Oqali
Observatoire de l'alimentation

# REVIEW AND CHANGES IN THE USE OF SWEETENING INGREDIENTS OR INGREDIENTS CONVEYING SWEETNESS IN PROCESSED PRODUCTS

## CROSS-SECTIONAL STUDY

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# 1. INTRODUCTION

Since 2008, OQALI has been conducting sectoral studies to characterise the nutritional quality of the food supply, both in terms of the nutrition information on the packaging and the nutritional composition of the products. All processed food products (excluding out-of-home catering) are now covered. Changes in the nutritional quality of processed food products over time are monitored regularly (Goglia *et al.* 2010, Menard *et al.* 2012) and made public (available on www.oqali.fr). Socio-economic parameters such as market share and the different types of brands (national brands, retailer brands, entry-level retailer brands, hard discount products, specialised organic and non-organic retailer brands) are also taken into account in the indicators relating to labelling parameters and nutritional values (Menard *et al.* 2011, Perrin *et al.* 2017, Perrin *et al.* 2018). In addition, OQALI examines the details of the ingredient lists. One of its most recent studies, for example, analysed the presence of additives in processed food products on the French market (Oqali 2019a), presenting a descriptive review of the frequency of presence of additives in 30 food categories (i.e. more than 30,000 products collected between 2008 and 2016), as well as changes in the use of food additives for 20 food categories. On the subject of sweetening ingredients or ingredients conveying sweetness, OQALI previously produced an initial descriptive review of intense sweeteners (Oqali 2012). The current report is a follow-up to that first study, and aims to provide a new review of the levels of use of sweetening ingredients or ingredients conveying sweetness (including intense sweeteners), as well as their changes in processed food products.

The food processing industry uses various sweetening ingredients or ingredients conveying sweetness. They have several different purposes: to impart a sweet taste to foods, improve their palatability, counterbalance acidity, influence the texture of products, etc. The addition of sugars also helps limit the formation of ice in products subjected to freezing. They are also involved in the Maillard reaction, by colouring meat and bread products, and in the phenomenon of caramelisation. Lastly, sugars can act as preservatives, like salt, by reducing water activity, which limits the development of micro-organisms (Erickson and Slavin 2015).

Sweetening ingredients and ingredients conveying sweetness encompass a wide variety of ingredients. In addition, several terms are used for these ingredients, particularly for sugars, which can make it difficult for consumers to identify them in a product, especially if a technical term is used (Cowburn and Stockley 2007, Miller and Cassady 2015, Carrillo, Varela, and Fiszman 2012). These ingredients are often perceived as "hidden sugars". While the definition of total sugars is generally accepted, there is not always a consensus on added sugars and free sugars, which may have definitions of varying precision. Total sugars include all the mono- and disaccharides present in a foodstuff, excluding polyols (European Parliament and Council 2011). In the United States, added sugars correspond to sugars and syrups added to foods or beverages during their manufacture or preparation (Food and Drug Administration 2014). This definition excludes the sugars naturally present in milk and fruit (United States Department of Agriculture). The European Food Safety Authority (EFSA) considers the following to be added sugars: sucrose, fructose, glucose, starch hydrolysates such as glucose or fructose syrups, and other sweet preparations used as such or added during food preparation and manufacturing (European Food Safety Authority 2018). For its part, the French Agency for Food, Environmental and Occupational Health & Safety (ANSES) defines added sugars more broadly

by including mono- and disaccharides added during the manufacture or preparation of the food, starch hydrolysates (mainly glucose and glucose-fructose syrups) and ingredients used for their sweetening power (concentrated fruit juices, honey, molasses) (ANSES 2016). The World Health Organization (WHO) uses the term "free sugars" instead. In 2003, it defined them as all mono- and disaccharides added to foods by the manufacturer, cook or consumer, and sugars naturally present in honey, syrups and fruit juices (World Health Organization 2003). In 2015, it added fruit juice concentrates to this definition of free sugars, while intrinsic sugars, found in whole fresh fruit and vegetables, remained excluded (WHO 2015).

