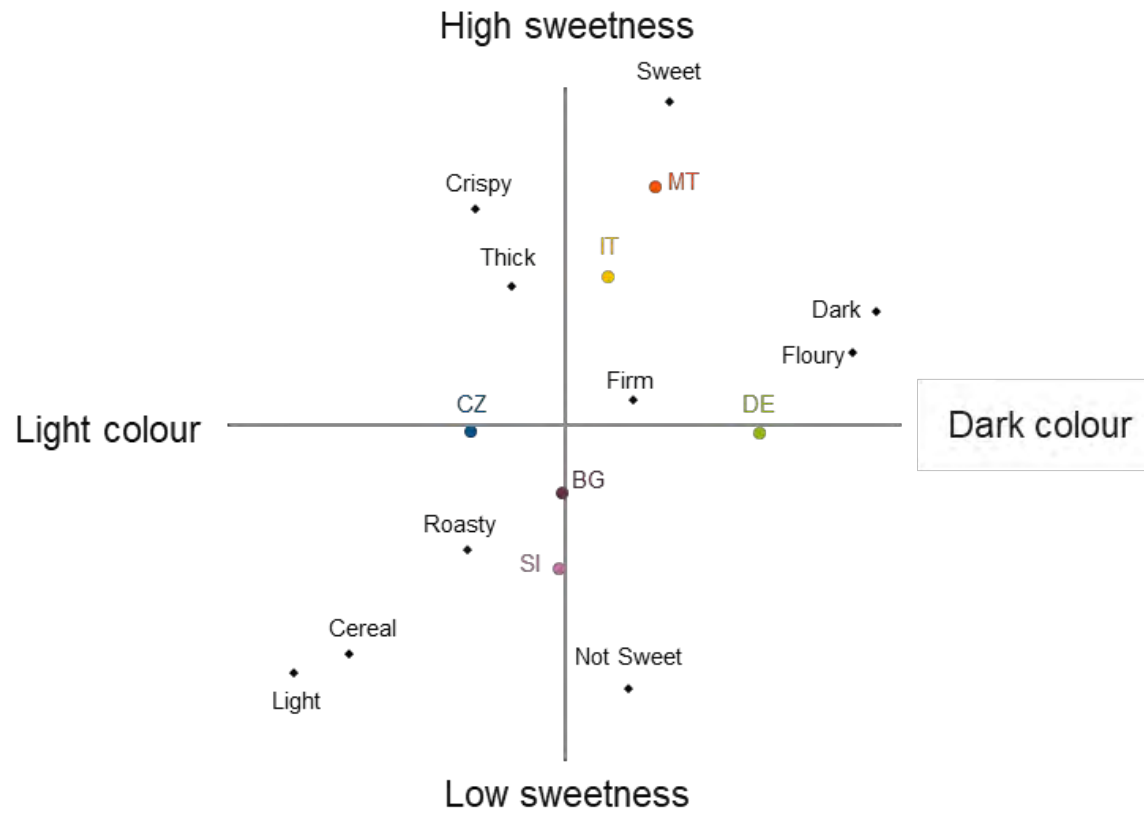


Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
BG	Crispy (6)	Cereal (5)	Firm, not sweet (3)
MT	Crispy (7)	Sweet (6)	Dark, Cereal (3)
SI	Cereal, Light (4)	Crispy (3)	Dark, not sweet (2)
IT	Crispy (7)	Sweet (6)	Dark (4)
DE	Crispy, Dark (5)	Sweet, cereal, not sweet, floury (3)	Firm, thick (1)
CZ	Crispy (8)	Cereal (4)	Sweet, light (3)

Associations were ranked according to the number of times they were mentioned by the 10 participating panellists.

Sensorial map/correlated characteristics



Nutrients

Country	Energy Value	[Total Fat]	[Fat Sat]	[Total Carb]	[Sugar]	[Protein]	[Salt]
CZ	1873	29.7	20	37.8	33.1	7	0.254
DE	1873	29.7	20	37.8	33.1	7	0.254
EE	1873	29.7	20	37.8	33.1	7	0.254
HR	1858	28.3	18.1	41.5	34.5	5.3	0.229
IT	1858	28.3	18.1	41.5	34.5	5.3	0.229
SI	1873	29.7	20	37.8	33.1	7	0.254
SK	1873	29.7	20	37.8	33.1	7	0.254

Energy values in kJ/100g; others in g/100g

Quantitative Ingredients Declaration

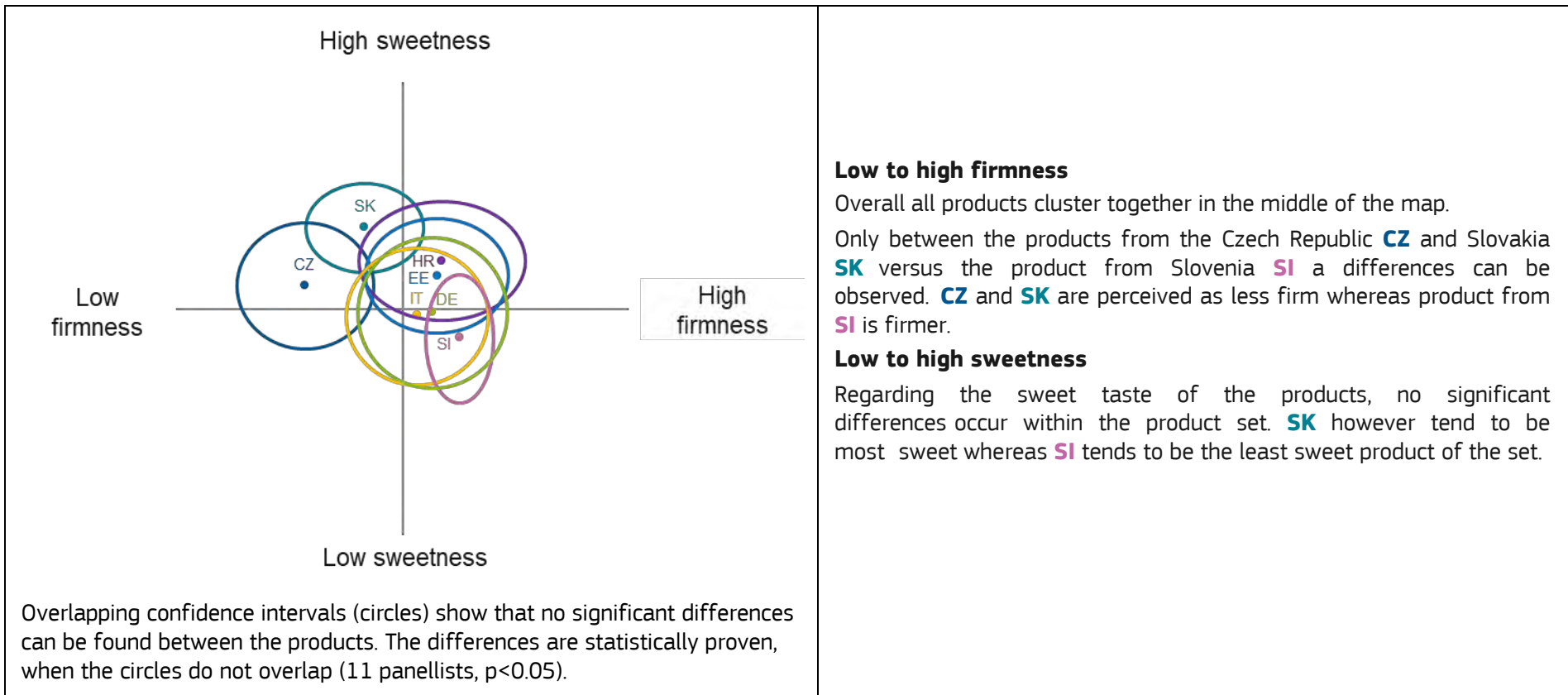
		CZ	DE	EE	HR	IT	SI	SK
Cocoa	%					1.5		
Chocolate (sugar, cocoa mass, cocoa butter, emulsifier lecithin (soya), vanillin)	%	21	21	21	20	20	21	21
Milk	%	24	24	24	21	21	24	24
Milk chocolate (sugar, whole milk powder, cocoa butter, cocoa mass, emulsifier lecithin (soya), vanillin)	%	1	1	1			1	1
Milk cream filling	%	48.5	48.5	48.5	45		48.5	48.5
Skimmed milk powder	%	9.5	9.5	9.5	5		9.5	9.5

Ingredients

CZ	DE	EE	HR	IT	SI	SK
Milk	Milk	Milk	Milk	Milk	Milk	Milk
Chocolate (sugar, cocoa mass, cocoa butter, emulsifier lecithin (soya), vanillin)	Chocolate (sugar, cocoa mass, cocoa butter, emulsifier lecithin (soya), vanillin)	Chocolate (sugar, cocoa mass, cocoa butter, emulsifier lecithin (soya), vanillin)	Chocolate (sugar, cocoa mass, cocoa butter, emulsifier lecithin (soya), vanillin)	Chocolate (sugar, cocoa mass, cocoa butter, emulsifier lecithin (soya), vanillin)	Chocolate (sugar, cocoa mass, cocoa butter, emulsifier lecithine (soya), vanillin)	Chocolate (sugar, cocoa mass, cocoa butter, emulsifier lecithin (soya), vanillin)
Sugar	Sugar	Sugar	Sugar	Sugar	Sugar	Sugar
Palm oil	Palm oil	Palm oil	Palm oil	Palm oil	Palm oil	Palm oil
Skimmed milk powder	Skimmed milk powder	Skimmed milk powder	Wheat flour	Wheat flour	Skimmed milk powder	Skimmed milk powder
Wheat flour	Wheat flour	Wheat flour	Skimmed milk powder	Skimmed milk powder	Wheat flour	Wheat flour
Cocoa butter	Cocoa butter	Cocoa butter	Dextrose	Dextrose	Cocoa butter	Cocoa butter
Milkfat	Milkfat	Milkfat	Cocoa	Cocoa	Milkfat	Milkfat
Dextrose	Dextrose	Dextrose	Milkfat	Milkfat	Dextrose	Dextrose
Milk chocolate (sugar, whole milk powder, cocoa butter, cocoa mass, emulsifier lecithin (soya), vanillin)	Milk chocolate (sugar, whole milk powder, cocoa butter, cocoa mass, emulsifier lecithin (soya), vanillin)	Milk chocolate (sugar, whole milk powder, cocoa butter, cocoa mass, emulsifier lecithin (soya), vanillin)	Egg powder	Egg powder	Milk chocolate (sugar, whole milk powder, cocoa butter, cocoa mass, emulsifier lecithine (soya), vanillin)	Milk chocolate (sugar, whole milk powder, cocoa butter, cocoa mass, emulsifier lecithin (soya), vanillin)
Low fat cocoa powder	Low fat cocoa powder	Low fat cocoa powder	Glucose fructose syrup	Glucose fructose syrup	Low fat cocoa powder	Low fat cocoa powder
Egg powder	Egg powder	Egg powder	Low fat cocoa powder	Low fat cocoa powder	Egg powder	Egg powder
Yeast	Yeast	Yeast	Yeast	Yeast	Yeast	Yeast
Flavourings	Flavourings	Flavourings	Flavourings	Flavourings	Flavourings	Flavourings
Emulsifiers (mono- and diglycerides of fatty acids)	Emulsifiers (mono- and diglycerides of fatty acids)	Emulsifiers (mono- and diglycerides of fatty acids)	Emulsifiers (mono- and diglycerides of fatty acids)	Emulsifiers (mono- and diglycerides of fatty acids)	Emulsifiers (mono- and diglycerides of fatty acids)	Emulsifiers (mono- and diglycerides of fatty acids)
Salt	Salt	Salt	Salt	Salt	Salt	Salt
Barley malt extract	Barley malt extract	Barley malt extract			Barley malt extract	Barley malt extract
	Vanillin					

Front Label Pictures

 <p>CZ</p>	<p>Not available</p> <p>DE</p>	 <p>EE</p>	 <p>HR</p>
 <p>IT</p>	 <p>SI</p>	 <p>SK</p>	