There are several nutritional recommendations for added or free sugars. In most cases, it is recommended that free sugars should account for less than 10% of total energy intake (ANSES 2016, European Food Safety Authority 2018). The WHO states that reducing the intake of free sugars to less than 5% of total energy intake would offer additional health benefits, according to the studies currently available (WHO 2015). In its 2016 opinion, ANSES considered that it was not appropriate to define a recommendation that focused solely on added sugars, as the data currently available cannot distinguish the health effects of sugars naturally present in products from those of added sugars. The proposed maximum limit therefore relates to total sugars, with a threshold of 100g of sugar per day for a healthy adult. Note that lactose and galactose, which are sugars naturally present in milk and dairy products, are not included in the calculation of this value because the available data have not been able to establish a link with any health risk (ANSES 2016).

Over-consumption of sweet products can upset the energy balance and lead to weight gain (Te Morenga, Mallard, and Mann 2012, ANSES 2016). For several years now, there has been an increase in the number of people with health problems partly related to excessive consumption of sweet products. In the countries of the Organisation for Economic Co-operation and Development (OECD), the latest data show that 60% of the adult population (2019 data), 18.3% of adolescents aged 15 (2017/2018 data) and almost one third of children aged 5 to 9 (2016 data) are overweight (including obese) (OECD 2021). At the European level, 52.7% of the adult population was considered to be overweight (including obese) in 2019 (Eurostat 2019). In France, the INCA3 study on the food consumption and eating habits of the population showed that 34% of adults were overweight and 17% were obese, while the prevalence rates for overweight and obesity among children under 18 years of age were 13% and 4%, respectively. Compared with the previous INCA2 study, these prevalence rates were stable for children aged 3 to 14, but increases were observed among adolescents (aged 15 to 17) for overweight and among adults for obesity (ANSES 2017). Being overweight is not the only consequence of the consumption of large quantities of sweet foods. In 2016, ANSES issued an opinion stating that sugar consumption contributes to excess energy intake, which can lead to the development of type 2 diabetes (ANSES 2016). In this opinion, ANSES also pointed out that consuming sweet foods can lead to tooth decay (ANSES 2016).

Public health policies aimed at reducing the consumption of added sugars have been put in place around the world. One of these involves taxing products containing added sugars, particularly non-alcoholic beverages. By 2012, 35 states in the United States had introduced a "soda tax". However, these taxes are probably not high enough to have a significant impact, because it has been shown that a 20% price increase would be needed to reduce soda consumption by 24% (Powell *et al.* 2013). In France, sugar-sweetened beverages are also taxed according to the amount of sugar added (Ministère de l'action et des comptes publics 2018). As an alternative to adding sugar, food manufacturers have reformulated their products partly by using sweeteners. Among these, intense sweeteners, which include a variety of substances

extracted from plants or obtained by chemical synthesis, are particularly interesting because they have a very high sweetening power compared to sucrose, while providing few or no calories (ANSES 2015). In its opinion on intense sweeteners, ANSES indicated that the long-term use of intense sweeteners as a sugar substitute, particularly in beverages, was not justified for the general population. The Agency also stated that artificially- or sugar-sweetened beverages should not replace the consumption of water (ANSES 2015). More recently, in July 2023, the International Agency for Research on Cancer (IARC) and the WHO-FAO Joint Expert Committee on Food Additives (JECFA) published new studies on aspartame (IARC-JECFA 2023): IARC concluded that aspartame was "Possibly carcinogenic to humans (Group 2B)", while JECFA maintained the previously established acceptable daily intake. In France, artificially-sweetened beverages are also taxed (Administration française 2018). Besides intense sweeteners, the use of flavourings may be another way of reducing the sugar content of products. Some studies have tested the acceptability to children of products with a reduced sugar content, compensated by the addition of flavourings, and have compared the reformulated products with the basic non-reformulated recipes (Velazquez *et al.* 2020, Oliveira *et al.* 2021). Thus, a yoghurt with a 25% reduced sugar content and the addition of a 0.2% concentration of strawberry or vanilla flavouring was rated by children as highly as the product without a reduced sugar content (Oliveira *et al.* 2021). However, for these reformulations, it is necessary to target the flavours to be used and study the concentration to be applied, bearing in mind that these parameters are product-dependent (Stieger and van de Velde 2013).

Since the introduction of Regulation (EU) No 1169/2011, known as the INCO Regulation, it has been mandatory to provide a list of ingredients and nutritional values on the labels of pre-packaged foodstuffs. Regarding the nutritional values associated with sugars, only the amount of total sugars must be stated on the label (European Parliament and Council 2011). No distinction is made between added sugars and free sugars. In the United States, the Food and Drug Administration has made changes to the nutrition labelling of foods, in particular by making it mandatory to state the amount of added sugars as well as the already required carbohydrates and total sugars. Labelling the amount of added sugars in products intended for the US market has thus been mandatory since 1 January 2021 (Food and Drug Administration 2018). In France, information on the use of sweetening ingredients or ingredients conveying sweetness in the formulation of a product is provided in the ingredient list. This information is very often limited to the presence or absence of an ingredient in the product, because the amount used is only indicated if the ingredient is emphasised on the packaging (name of the foodstuff, represented by pictures or graphics, etc.) (European Parliament and Council 2011).

Various studies have examined the proportion of processed food products containing sweetening ingredients or ingredients conveying sweetness, with definitions ranging from narrow to broad and covering a specific period (Acton *et al.* 2017, Dunford *et al.* 2018, Probst *et al.* 2017). To our knowledge, very few studies have focused on changes in the frequency of presence of sweetening ingredients or ingredients conveying sweetness.

Therefore, following on from the first OQALI study on ingredients (Oqali 2012), which helped characterise the use of intense sweeteners, **this second study takes into account a greater number of sweetening ingredients or ingredients conveying sweetness, with the following objectives:**

- **conduct a descriptive review of the frequency of presence of these sweetening ingredients or ingredients conveying sweetness**, grouped together into classes, as well as their combinations **based on the latest available data** (31 food categories);

- **carry out an initial assessment of changes in the use of classes of sweetening ingredients or ingredients conveying sweetness, as well as their combinations** based on the available updated data (corresponding to a sub-section of the categories currently monitored by OQALI: 27 food categories out of 31);

- **conduct a detailed study on changes in the use of intense sweeteners**.

# 2. METHOD

## 2.1 Definition of ingredients regarded as sweetening or conveying sweetness

Work was carried out to select ingredients on the basis of the ingredient lists collected by OQALI, in order to first identify and then categorise the different types of ingredients regarded as sweetening or conveying sweetness.

This classification was then discussed in a broad consultation with in-house experts from ANSES's Risk Assessment Department (the Ciqual team managing the French reference table on the nutritional composition of foods and the Nutritional Risk Assessment Unit) and OQALI's partners[1], in order to gather their views and questions. Following another in-house consultation, these discussions led to the initial classification being improved, to provide further clarification on the definitions and/or classification of certain ingredients and make trade-offs where necessary. On completion of this work, a meeting was organised with OQALI partners in order to present the decisions taken and the changes made to the classification, and distribute the finalised version.

The classification used in this study is therefore made up of 11 classes of ingredients regarded as sweetening or conveying sweetness[2]. These classes, together with their definitions and examples of ingredients found in the ingredient lists, are presented in Table 1.

[1] All the manufacturers and retailer brands that are partners of OQALI (mainly through the professional unions), as well as consumer associations and representatives of the three ministries responsible for agriculture, health and consumer affairs.

[2] Compared with the 2012 study, which only examined ingredients corresponding to intense sweeteners (i.e. 10 ingredients), this report is based on research into 706 sweetening ingredients or ingredients conveying sweetness.