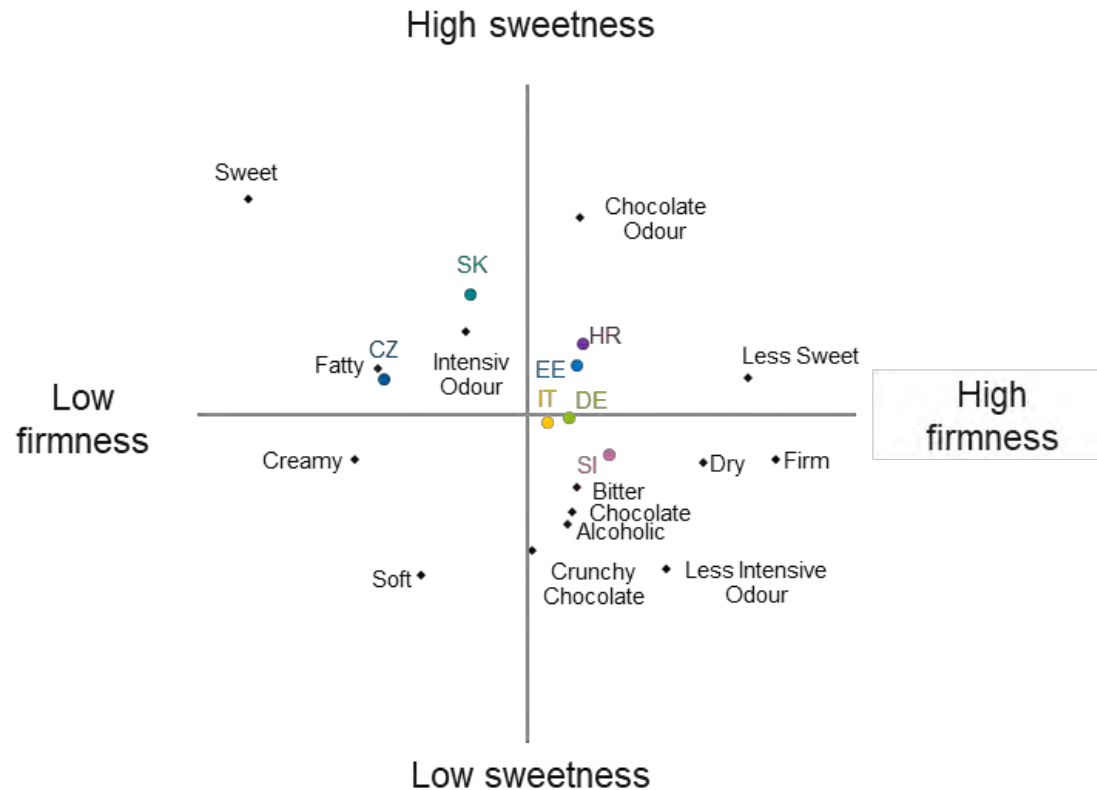
Sensory evaluation (Sorted Napping)

Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
SK	Sweet (7)	Fatty, intensive colour, firm (2)	Crunchy chocolate, creamy, less sweet, chocolate odour, chocolate, bitter, dry (1)
HR	Firm (5)	Sweet, less sweet (4)	Creamy (3)
CZ	Sweet, creamy (6)	Soft (3)	Fatty (2)
SI	Sweet, firm, dry (3)	Fatty, intensive colour, creamy, less sweet, soft (2)	Crunchy chocolate, chocolate, bitter, less intensive colour, alcoholic (1)
DE	Sweet, creamy, firm (4)	Less sweet, chocolate (3)	Crunchy chocolate, bitter, less Intensive odour (2)
EE	Firm (6)	Less sweet (4)	Sweet (3)
IT	Firm (5)	Sweet (4)	Crunchy chocolate, bitter (2)

Associations were ranked according to the number of times they were mentioned by the 11 participating panellists.

Sensorial map/correlated characteristics



Comments by the brand owner

As previously communicated, Kinder Pinguì is produced in two different plants built over time, first in Italy and later-on in Germany, thus the recipes were slightly adapted to technological needs and production feasibility.

Both recipes are treated in the same manner from quality assurance and quality control point of view, including all food safety parameters, raw material controls, distribution controls and testing.

The nutritional differences in terms of protein and sugar have minimal effect on total daily consumption.

Therefore, Ferrero considers that both products are of equivalent quality and, in several cases, both versions are marketed (in different formats) in the same country as market research confirmed that 2/3 (66%) of consumers do not recognize the difference between the two recipes and 69% show the same satisfaction rating.

Regarding the sensory analysis, we noticed that the reported differences were found on the samples marketed in Czech Republic / Slovakia and Slovenia that are produced in the same plant and according to the same recipe. Basing on our experience, we deem that the reported firmness difference might be due to different storage conditions after sampling, whilst the perceived sweetness variance might depend on the consumption timing within product shelf life.

Front Label Pictures



BE



BG



CZ



DE



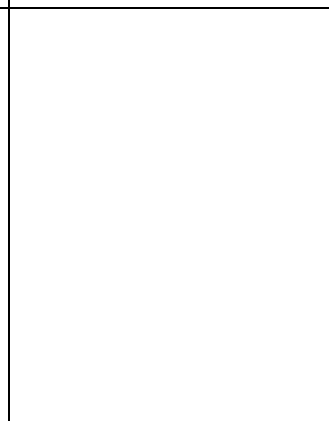
HU



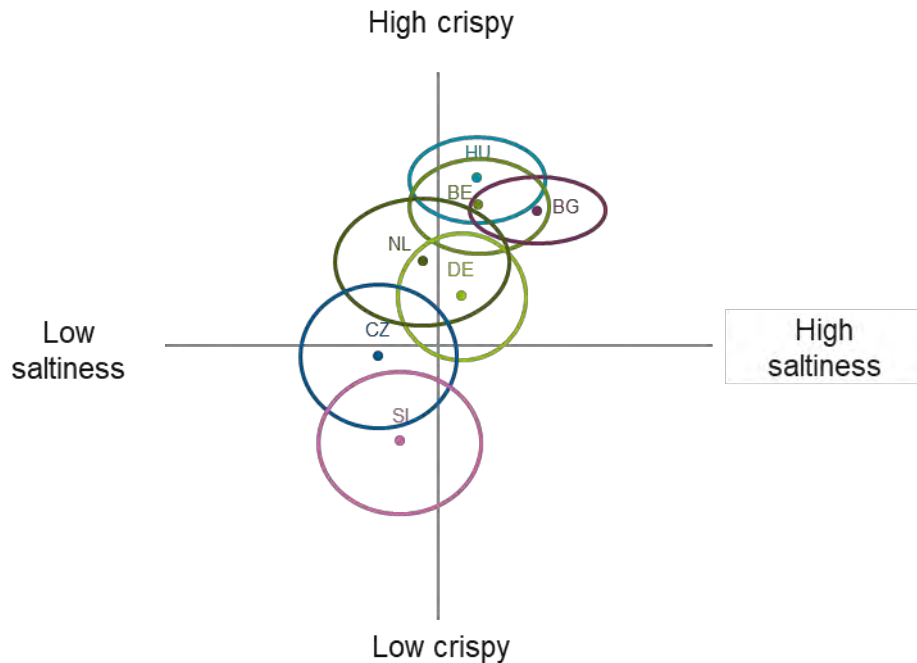
NL



SI



Sensory evaluation (Sorted Napping)



Overlapping confidence intervals (circles) show that no significant differences can be found between the products. The differences are statistically proven, when the circles do not overlap (13 panellists, $p < 0.05$).

Low to high saltiness

Regarding the salt intensity, only two products differ significantly: the products from Czech Republic **CZ** tends to be least salty while **BG** is most salty.

No further product differences can be observed.

Low to high crispiness

An obvious distribution of products can be observed along the y-axis: products mainly can be differentiated in their crispy mouthfeel.

It can be deduced, that the product from Slovenia **SI** is least crispy. Compared to **SI**, products in the upper part of the map, e.g. **DE**, **NL**, **BE**, **HU** and **BG**, show a significant higher crispiness.

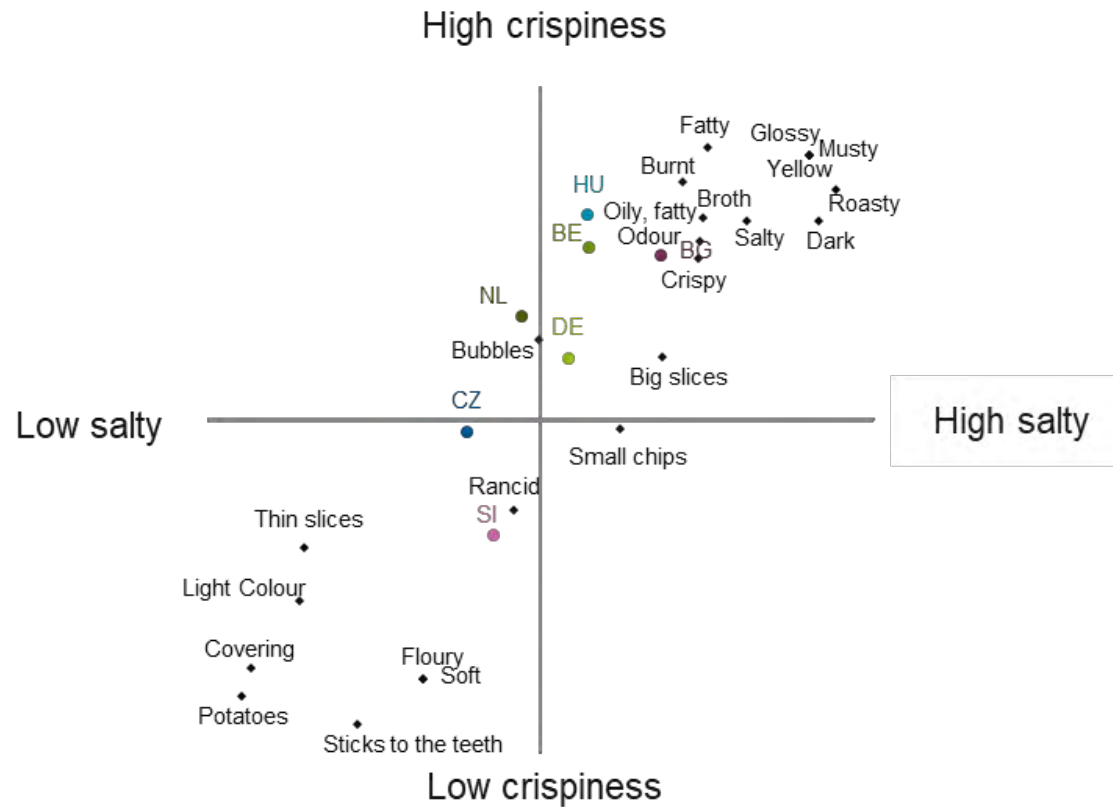
The most obvious differentiation can be found between the following products: **SI** (least crispy) vs. **DE** (medium crispy) vs. **HU** (most crispy).

Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
CZ	Light colour (10)	thin slices (3)	Potatoes, sticks to the teeth, fatty, oily, fatty, odour, Small chips (2)
NL	Fatty, thin slices, burnt (4)	Light colour, bubbles (3)	Oily/fatty odour (2)
BE	Fatty (4)	Bubbles, burnt (3)	Salty, big slices (2)
BG	Dark (6)	fatty, oily/fatty odour, small chips (3)	Salty, burnt, roasty (2)
HU	Oily/fatty odour (4)	Fatty, dark, big slices, crispy (3)	Light colour, burnt (2)
DE	Light colour (5)	sticks to the teeth, fatty, oily/fatty odour, big slices (3)	Bubbles, crispy (2)
SI	sticks to the teeth (7)	light Colour (3)	Potatoes, big slices, floury, soft (2)

Associations were ranked according to the number of times they were mentioned by the 13 participating panellists.

Sensorial map/correlated characteristics



Comment from the brand owner

In all of the markets, Lay's Salted/Nature potato chips are made to the same recipe specification from potatoes, a blend of vegetable oils and salt. Vegetable oils are selected from sunflower, rapeseed and corn oils depending on local availability and historic preferences, with slight differences in nutrition information resulting from minor manufacturing variances and the agricultural nature of potatoes.

The saltiness and crispiness of potato chips both fall within a range owing to natural variations, particularly in potatoes, and this is reflected in the observations of the sensory panel. Production date and storage conditions can also affect crispiness and other sensory attributes. For example, as potato chips from 4 of the markets are

produced at the same location to the same recipe (CZ, DE, HU, SI), the textural differences noted by the panel are likely to be the result of differences in storage conditions, production date and natural variations in different potato batches.