**Table 1: Classification of sweetening ingredients or ingredients conveying sweetness studied by OQALI.**

| Class of sweetening ingredients or ingredients conveying sweetness | Definition | Examples of ingredients as mentioned in the labelled ingredient lists |
|---|---|---|
| **Sucrose** | groups together **ingredients containing sucrose or mentioning "sugar"** | brown cane sugar / sucrose / sugar / caramelised sugar / cane sugar / icing sugar / vanilla sugar / brown beet sugar |
| **Lactose** | groups together **ingredients containing lactose** | lactose / lactose powder |
| **Other sugars** | groups together **mono- and disaccharides, alone or in combination** (excluding sucrose, mention of "sugar" and lactose) | dextrose / fructose / glucose / caramelised glucose / dehydrated glucose / glucose powder / isomaltulose / maltose / coconut sugar / invert sugar / sugars / caramelised sugars / invert sugars / trehalose / xylose |
| **Syrups** | groups together **mono- and disaccharides alone or in combination in liquid form** (sugar syrups, sugar and water solutions, etc.), **flavoured syrups** (coffee, caramel, etc.), **plant-based syrups** (made from plants, fruit, cereals, etc.) and **oligosaccharide syrups**. This class does not include polyol syrups but may contain syrups in powder form. | molasses concentrate / molasses extract / sugarcane juice / molasses / coconut sap / syrup / caramel syrup / date syrup / dextrose_fructose syrup / fructose syrup / fructo_oligosaccharide syrup / glucose syrup / invert glucose syrup / glucose_fructose syrup / tapioca syrup / molasses syrup / sucrose syrup / sugar syrup / invert sugar syrup / agave syrup / maple syrup / oligofructose syrup / syrup derived from cereals / liquid cane sugar / liquid sugar / liquid invert sugar |
| **Fruit juices and concentrates** | groups together ingredients corresponding to **a part extracted from fruit (juice, juice extract, etc.), as well as fruit concentrates whether or not in juice form (juice from concentrate, juice concentrate, fruit concentrate, etc.).** | fruit juice (whatever the fruit) / fruit juice powder (whatever the fruit) / fruit juice from concentrate (whatever the fruit) / fruit concentrate (whatever the fruit) / fruit extract (whatever the fruit) / fruit juice extract (whatever the fruit) / dehydrated fruit juice (whatever the fruit) / cranberry concentrate / lemon concentrate / date concentrate / fig concentrate / elderberry concentrate / tamarind concentrate / acerola concentrate / coconut water concentrate / coconut water / coconut water from concentrate / coconut water powder / aronia extract / coconut extract / coconut juice / soursop juice / rosehip juice / melon juice / rowan juice from concentrate / grape must / date nectar |
| **Caramel** | groups together **caramel-based ingredients** except for those that have undergone caramelisation or are in syrup form | caramel / salted butter caramel / milk caramel / caramel powder / e150a_plain caramel / e150b_caustic sulphite caramel / e150c_ammonia caramel / e150d_sulphite ammonia caramel / e150_caramel |
| **Honey** | groups together honey and **honey-based ingredients** | honey extract / honey / honey powder |

| Class of sweetening ingredients or ingredients conveying sweetness | Definition | Examples of ingredients as mentioned in the labelled ingredient lists |
|---|---|---|
| **Other ingredients conveying sugars** | groups together **other ingredients** mentioning a **"sweet" or "caramelised" state**, **"candied" fruit**, **oligosaccharides** other than syrups, and **formulated ingredients** such as compotes, fruit or milk jams, jellies, biscuits and cakes whose ingredient lists do not provide **details of the ingredients used** | candied fruit peel / candied nuts / caramelised nuts / chocolate nuts / sweetened dehydrated fruit / sweetened fruit / fruit paste / sweetened fruit purée / caramelised butter / caramelised salted butter / biscuit / amaretto biscuit / sweetened liquid egg white / sweetened fat-reduced cocoa powder / biscuit cereals / chocolate cereals / sweetened whipped cream / chocolate / fruit compote / concentrated fruit compote / chocolate confectionery / fruit jam / milk jam (dulce de leche) / caramelised cream / nougat cream / prune cream / feuilletine / sweetened fresh cheese / fructo_oligosaccharides / candied fruit / galacto_oligosaccharides / fruit jelly / genoise sponge / inulin / sweetened liquid egg yolk / sweetened concentrated or powdered whey / sweetened condensed skimmed milk / sweetened condensed milk / sweetened powdered milk / sweetened condensed whole milk / candied chestnuts / nougat / nougatine / sweetened and salted fish eggs / oligofructose / oligosaccharides / spread / white chocolate paste / hazelnut paste / walnut paste / coconut paste / macadamia paste / nougat paste / pistachio paste / praline paste / almond paste / caramelised apple / praline / fruit sauce / sweetened soy sauce / sweetened yoghurt / candied lemon zest |
| **Bulk sweeteners** | groups together all sweeteners that are not regarded as intense sweeteners, that have a **sweetening power less than or similar to that of sugar**, that are used to impart a sweet taste to foodstuffs or used in table-top sweeteners ((EC) No 1333/2008) | e420(i)_sorbitol / e420(ii)_sorbitol syrup / e420_sorbitols / e421_mannitol / e953_isomalt / e965(i)_maltitol / e965(ii)_maltitol syrup / e965_maltitols / e966_lactitol / e967_xylitol / e968_erythritol |
| **Intense sweeteners** | groups together substances with a **very high sweetening power and few or no calories**, used to impart a sweet taste to foodstuffs or used in table-top sweeteners ((EC) No 1333/2008) | e950_acesulfame k / e951_aspartame / e952_cyclamates / e954_saccharins / e955_sucralose / e959_neohesperidin dc / e960_steviol glycosides / e961_neotame / e962_salt of aspartame-acesulfame |
| **Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness *** | groups together flavourings, whether natural or not, whose flavour is evocative of an ingredient or food considered to be sweetening or to convey sweetness | (natural) caramel flavouring / (natural) chocolate flavouring / (natural) cola flavouring / (natural) maple flavouring / (natural) honey flavouring / natural nougat flavouring / natural brown sugar flavouring / biscuit flavouring / brioche flavouring / cappuccino flavouring / crème brûlée flavouring / grenadine flavouring / macaroon flavouring / honey lemon flavouring / praline flavouring / sabayon flavouring / tiramisu flavouring |

** Some of the flavourings used in processed food products optionally state the flavour imparted. The flavourings describing a flavour corresponding to an ingredient or food considered to be sweetening or to convey sweetness according to the classification definitions used for this report have therefore been grouped together in the "Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness" class. These flavourings have been included in the OQALI study of sweetening ingredients and ingredients conveying sweetness because they are used to impart or modify the odour and/or taste of the foods in which they are incorporated (even in very small quantities) and therefore contribute to the general perception of the sweet taste of the product (without adding any sugar or sweetening ingredient as such). Note that stating the flavour is optional and this may only appear on the label under certain conditions (European Parliament and Council 2008a): ingredient lists therefore only mention the ingredient "flavouring" or "natural flavouring" without specifying the flavour imparted. These ingredients were not included in this study.*

## 2.2 Selection of sweetening ingredients or ingredients conveying sweetness in the products studied

Based on the ingredient lists in the products considered, ingredients meeting the previously established definitions were identified at the most detailed level possible. This means that if the ingredient list stated "apricots in syrup: apricots, water, sugar", the ingredient considered in this study was sugar. If the ingredient list stated "caramelising sugar: caramel, brown sugar", only the ingredients "caramel" and "brown sugar" were considered. In rare cases where an ingredient list simply stated "shortbread biscuit" without detailing its constituent ingredients, the "shortbread biscuit" was then regarded as a sweetening ingredient or ingredient conveying sweetness. On the other hand, if the ingredient list stated "biscuit: wheat flour, sugar, concentrated butter", then the ingredient "sugar" was considered.

In the particular case of sweetening ingredients or ingredients conveying sweetness that are also allergens, such as lactose, these were taken into account only when they appeared in the ingredient list or were mentioned at the end of the list preceded by words such as "contains" or "presence of". This means that if they were mentioned in precautionary labelling (notions of adventitious presence and traces), or preceded by words such as "may contain traces of", "traces of" or "possible presence of", they were not considered.