Ingredients

BE	BG	DE	ES	LT	MT	SK
Water	Water	Water	Water	Water	Water	Water
Inverted sugar	Sugar	Sugar	Sugar	Sugar	Sugar	Sugar
Fructose	Fructose	Food acids (citric acid)	Fructose	Fructose	Black Tea Extract	Fructose
Food acid (citric acid)	Food acid (citric acid)	Black tea extract	Food acids (citric acid)	Food acids (citric acid)	Flavouring	Food acids (citric acid)
Black tea extract	Black tea extract	Flavouring	Black tea extract	Black tea extract	Food acids (citric acid)	Black tea extract
Lemon juice from concentrate	Lemon juice from concentrate	Acidity regulators (trisodium citrate)	Lemon juice from concentrate	Lemon juice from concentrate	Lemon juice from concentrate	Lemon juice from concentrate
Acidity regulator (trisodium citrate)	Acidity regulators (trisodium citrate)	Antioxidant (ascorbic acid)	Acidity regulators (sodium citrate)	Acidity regulators (sodium citrate)	Antioxidant (ascorbic acid)	Acidity regulators (sodium citrate)
Flavouring	Flavouring	Lemon juice from concentrate	Flavouring	Flavouring	Acidity regulators (sodium citrate)	Flavouring
Antioxidant (ascorbic acid)	Antioxidant (ascorbic acid)	Sweeteners (steviol glycoside)	Antioxidant (ascorbic acid)	Antioxidants (ascorbic acid)	Sweeteners (steviol glycoside)	Antioxidant (ascorbic acid)
Sweeteners (steviol glycoside)	Sweeteners (steviol glycoside)		Sweeteners (steviol glycoside)	Sweeteners (steviol glycoside)		Sweeteners (steviol glycoside)

Front Label Pictures



BE



BG



DE



ES



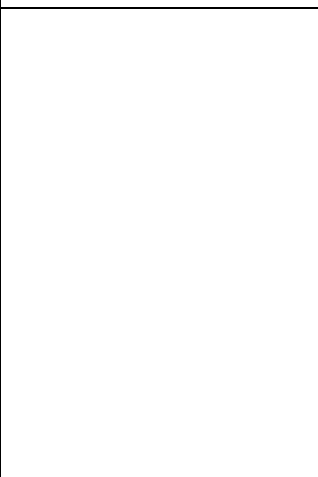
LT



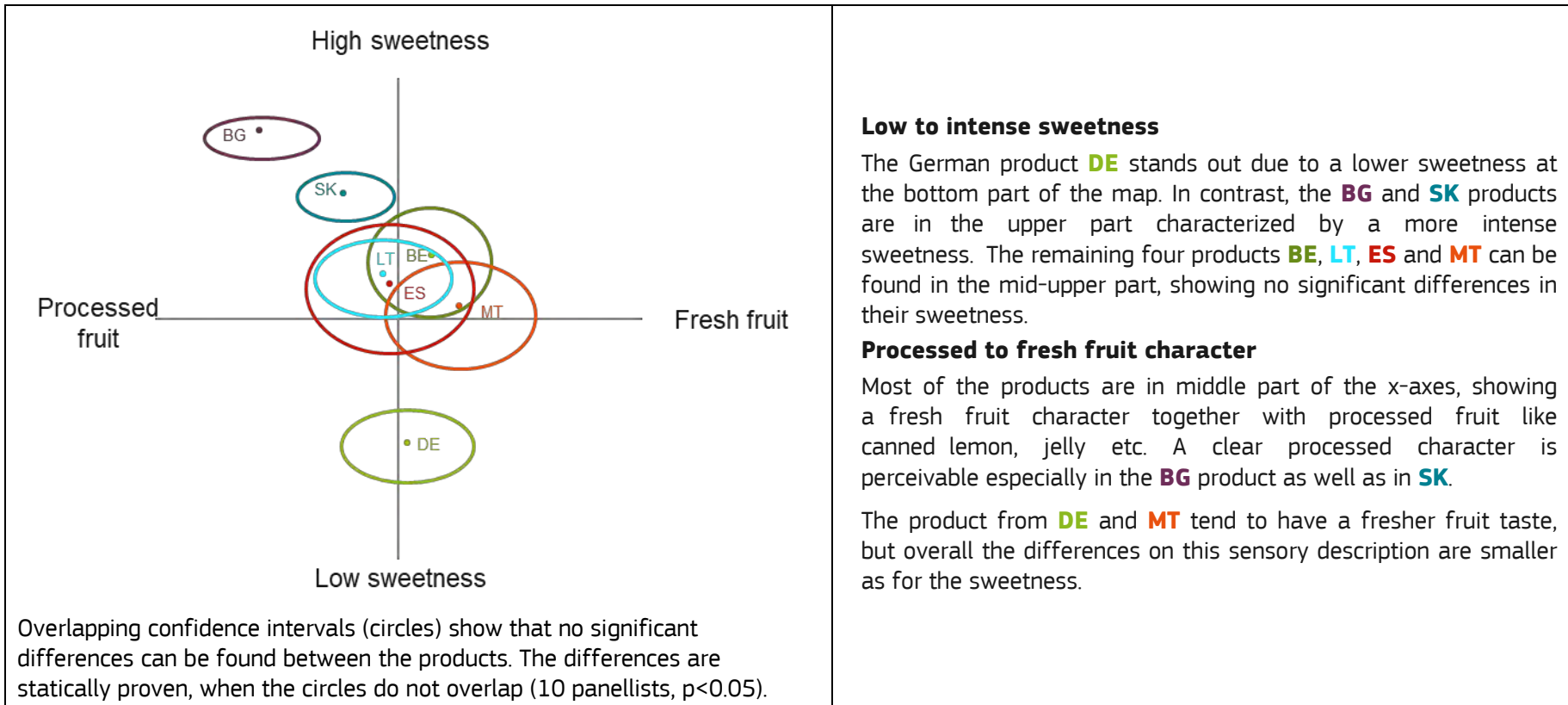
MT



SK



Sensory evaluation (Sorted Napping)

**Low to intense sweetness**

The German product **DE** stands out due to a lower sweetness at the bottom part of the map. In contrast, the **BG** and **SK** products are in the upper part characterized by a more intense sweetness. The remaining four products **BE**, **LT**, **ES** and **MT** can be found in the mid-upper part, showing no significant differences in their sweetness.

Processed to fresh fruit character

Most of the products are in middle part of the x-axes, showing a fresh fruit character together with processed fruit like canned lemon, jelly etc. A clear processed character is perceivable especially in the **BG** product as well as in **SK**.

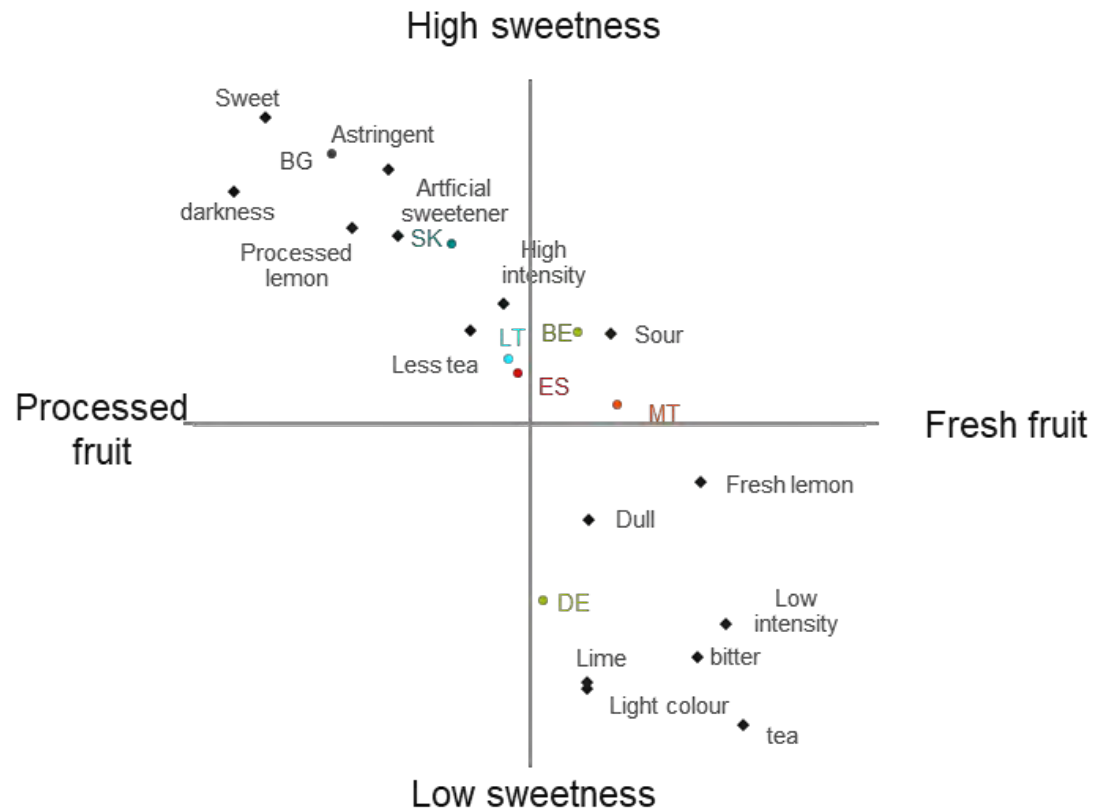
The product from **DE** and **MT** tend to have a fresher fruit taste, but overall the differences on this sensory description are smaller as for the sweetness.

Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
BG	Sweet (9)	Dark colour (6)	Sour (3)
DE	Black tea (6)	Low overall intensity, bitter, sour, light colour (3)	Sweet, fresh lemon, lime (2)
ES	Sweet, sour (5)	Fresh Lemon, bitter, black tea, medium colour (2)	Artificial sweetener , cola (1)
LT	Sweet (5)	Sour (4)	Fresh lemon. bitter, black tea, processed lemon (3)
MT	Low overall intensity (5)	Sweet, fresh lemon, black tea, sour (4)	Bitter (3)
SK	Sour (7)	Sweet (5)	Processed lemon (4)
BE	Sour (8)	Sweet (5)	Black tea (3)

Associations were ranked according to the number of times they were mentioned by the 10 participating panellists.

Sensorial map/correlated characteristics



Comments from the brand owner

We sell a number of different variants of Lipton Ice Tea Lemon 1.5l across Europe. National differences in approach towards encouraging sugar reduction in a number of European countries might result in different taste profiles as different countries implement these voluntary agreements at a different speed. These sugar reduction commitments are implemented gradually (so as to take the consumer along on this journey). Minor changes might occur as a result of this gradual voluntary implementation.

While some differences were flagged in the sensory test over the level of sweetness for the DE, BG and SK products, the German recipe is the only one with slightly different sugar values with 4.2 vs 4.5g of sugar per 100ml.

The main source of sodium in Lipton Ice Team Lemon is tri-sodium citrate (E331), an acidity regulator that is used for the correct pH condition to achieve and maintain microbiological and tea stability. Other small amount comes from sodium ions that are naturally occurring in naturally sourced ingredients: sugar, tea extract and lemon juice extract. Sodium ions are declared as salt for regulatory compliance (salt g/100ml = 2.5 x sodium ions g/100ml).

Front Label Pictures



BE



DE



EE



ES



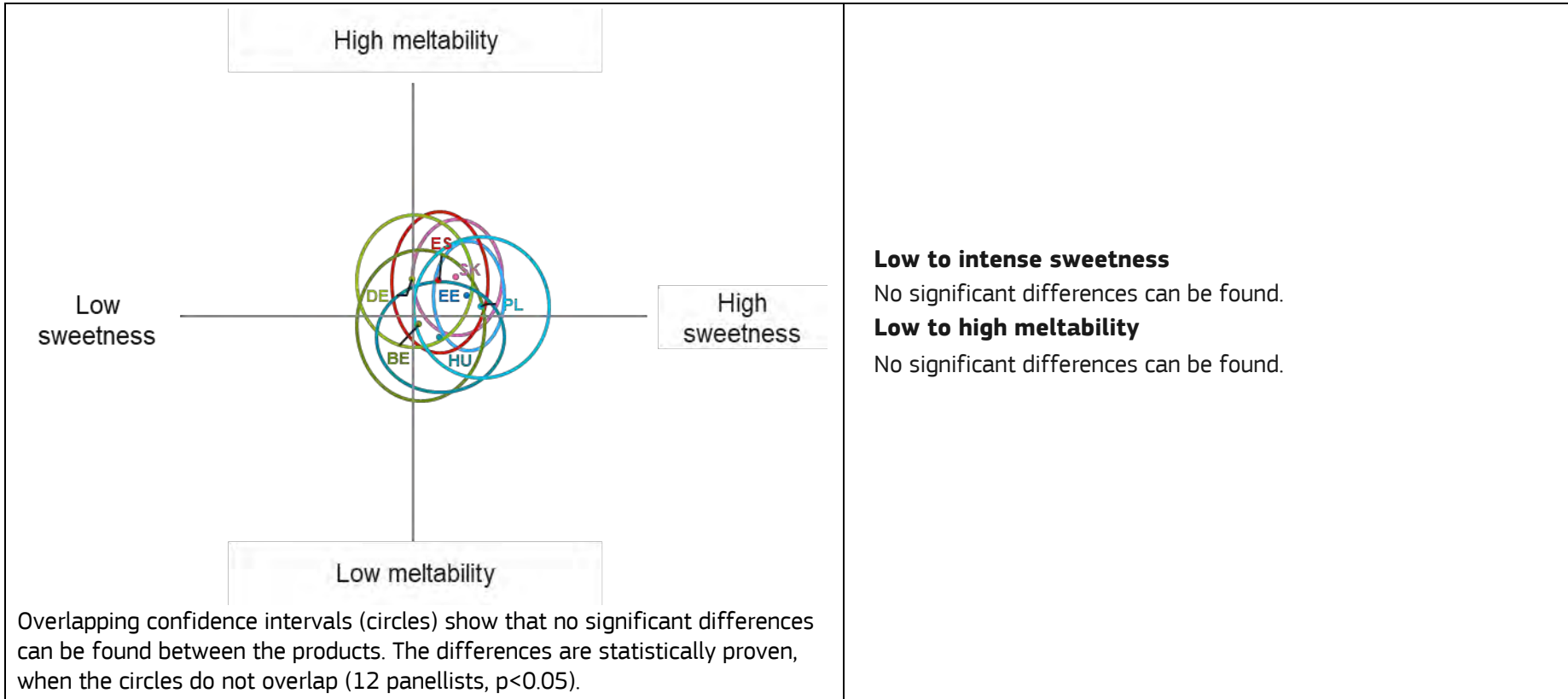
HU



PL



SK

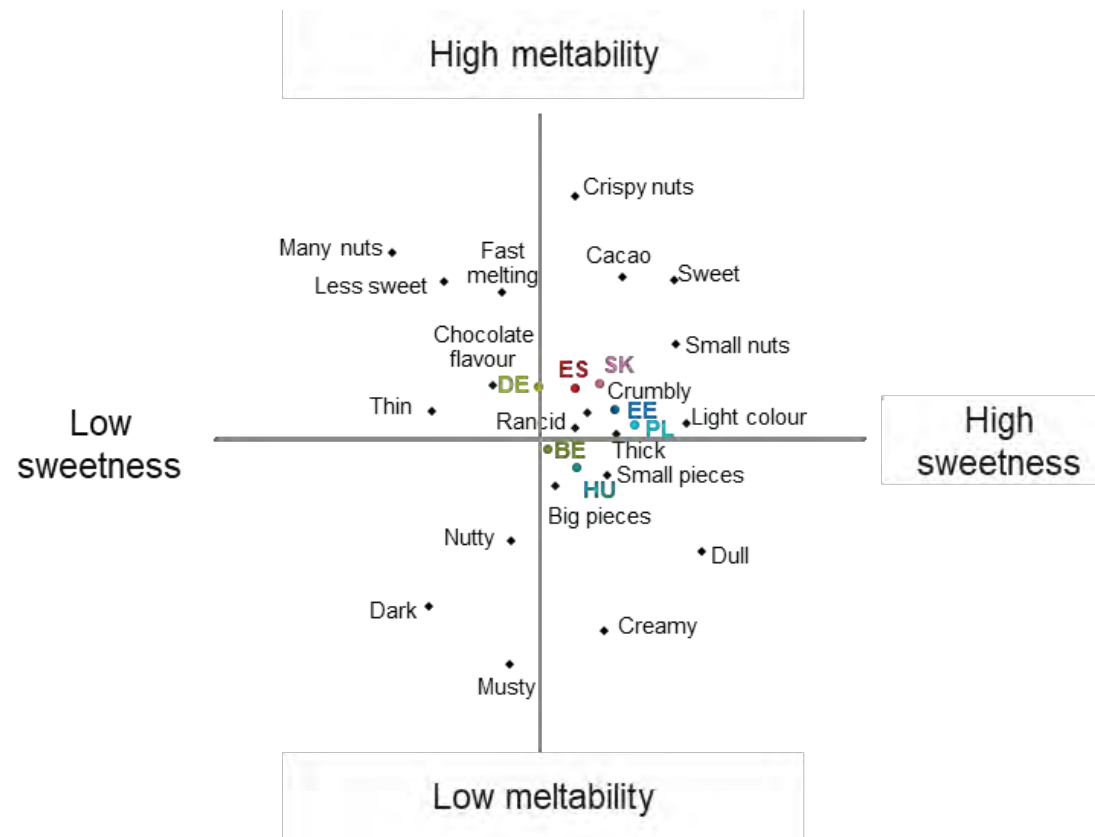
Sensory evaluation (Sorted Napping)

Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
BE	Nutty (4)	Chocolate flavour (2)	Dark, thick, creamy, fast melting, light colour, big pieces, rancid (1)
EE	Nutty (4)	Small pieces (3)	rancid, small nuts, sweet (2)
DE	Nutty (3)	Chocolate flavour, less sweet, many nuts (2)	Dark, small pieces, sweet, cacao, thin, crispy nuts (1)
SK	Chocolate flavour, fast melting, small nuts, crumbly (2)	Dark, nutty, creamy, light colour, small pieces, sweet, thin, crispy nuts, many nuts, dull (1)	/
HU	Musty (3)	Dark, nutty, small pieces, dull (2)	Chocolate flavour, creamy, small nuts, sweet, thin, crumbly (1)
ES	Thick, nutty, fast melting, sweet (2)	Chocolate flavour, light colour, big pieces, rancid, cacao, less sweet, crispy nuts, dull (1)	/
PL	Nutty (3)	Thick, Chocolate flavour, light colour, dull (2)	Creamy, big pieces, sweet, cacao, less sweet, crispy nuts (1)

Associations were ranked according to the number of times they were mentioned by the 12 participating panellists.

Sensorial map/correlated characteristics



Comment by the brand owner

JRC carried out a comparative assessment in 2018/2019 of information provided on the label of products sampled from Milka Alpine Whole Hazelnuts. Mondelez shared comments to JRC.

We responded that the Milka Alpine Whole Hazelnuts products chosen are non-identical products because of different product sizes (big tablet sizes vs small tablet sizes) and should not be compared.

Nevertheless, also sensory testings were carried out on the different sizes of Milka hazelnut products but no significant differences found.

We therefore believe that the testings for these Mondelez brands have come to an end, according to the JRC methodology.

Nutrients

Country	Energy Value	[Total Fat]	[Fat Sat]	[Total Carb]	[Sugar]	[Protein]	[Salt]	[Fibre]
BE	2074	25	13	62	33	5.8	0.87	1.7
DE	2066	24	13	62	34	5.8	0.83	1.7
HR	2040	24	12	62	36	5.2	0.83	1.8
LV	2074	25	13	62	33	5.8	0.87	1.7
PL	2074	25	13	62	33	5.8	0.87	1.7
SI	2040	24	12	62	36	5.2	0.83	1.8

Energy values in kJ/100g; others in g/100g

Quantitative Ingredients Declaration

		BE	DE	HR	LV	PL	SI
Milk chocolate	%	36	31	35	29	29	35
Wheat flour	%	32	34	32		35	31.8

Ingredients

BE	DE	HR	LV	PL	SI
Sugar	Wheat flour	Wheat flour	Wheat flour	Wheat flour	Wheat flour
Wheat flour	Sugar	Sugar	Sugar	Sugar	Sugar
Palm oil	Palm oil	Palm oil	Palm oil	Palm oil	Palm oil
Whole milk powder	Egg	Whole milk powder	Egg	Egg	Whole milk powder
Cocoa mass	Whole milk powder	Cocoa mass	Whole milk powder	Whole milk powder	Cocoa mass
Cocoa butter	Cocoa mass	Cocoa butter	Cocoa mass	Cocoa mass	Cocoa butter
Whey powder	Cocoa butter	Glucose syrup	Cocoa butter	Cocoa butter	Glucose syrup
Raising agents (ammonium carbonate, sodium carbonates, diphosphates)	Glucose syrup	Wheat starch	Glucose syrup	Glucose syrup	Wheat starch
Salt	Wheat starch	Whey powder	Wheat starch	Wheat starch	Whey powder
Emulsifiers (soy lecithin)	Whey powder	Raising agents (sodium carbonate, disodium diphosphate, calcium carbonate)	Whey powder	Whey powder	Raising agents (sodium carbonate, disodium diphosphate, calcium carbonate)
Flavouring	Raising agents (sodium diphosphate, sodium carbonate)	Emulsifiers (soy lecithin)	Raising agents (diphosphates, sodium carbonate)	Raising agents (diphosphate, sodium carbonate)	Emulsifiers (soy lecithin)
Colour (carotene)	Emulsifier (soya lecithin)	Salt	Emulsifiers (soy lecithin)	Emulsifiers (soy lecithin)	Salt
	Salt	Flavouring	Salt	Salt	Flavouring
	Flavouring	Egg white powder	Flavouring	Flavouring	Egg white powder
	Egg white powder		Egg white powder	Egg white powder	

Front Label Pictures



BE



DE



HR



LV

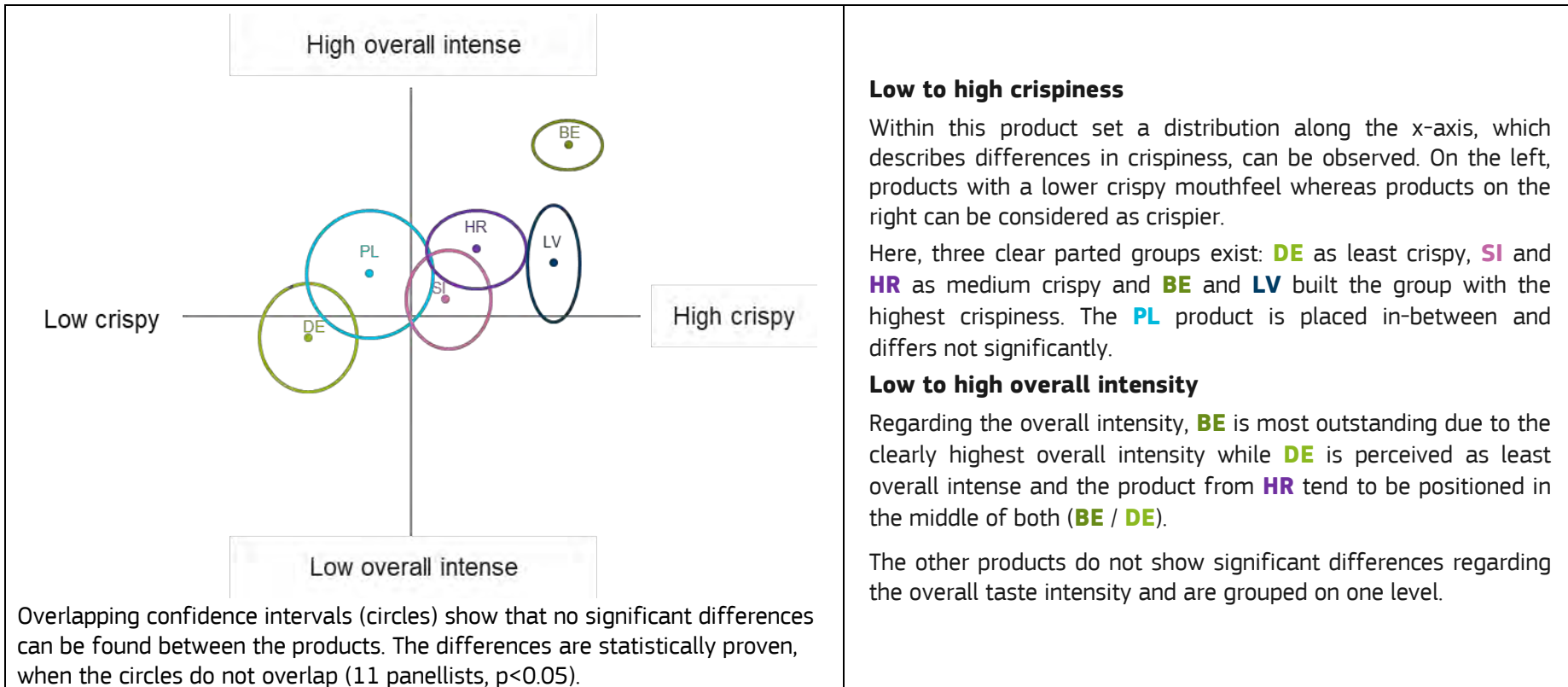


PL



SI

Sensory evaluation (Sorted Napping)