## 2.3 Data analysis

This study looked at the **frequency of presence** of classes of sweetening ingredients or ingredients conveying sweetness and their combinations (simultaneous use of several different classes in the same product). The first part details the use of these classes based on the most recent data available (31 product categories). The second part looks at changes in the use of these classes in categories for which at least two collection campaigns were carried out (i.e. a subset consisting of 27 product categories). Note that indicators focusing more specifically on intense sweeteners were also produced for each of these two parts. In addition, for the available updated data, a further study examined changes in the use of sweetening ingredients or ingredients conveying sweetness in paired products (those present on the market at the time of both the first and second collections taken into account, whether they were strictly identical or reformulated), in order to study any reformulations that may have taken place between the two periods considered. Each indicator has been broken down as follows:

- all products combined (all products regardless of product category or type of brand);
- by product category (grouping of products that are homogeneous according to one or more criteria, such as the main ingredient (e.g. milk for dairy products or cocoa for chocolate products), the consumption occasion (e.g. aperitif for the Crackers category), etc.);
- by type of brand ( six are considered in this report: national brands, retailer brands, entry-level retailer brands, hard discount, specialised retailer brands and specialised organic retailer brands).

Note that among these types of brands, OQALI currently provides insufficient coverage of specialised organic retailer brands. This is because they were not present in the earliest data collections and/or their data for certain frozen food categories are very poorly represented in this type of brand. For this reason, the indicators relating to type of brand do not include results

for specialised organic retailer brands in the remainder of this study. It is also important to note that the use of intense sweeteners and bulk sweeteners is prohibited in organic products (Commission 2008). Products in this type of brand, which have been taken into account in the indicators for all products combined and by product category, therefore contribute to reducing the share of products containing a sweetener. All the definitions of OQALI categories and types of brands are presented in Annex 1.

Lastly, because the same product may contain several different classes of sweetening ingredients or ingredients conveying sweetness, it is not possible to add the proportions together for the indicators considering the different classes independently.

# 3. REVIEW OF THE FREQUENCY OF PRESENCE OF SWEETENING INGREDIENTS OR INGREDIENTS CONVEYING SWEETNESS IN THE 31 PRODUCT CATEGORIES CURRENTLY MONITORED BY OQALI

## 3.1 Presentation of the data used

Table 2 lists the 31 product categories studied (representing all the categories of processed foods available on the French market), as well as the number of products taken into account for this review part. The most recent data available were collected between 2012 and 2020, depending on the category.

**Table 2: List of the 31 food categories currently monitored by OQALI and numbers of products concerned (most recent data per category).**

| Product category | Year(s) of most recent data collection | Number of products taken into account | Estimated coverage* |
|---|---|---|---|
| Baby food | 2012 | 976 | 88% |
| Crackers | 2013 | 1082 | 59% |
| Cereal bars | 2016 | 181 | 82% |
| Cakes and biscuits | 2018 | 3120 | 76% |
| Soft drinks | 2019 | 2343 | 82% |
| Soups and broths | 2017 | 788 | 66% |
| Breakfast cereals | 2018 | 659 | 87% |
| Delicatessen meats | 2013 | 1722 | 64% |
| Chocolate products | 2012 | 1013 | 74% |
| Fruit purées, compotes and desserts | 2017 | 972 | 90% |
| Confectionery | 2017 | 1255 | 78% |
| Jams | 2017 | 781 | 81% |
| Canned fruits | 2017 | 245 | 76% |
| Cheeses | 2015 | 2004 | 74% |
| Ice-creams and sorbets | 2015 | 1953 | 87% |
| Fruit juices and nectars | 2013 | 1637 | 83% |
| Infant milks | 2012 | 129 | 89% |
| Margarines | 2016 | 109 | 86% |
| Bread products | 2019 | 1740 | 86% |
| Ready-to-eat canned meals | 2020 | 2672 | 67% |
| Ready-to-eat fresh meals[1] | 2016 | 1416 | 36% |
| Ready-to-eat frozen meals | 2020 | 2108 | 76% |
| Dessert mixes | 2013-2014 | 329 | 76% |
| Fresh dairy products and desserts | 2017 | 3115 | 87% |
| Fresh delicatessen products | 2015 | 2293 | 58% |
| Processed potato products | 2017 | 791 | 85% |
| Hot sauces | 2017 | 609 | 78% |
| Cold sauces | 2016 | 623 | 80% |
| Syrups | 2019 | 681 | 90% |
| Frozen snacking products | 2018 | 1147 | 80% |
| Frozen pastries and desserts | 2018 | 608 | 75% |
| ***All product categories*** | ***2012-2020*** | ***39 101*** | ***77%[2]*** |

* Ratio of product volumes identified by OQALI to the total market volume characterised by Kantar Worldpanel

[1] For the Ready-to-eat fresh meals category, as 2020 data were not available at the time of processing sweetening ingredients or ingredients conveying sweetness, the most recent data at that time were used, i.e. data from 2016

[2] Average estimated coverage by category

Coverage rates[3] for products collected by OQALI varied depending on the categories (data from Kantar – Worldpanel[4]). However, the coverages presented are underestimated because some products found on the market could not be assigned precisely to a line in the database provided by Kantar Worldpanel and, conversely, some products in the Kantar Worldpanel database were not found among the products collected by OQALI.

In comparison with the category studies published by OQALI, some products have not been considered in this report, such as:

- products from out-of-home catering, central purchasing agencies and pharmacies, as these could not be collected for all categories;
- products for which ingredient lists were unavailable, except for products in the Cheeses category, as the regulations do not require them to provide a list of ingredients on the packaging (European Parliament and Council 2011)[5].

Thus, 39,101 products were included in this part constituting the baseline for the frequency of presence of sweetening ingredients or ingredients conveying sweetness.

It should be noted that the results in this part may differ from those of studies already published by OQALI. Indeed, when making corrections to the OQALI database, the scope of the studies or any information studied in the OQALI reports may have been modified or corrected. This study was carried out using corrected updated data.

[3] Ratio of product volumes identified by OQALI to the total market volume characterised by Kantar Worldpanel.
[4] Kantar Worldpanel: purchasing data from households representative of the French population.
[5] Cheeses containing no ingredients other than lactic products, food enzymes, micro-organism cultures and salt are not required to be labelled with an ingredient list. As none of these are regarded as sweetening ingredients or ingredients conveying sweetness, these products are counted as having no sweetening ingredients or ingredients conveying sweetness.

## 3.2 Frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness

### 3.2.1 All products combined

**Among the 39,101 products studied, all products combined (31 categories currently monitored by OQALI), 77% (n=30,034) mentioned at least one sweetening ingredient or ingredient conveying sweetness (as considered by OQALI) in their ingredient list** (Figure 1), and 23% (n=9,067) did not therefore mention any.