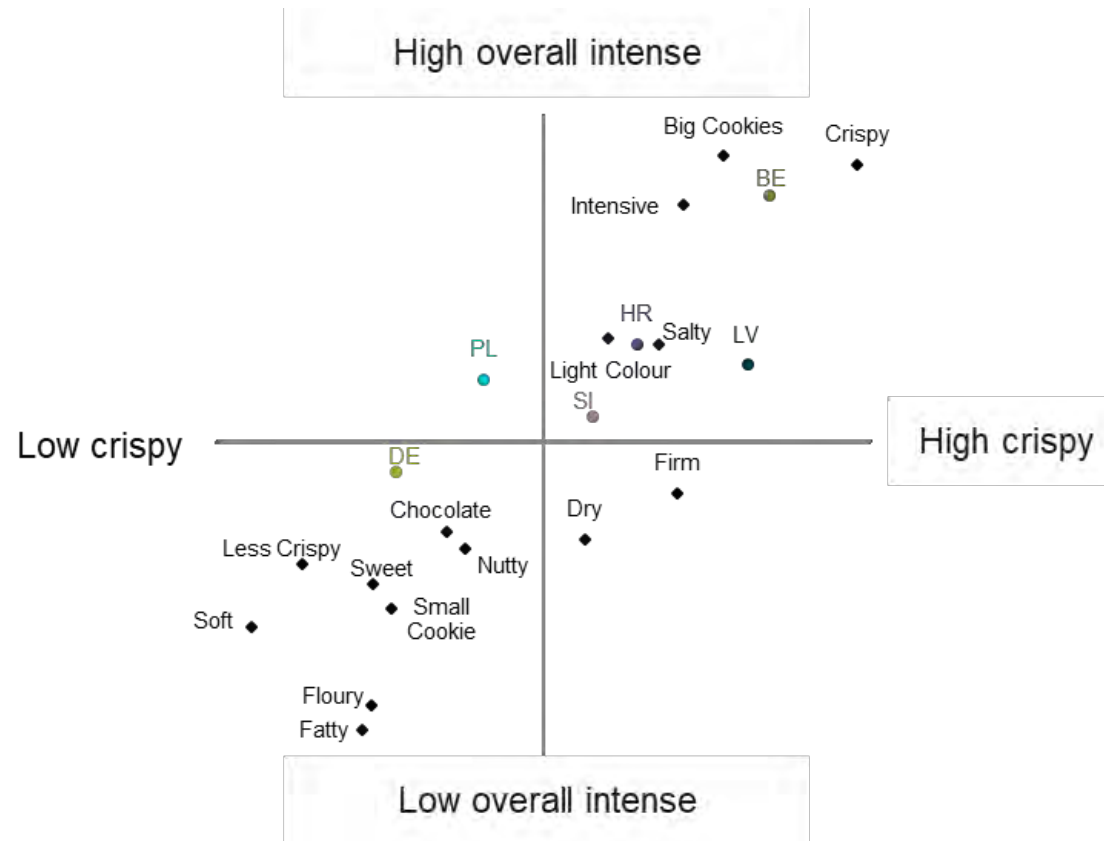


Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
LV	Sweet, Chocolate (6)	Crispy (5)	Dry (2)
BE	Crispy (7)	Sweet (6)	Intensive (5)
HR	Sweet, Chocolate (5)	Crispy (4)	Intensive, floury, fatty, light colour, salty, firm (1)
PL	Chocolate (7)	Sweet (6)	Soft (4)
DE	Sweet (7)	Chocolate, soft (5)	Intensive, floury (2)
SI	Sweet (6)	Chocolate (4)	Floury (3)

Associations were ranked according to the number of times they were mentioned by the 11 participating panellists.

Sensorial map/correlated characteristics



Comment from the brand owner

JRC carried out a comparative assessment in 2018/2019 of information provided on the label of products sampled from Milka Choco Cookie. Mondelēz shared comments to JRC.

Concerning the Milka Choco cookies, the pack changes that we did since the comparative assessment in 2018/2019, to differentiate the products from different markets, were ignored and different products were submitted to further sensory testings. Nevertheless also for these products no significant differences were found in the sensory testings.

We therefore believe that the testings for these Mondelēz brands have come to an end, according to the JRC methodology.

Nutrients

Country	Energy Value	[Total Fat]	[Fat Sat]	[MUFA]	[PUFA]	[Total Carb]	[Sugar]	[Protein]	[Fibre]
BG	2102	24.2	6.0	12	4.4	62.5	62.5	8.5	
ES	2103	24.2	6.0			62.5	62.5	8.5	0.2
HR	2102	24.2	6.0	12	4.4	62.5	62.5	8.5	0.19
LT	2089	23.6	5.7	11.4	4.1	61.9	61.9	9.6	
MT	2085	23.6	5.7	11.4	4.1	61.8	61.8	9.6	
PL	2089	23.6	5.7	11.4	4.1	61.9	61.9	9.6	

Energy values in kJ/100g; others in g/100g

Ingredients

BG	ES	HR	LT	MT	PL
Skimmed milk	Skimmed milk	Skimmed milk	Skimmed milk	Skimmed milk	Skimmed milk
Lactose	Lactose	Lactose	Whey	Lactose	Whey
Vegetable oil (high oleic sunflower, coconut, rapeseed, sunflower oil)	Whey	Vegetable oil (high oleic sunflower, coconut, rapeseed, sunflower oil)	Lactose	Vegetable oils (high oleic sunflower, coconut, rapeseed, sunflower)	Lactose
Demineralised whey proteins	Vegetable oil (high oleic sunflower, coconut, rapeseed, sunflower oil)	Demineralised whey proteins	Vegetable oils (sunflowers oil, coconut oil, rapeseed oil)	Demineralised whey protein	Vegetable oils (sunflower, coconut, rape seed, ,)
Demineralised whey permeate	Mineral salts (calcium citrate, sodium phosphate, potassium citrate, sodium chloride, magnesium chloride, potassium phosphate, iron sulphate, zinc sulphate, copper sulphate, manganese phosphate, potassium iodide, sodium selenate)	Mineral salts (calcium citrate, sodium phosphate, potassium citrate, sodium chloride, magnesium chloride, potassium phosphate, iron sulphate, zinc sulphate, copper sulphate, manganese phosphate, potassium iodide, sodium selenate)	Whey permeate	Demineralised whey permeate	Whey permeate
Mineral salts (calcium citrate, sodium phosphate,	Emulsifier (soya lecithin)	Emulsifier (soya lecithin)	Calcium citrate	Mineral salts (calcium citrate, sodium phosphate,	Calcium citrate

potassium citrate, sodium chloride, magnesium chloride, potassium phosphate, iron sulphate, zinc sulphate, copper sulphate, manganese phosphate, potassium iodide, sodium selenate)				potassium citrate, sodium chloride, magnesium chloride, potassium phosphate, iron sulphate, zinc sulphate, copper sulphate, manganese phosphate, potassium iodide, sodium selenate)	
Emulsifier (soya lecithin)	Fish oil (DHA)	Amino acids (L-phenylalanine, L-leucine, L-isoleucine, L-tryptophane, L-histidine)	Fish oil	Fish oil	Fish oil
Fish oil	2'-Fucosyl-lactose	Acidity regulator (citric acid)	Potassium citrate	Emulsifier (soya lecithin)	Potassium citrate
Amino acids (L-phenylalanine, L-leucine, L-isoleucine, L-tryptophane, L-histidine)	Vitamins (C, E, B5, B3, B1, A, B6, B2, D, K, B9, B7, B12)	2'-Fucosyl-lactose	Emulsifier (soya lecithin)	2'-Fucosyl-lactose	Emulsifier (soya lecithin)
Acidity regulator (citric acid)	L-Phenylalanine		Calcium phosphate	Vitamins (C, E, niacin, pantothenic acid, B1, B2, A, B6, folate, K, D, biotin, B12)	Calcium phosphate
2'-Fucosyl-lactose	L-Leucine	Vitamins (C, E, niacin, pantothenic acid, B1, A, B2, B6, folate, K, D, biotin, B12)	Magnesium chloride	Lactic acid bacteria (Lactobacillus reuteri culture)	Magnesium chloride
	L-Isoleucine	Lactic acid bacteria (Lactobacillus reuteri culture)	Sodium citrate		Sodium citrate
Vitamins (C, E, niacin, pantothenic acid, B1, A, B2, B6, folate, K, D, biotin, B12)	L-Tryptophane		Vitamins (C, E, niacin, pantothenic acid, B1, B2, B6, folic acid, K1, D3, biotin, B12)		Vitamins (C, E, niacin, pantothenic acid, B1, B2, B6, folic acid, K1, D3, biotin, B12)
Lactic acid bacteria (Lactobacillus reuteri culture)	L-Histidine		Sodium chloride		Sodium chloride

	Acidity regulator (citric acid)		Iron sulphate		Iron sulphate
	Lactic acid bacteria (Lactobacillus reuteri culture)		Zinc sulphate		Zinc sulphate
			Bifidobacterium lactis culture		Bifidobacterium lactis culture
			Copper sulphate		Copper sulphate
			Manganese sulphate		Sodium selenate
			Potassium iodide		Potassium iodide
			Sodium selenate		Sodium selenate

Front Label Pictures



BG



ES



HR



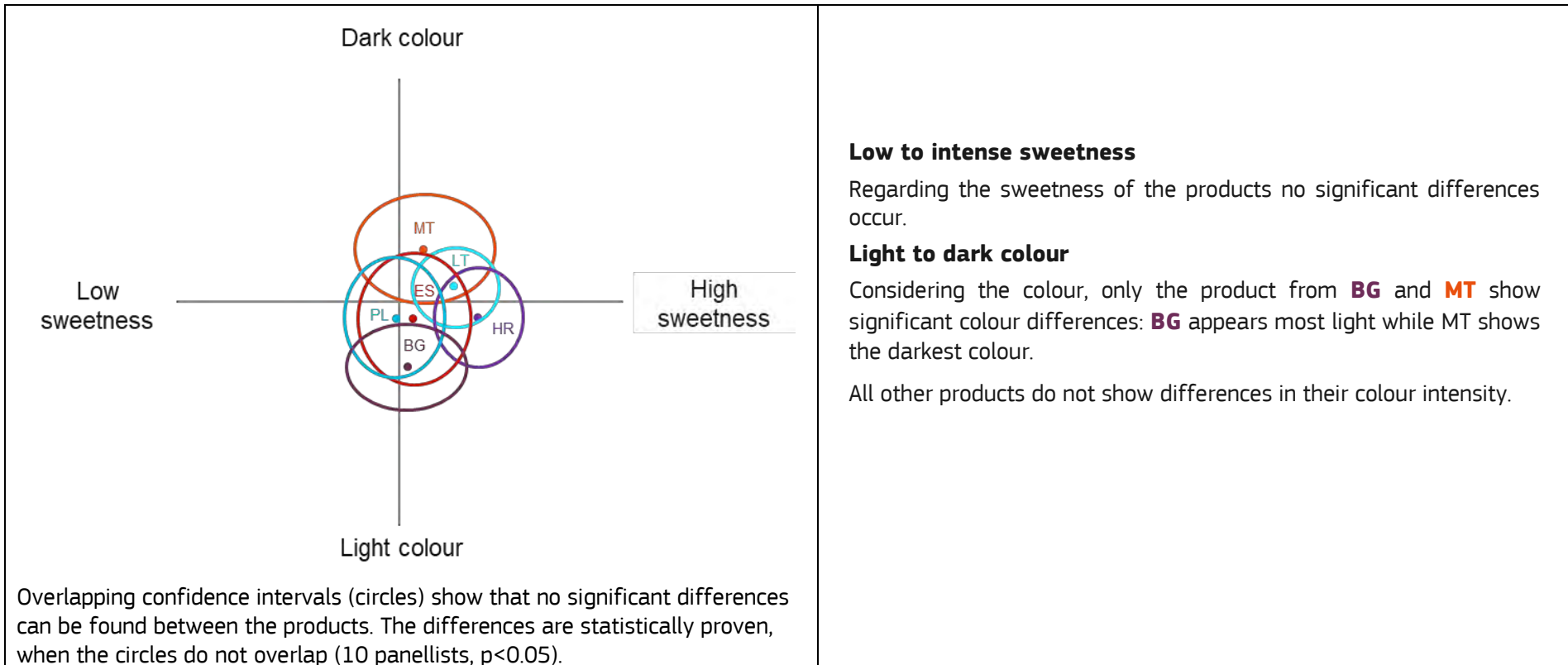
LT



MT



PL

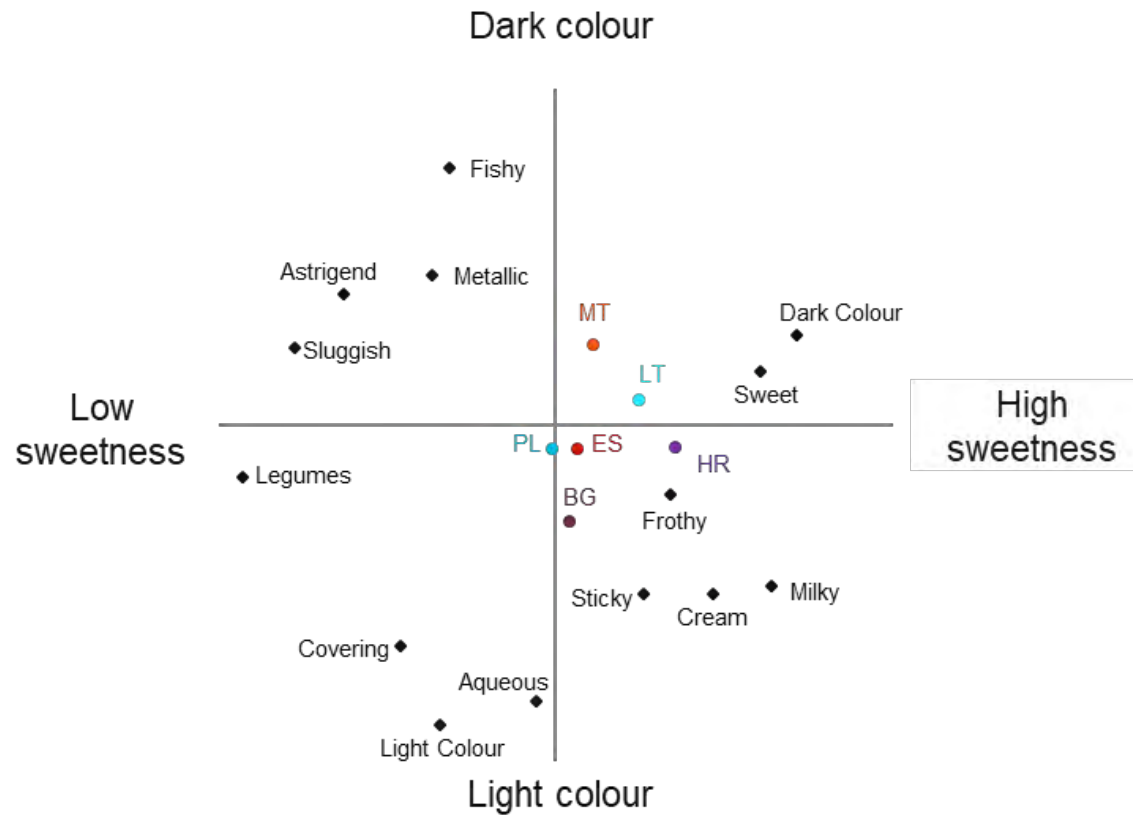
Sensory evaluation (Sorted Napping)

Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
BG	Light colour (5)	Sweet, milky (4)	Aqueous (3)
ES	Sweet (7)	Milky, light colour, aqueous, sluggish (3)	Covering, frothy (2)
HR	Sweet (6)	Milky (5)	Aqueous (3)
LT	Sweet (8)	Milky (4)	Fishy (3)
MT	Fishy (9)	Metallic (5)	Sweet (4)
PL	Fishy (6)	Sweet, sluggish (3)	Light Colour, aqueous, metallic (3)

Associations were ranked according to the number of times they were mentioned by the 10 participating panellists.

Sensorial map/correlated characteristics



Comments by the brand owner

NAN OPTIPRO 2 meets the same high quality and safety standards in all countries across EU. All recipes for NAN OPTIPRO 2 sold across EU are compliant with the new EU regulation 2016/127 on infant and follow-on formula. All the recipes tested are made from the same main ingredients. This is consistent with the outcomes of the sensory testing showing that no significant differences were found.

Products tested in ES, HR and BG have an identical recipe. Product tested in MT has a very close recipe and will soon have the same recipe than these 3 countries. PL and LT have an identical recipe. The main difference between the recipe in ES, HR, BG, MT and the one in PL and LT is the probiotic used and this is transparently indicated on the front-of-pack.

There's no specific reason as to why the products sampled in MT and BG displayed a slightly different colour. The difference is very slight and is not to the detriment of the quality of the product. In addition, there was no difference observed for MT and BG with the four other samples. In some countries, we use different ways to name the ingredients and nutrients. We're taking actions to better align this.

Nutrients

Country	Energy Value	[Total Fat]	[Fat Sat]	[Total Carb]	[Sugar]	[Protein]	[Salt]	[Fibre]
CZ	1622	3.3	1.5	80	77	5	0.4	6.8
DK	1607	3	1.7	80	78	4.6	0.41	6.7
EE	1622	3.3	1.5	80	77	5	0.4	6.8
ES	1633	3.8	1.6	79.2	75.7	5.1	0.37	7.4
HR	1622	3.3	1.5	80	77	5	0.4	6.8
LV	1622	3.3	1.5	80	77	5	0.4	6.8
MT	1605	3.3	1.5	79	75	5	0.4	6.8
PL	1622	3.3	1.5	80	77	5	0.4	6.8

Energy values in kJ/100g; others in g/100g

Quantitative Ingredient Declaration

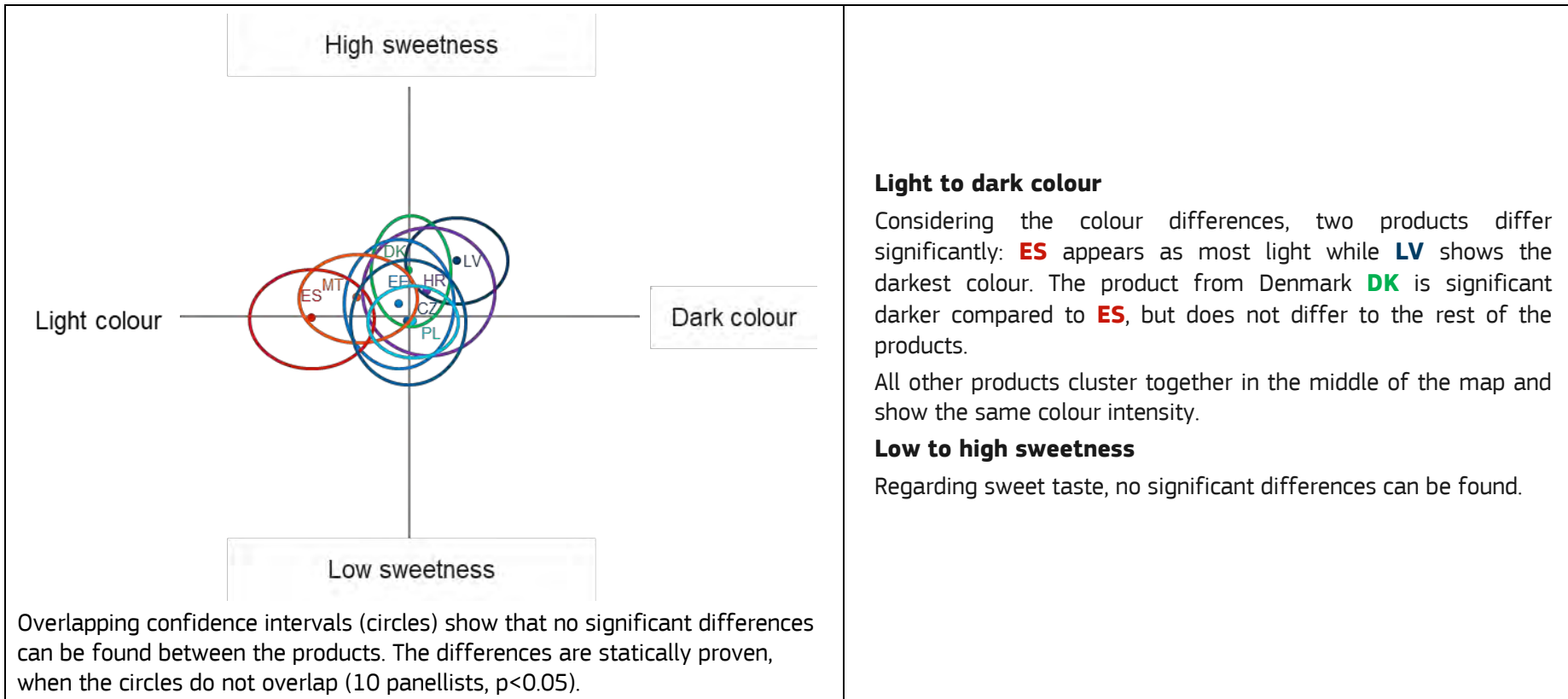
Ingredient	Unit	CZ	DK	EE	ES	HR	LV	MT	PL
Low fat cacao powder	%	21	20	21	22.1	21	21	21	21

Ingredients

CZ	DK	EE	ES	HR	LV	MT	PL
Sugar	Sugar	Sugar	Sugar	Sugar	Sugar	Sugar	Sugar
Low fat cacao powder	Low fat cacao powder	Low fat cacao powder	Low fat cacao powder	Low fat cacao powder	Low fat cacao powder	Low fat cacao powder	Low fat cacao powder
Emulsifiers (soy lecithin)	Emulsifiers (soy lecithin)	Emulsifiers (soy lecithin)	Vitamins (C, B1, D)	Emulsifiers (soy lecithin)	Emulsifiers (soy lecithin)	Emulsifiers (soy lecithin)	Emulsifiers (soy lecithin)
Salt	Salt	Salt	Minerals (iron pyrophosphate, zinc sulphate)	Salt	Salt	Salt	Salt
Vitamins (C, B1, D)	Flavourings (vanillin)	Vitamins (C, B1, D)	Flavourings	Vitamins (C, B1, D)	Minerals (iron pyrophosphate, zinc sulphate)	Minerals (iron pyrophosphate, zinc sulphate)	Minerals (iron pyrophosphate, zinc sulphate)
Minerals (iron pyrophosphate, zinc sulphate)		Minerals (iron pyrophosphate, zinc sulphate)	Cinnamon	Minerals (iron pyrophosphate, zinc sulphate)	Vitamins (C, B1, D)	Vitamins (C, B1, D)	Vitamins (C, B1, D)
Flavourings		Flavourings	Salt	Flavourings	Flavourings	Cinnamon	Flavourings
Cinnamon		Cinnamon	Sunflower oil	Cinnamon	Cinnamon	Flavourings	Cinnamon
			Emulsifiers (soy lecithin)				

Front Label Pictures

A yellow sachet of Nesquik with a weight of 800g. The label features the Nesquik logo, a cartoon rabbit character, and the text 'VIT D OPTI-START' and 'COMPLEMENTING THE BENEFITS OF MILK'. A small 'CZ' label is at the top.	A yellow sachet of Nesquik with a weight of 400g. The label features the Nesquik logo, a cartoon rabbit character, and the text 'VIT D OPTI-START' and 'COMPLEMENTING THE BENEFITS OF MILK'. A small 'DK' label is at the top.	A yellow sachet of Nesquik with a weight of 400g. The label features the Nesquik logo, a cartoon rabbit character, and the text 'VIT D OPTI-START' and 'COMPLEMENTING THE BENEFITS OF MILK'. A small 'EE' label is at the top.	A yellow tub of Nesquik Instantaneo with a weight of 400g. The label features the Nesquik logo, a cartoon rabbit character, and the text 'VIT D OPTI-START' and 'COMPLEMENTING THE BENEFITS OF MILK'. A small 'ES' label is at the top.
A yellow sachet of Nesquik with a weight of 400g. The label features the Nesquik logo, a cartoon rabbit character, and the text 'VIT D OPTI-START' and 'COMPLEMENTING THE BENEFITS OF MILK'. A small 'HR' label is at the top.	A yellow sachet of Nesquik with a weight of 400g. The label features the Nesquik logo, a cartoon rabbit character, and the text 'VIT D OPTI-START' and 'COMPLEMENTING THE BENEFITS OF MILK'. A small 'LV' label is at the top.	A yellow tub of Nesquik with a weight of 400g. The label features the Nesquik logo, a cartoon rabbit character, and the text 'VIT D OPTI-START' and 'COMPLEMENTING THE BENEFITS OF MILK'. A small 'MT' label is at the top.	A yellow sachet of Nesquik with a weight of 400g. The label features the Nesquik logo, a cartoon rabbit character, and the text 'VIT D OPTI-START' and 'COMPLEMENTING THE BENEFITS OF MILK'. A small 'PL' label is at the top.
<p>HR</p>	<p>LV</p>	<p>MT</p>	<p>PL</p>

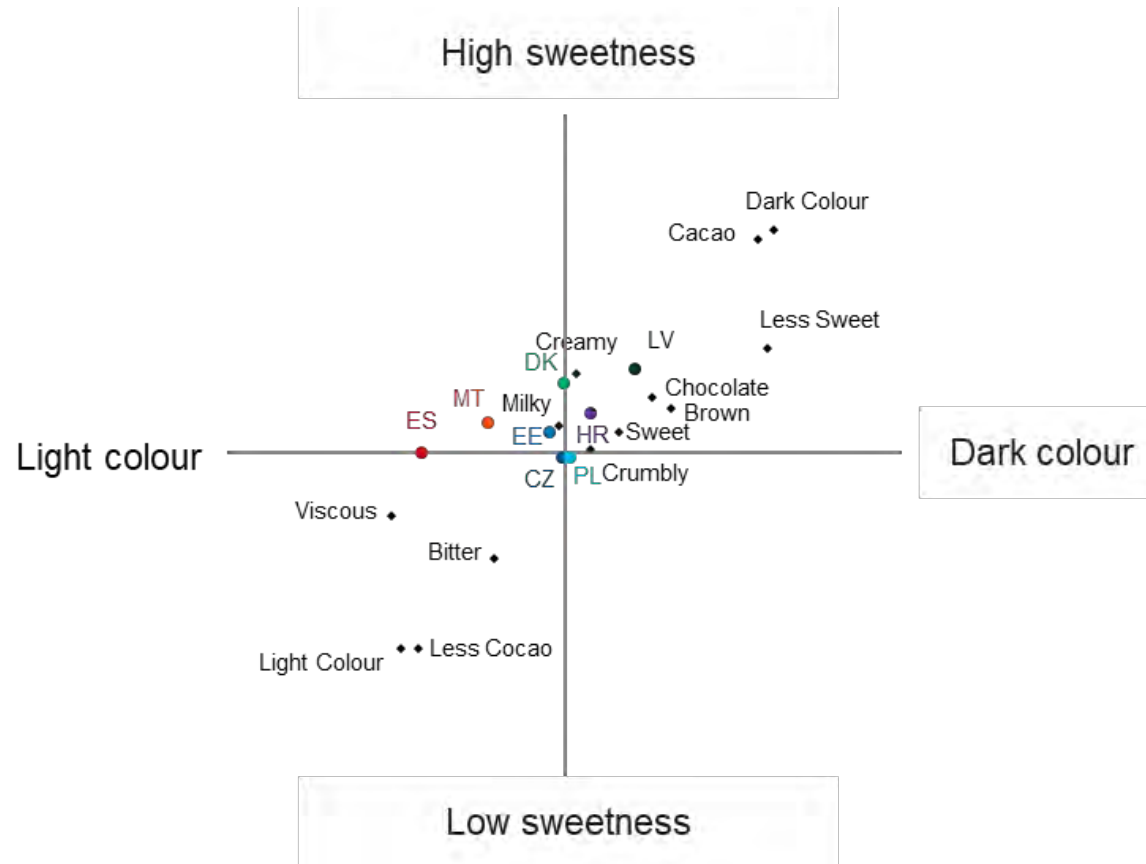
Sensory evaluation (Sorted Napping)

Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
EE	Sweet (10)	Chocolate, dark colour, light colour (3)	Milky, cacao (2)
HR	Sweet (6)	Chocolate (5)	Crumbly (4)
ES	Sweet (6)	Chocolate (3)	Light Colour (2)
MT	Sweet (6)	Chocolate, crumbly (4)	Light Colour (3)
DK	Sweet (10)	Chocolate (5)	Cacao (3)
CZ	Sweet (7)	Chocolate (4)	Cacao (3)
PL	Sweet (8)	Chocolate (4)	Crumbly (3)
LV	Sweet (6)	Chocolate, Cacao (3)	Creamy, crumbly, less sweet (2)

Associations were ranked according to the number of times they were mentioned by the 10 participating panellists.

Sensorial map/correlated characteristics



Comment by the brand owner

Nesquik meets the same high quality and safety standards in all countries across EU. All the recipes tested are made from the same main ingredients. This is consistent with the outcomes of the sensory testing showing that no significant differences were found.

The products tested in CZ, EE, HR, LV, PL and MT have an identical recipe. Product tested in Spain had minor variation in the recipe based on local consumer preferences (survey available). The recipes for all these countries are identical since September 2020. Only the cocoa used for the recipe in Spain will remain specific due to local consumer preferences (survey available). This difference in cocoa explains why the Spanish recipe has a slightly lighter colour.

Product tested in Denmark has a slightly different recipe to comply with local regulation on fortification - adding minerals and vitamins fortification is restricted.

In some countries, we use different rounding rules for describing the quantities of ingredients in our products. We're taking actions to better align this.

Nutrients

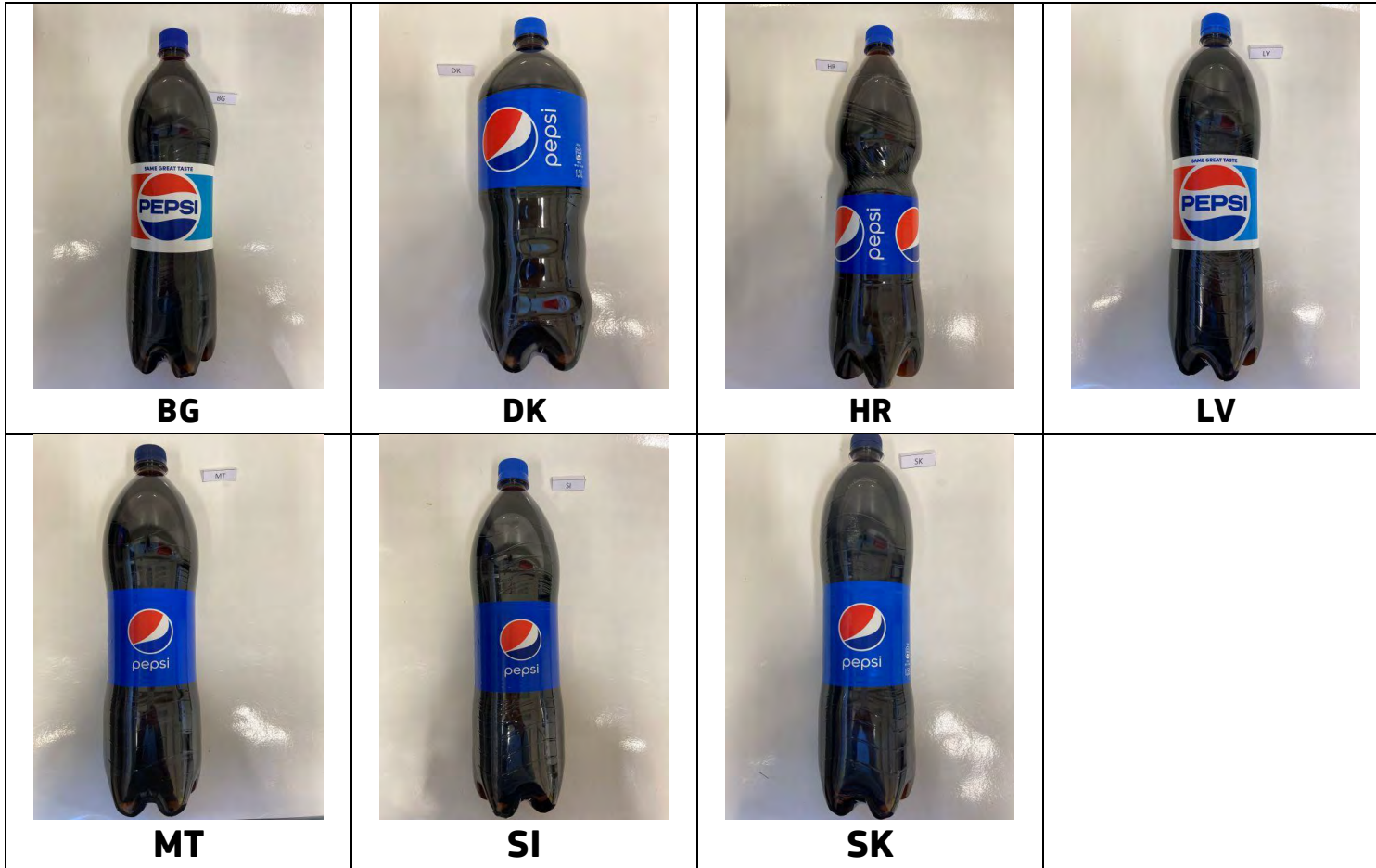
Country	Energy Value	[Total Carb]	[Sugar]	[Salt]
BG	180	10.7	10.6	<0.01
DK	184	11	11	<0.1
HR	182	10.7	10.6	0.01
LV	182	11	11	<0.01
MT	169	10.7	10.6	4.5 mg
SI	182	10.7	10.6	0.01
SK	182	11	11	0.01

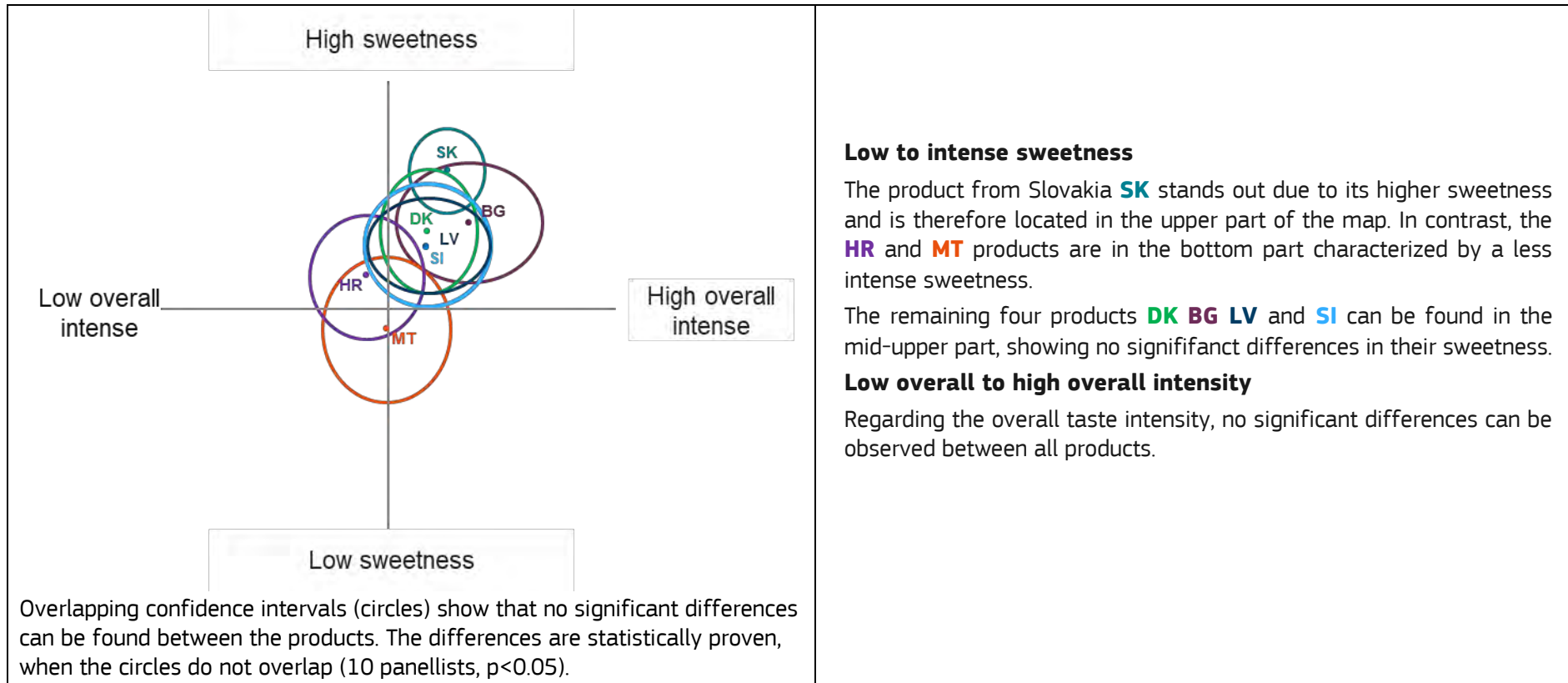
Energy values in kJ/100g; others in g/100g

Ingredients

BG	DK	HR	LV	MT	SI	SK
Water	Water	Water	Water	Carbonated water	Water	Water
Sugar	Sugar	Sugar	Sugar	Sugar	Sugar	Sugar
Carbon dioxide	Carbon dioxide	Carbon dioxide	Carbon dioxide	Colour (caramel E150d)	Carbon dioxide	Carbon dioxide
Colour (caramel E150d)	Colour (caramel E150d)	Colour (caramel E150d)	Colour (caramel E150d)	Food acids (phosphoric acid)	Colour (caramel E150d)	Colour (caramel E150d)
Food acid (phosphoric acid)	Food acids (phosphoric acid)	Food acid (phosphoric acid)	Food acids (phosphoric acid)	Caffeine	Food acid (phosphoric acid)	Food acids (phosphoric acid)
Natural flavouring (contains caffeine)	Flavouring (contains caffeine)	Flavouring (caffeine)	Flavouring (contains caffeine)	Natural flavouring	Natural flavouring (contains caffeine)	Flavouring (contains caffeine)
Stabiliser (gum arabic)		Natural flavouring			Stabiliser (gum arabic)	Natural flavouring
		Stabiliser (gum arabic)				

Front Label Pictures



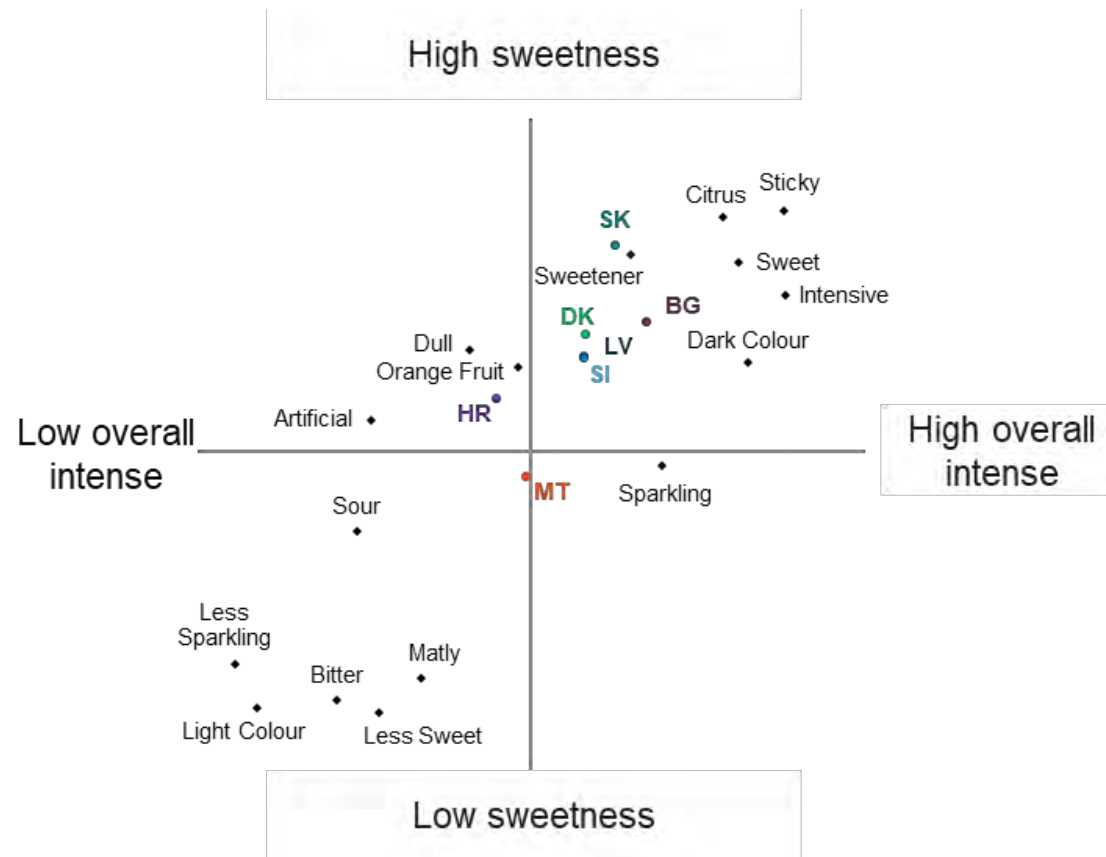
Sensory evaluation (Sorted Napping)

Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
LV	Sweet (5)	Sparkling (3)	Bitter, sweetener, sour, light colour, dull, orange fruit, intensive (2)
MT	Light colour (3)	Bitter, sour, dull, less Sweet (2)	Sparkling, matly, sweetener, sweet, orange fruit, intensive, less sparkling, artificial (1)
DK	Sweet (4)	Orange fruit (3)	Sweetener, dull, citrus (2)
BG	Sparkling, sweet (4)	Intensive (3)	Sweetener, citrus, dark colour (2)
HR	Sweetener, sour, light colour, dull, sweet, less sparkling, artificial (2)	Sparkling, matly, bitter, orange fruit, less sweet, citrus (1)	Intensive, dark colour, sticky (0)
SI	Sparkling (3)	Dull, sweet, citrus (2)	Malty, bitter, sweetener, light colour, artificial, less sweet, dark colour, sticky (1)
SK	Dull, sweet (3)	Sweetener, sour, orange fruit, intensive, artificial, citrus (2)	Light colour, sticky (1)

Associations were ranked according to the number of times they were mentioned by the 10 participating panellists.

Sensorial map/correlated characteristics



Comment from the brand owner

We sell two variants of Pepsi Cola in the EU, both containing the same ingredients, at the same levels and in the same proportions meaning that by design both variants have the same characteristics and distinctive Pepsi Cola flavouring. The two variants are identical except that one includes a small amount of gum Arabic, which helps protect the flavour oils from degradation. The reason for the two variants is due to operational and supply chain arrangements. Slight variations in nutrition information and the way in which ingredients are declared are reflective of local manufacturing and labelling practices.

The beverages from all markets contain the same flavourings, and their specifications define the same target and range for sugar content. The observations of the sensory panel demonstrate the similarity in taste intensity that we would expect to see. Likewise the small variations in sweetness noted by the panel reflect the normal evolution of sweetness perception through shelf life and/or likely differences in storage conditions for the sample beverages after leaving the production location.

Nutrients

Country	Energy Value	[Total Fat]	[Fat Sat]	[Total Carb]	[Sugar]	[Protein]	[Salt]	[Fibre]
BE	932	21	14	4.3	4.3	5.4	0.75	0.2
CZ	932	21	14	4.3	4.3	5.4	0.75	0.2
DE	932	21	14	4.3	4.3	5.4	0.75	0.2
EE	932	21	14	4.3	4.3	5.4	0.75	0.2
ES	1104	26	18	2.8	2.8	4.1	1.05	0.2
IT	1103	26	18	2.8	2.8	4.1	0.75	0.2
SK	932	21	14	4.3	4.3	5.4	0.75	0.2

Energy values in kJ/100g; others in g/100g

Quantitative Ingredients Declaration

Ingredient	Unit	BE	CZ	DE	EE	ES	IT	SK
Dry matter	%		31.5					31.5
Fresh cheese	%	86						
Fat content in dry matter	%		61		61	61		61

Ingredients

BG	CZ	DE	EE	ES	IT	SK
Milk	Milk	Fresh cheese	Milk	Milk	Milk	Milk
Cream	Cream	Whey products	Cream	Cream	Cream	Cream
Whey protein preparation	Whey protein concentrate	Salt	Whey protein concentrate	Salt	Salt	Whey protein concentrate
Whey permeate concentrate	Salt	Stabilisers (locust bean gum)	Salt	Stabilisers (locust bean gum, sodium alginate, carrageenan)	Stabilisers (locust bean gum, sodium alginate, carrageenan)	Salt
Salt	Stabilisers (locust bean gum)	Acids (citric acid)	Stabilisers (locust bean gum)	Preservatives (potassium sorbate)		Stabilisers (locust bean gum)
Stabilisers (locust bean gum)	Acids (citric acid)		Acids (citric acid)			Acids (citric acid)
Acids (citric acid)	Lactic acid bacteria		Lactic acid bacteria			Lactic acid bacteria

Front Label Pictures



BE



CZ



DE



EE



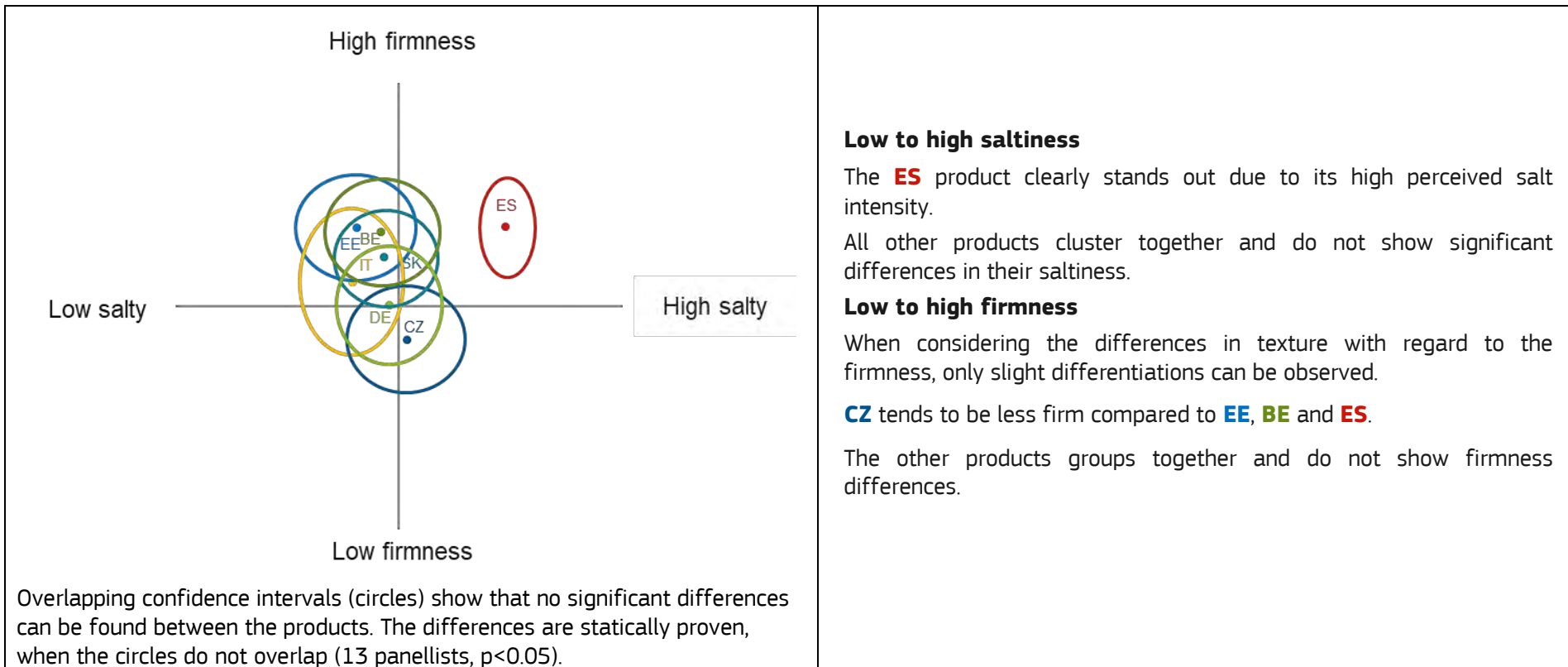
ES



IT



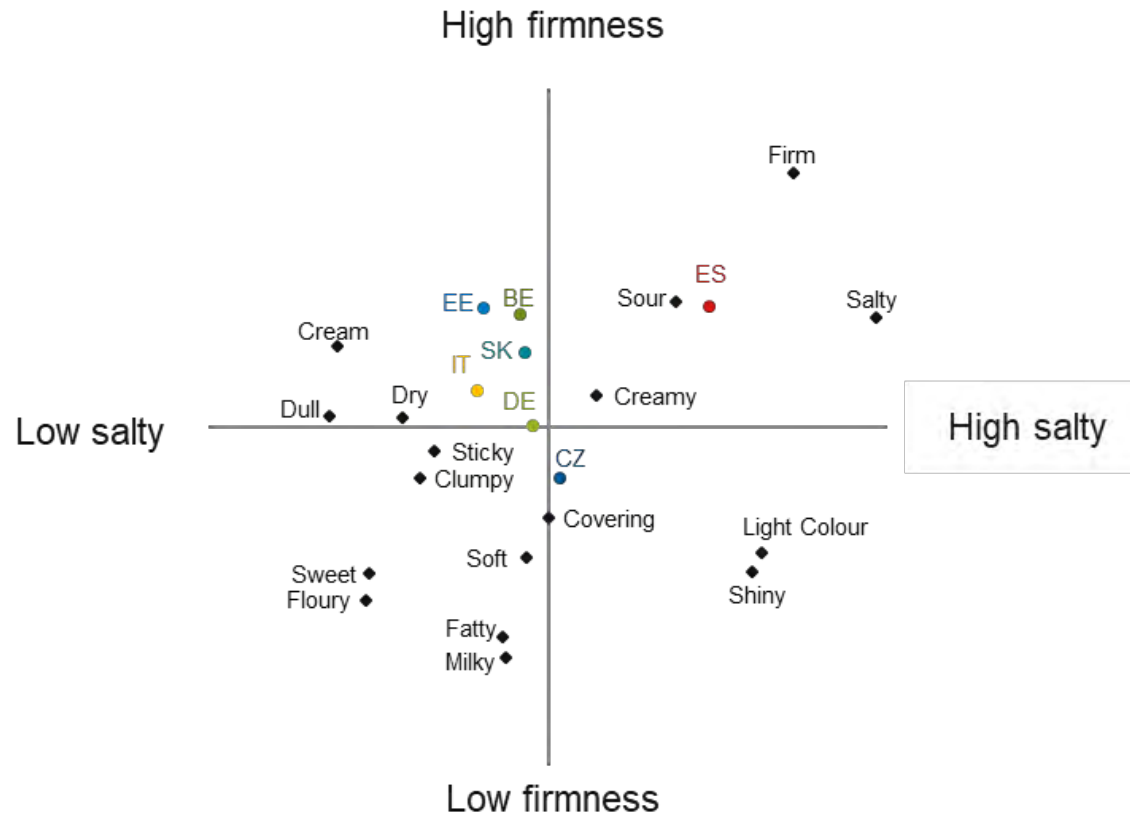
SK

Sensory evaluation (Sorted Napping)

Sensory evaluation (Free Choice Profiling)

Country	Association 1	Association 2	Association 3
BE	Creamy (6)	Sticky (5)	Cream (4)
CZ	Creamy (7)	Cream, fatty (4)	Salty , sticky , sweet (3)
DE	Cream (4)	Creamy, salty, sticky, covering (3)	Firm, sweet, sour, milky, soft (2)
EE	Cream (8)	Creamy (6)	Firm (4)
ES	Salty (9)	Firm (6)	Creamy (5)
IT	Cream (5)	Clumpy (4)	Creamy, Sweet, Fatty (3)
SK	Creamy (5)	Cream, sticky, sour (4)	Firm, fatty, covering (3)

Associations were ranked according to the number of times they were mentioned by the 13 participating panellists.

Sensorial map/correlated characteristics**Comment from the brand owner**

The sensory tests did not show any significant differences. The difference for the product on ES market is due to the different formula in the plant where the Spanish version is produced. We explained this difference already in the 2019 JRC testing report.

We therefore believe that the testings for this Mondelēz brand have come to an end, according to the JRC methodology.

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