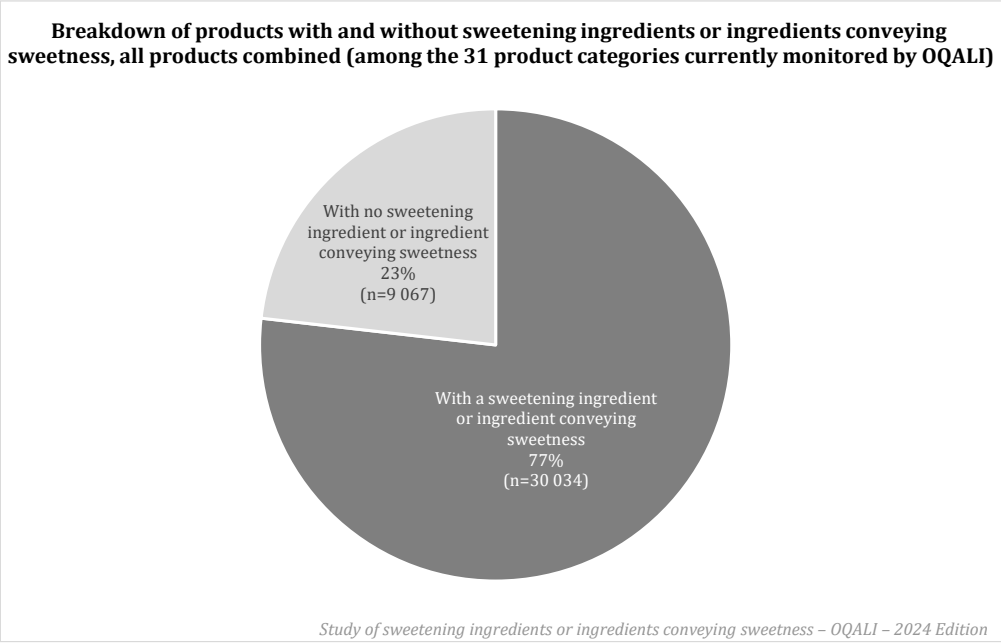



**Figure 1: Breakdown of products with and without sweetening ingredients or ingredients conveying sweetness, all products combined (among the 31 food categories currently considered by OQALI)**

Studies have also looked at the presence of sweetening ingredients in several other countries. However, their definition of ingredients regarded as sweeteners is more restrictive than that used in the OQALI study. In order to be able to compare their results with those of this study, the proportion of products containing at least one sweetening ingredient or ingredient conveying sweetness was recalculated, counting as sweeteners only those ingredients systematically considered in these other studies[6]. Under these conditions, therefore, 69% of processed food products available on the French market contained at least one sweetening ingredient (n=26,942). By way of comparison, a Canadian study (Acton *et al.* 2017) examined the presence of added sugars in 40,829 products on the Canadian market in March 2015. Among the products considered, 66% contained at least one added sugar. Another publication (Probst *et al.* 2017) studied the addition of sugars and intense sweeteners to products on the Australian market, collected in 2012 (5,744 products with an ingredient list): they were found in 68.5% (n=3,935) of the products monitored. A third study (Dunford *et al.* 2018) looked at the presence of ingredients regarded as added sugars for four different countries: Australia, Mexico, New Zealand and the United States (out of a total of 332,402 products between 2015 and 2017). The proportion of products containing at least one added sweetening ingredient varied from 46% in Mexico to 61% in New Zealand. The result observed by OQALI is consistent with these studies, although slightly higher. This can be explained by the scope of the products considered: the

[6] The five classes considered were Sucrose, Syrups, Other sugars, Lactose and Honey.

OQALI study was more restricted, taking only processed food products into account, whereas the other studies were based on packaged foods, which can include fruit/vegetables/nuts/pulses, unflavoured milks and bread, for example. By definition, these products contain no added sugars, thereby limiting the total percentage of products containing at least one sweetening ingredient.

### 3.2.2 By product category

**In 27 of the 31 product categories studied, more than 50% of products contained at least one sweetening ingredient or ingredient conveying sweetness** (Figure 2). As expected, the categories with the highest proportions of products containing at least one sweetening ingredient or ingredient conveying sweetness corresponded to those that tended to have a sweet connotation. Indeed, the categories containing at least 95% were: **Ice creams and sorbets (100%), Jams (100%), Canned fruits (100%), Cereal bars (100%),** Confectionery (99.9%), Cakes and biscuits (99.9%), Frozen pastries and desserts (99.5%), Chocolate products (99%), Syrups (99%) and Fruit juices and nectars (95%). **However, 10 of the 27 categories had a more savoury connotation**: **Cold sauces** (94%), **Frozen snacking products** (87% of products), **Delicatessen meats** (84%), **Hot sauces** (81%), **Fresh delicatessen products** (**77%**), **Ready-to-eat fresh meals** (71%), Soups and broths (59%), Ready-to-eat frozen meals (59%), Ready-to-eat canned meals (54%) and Crackers (53%).

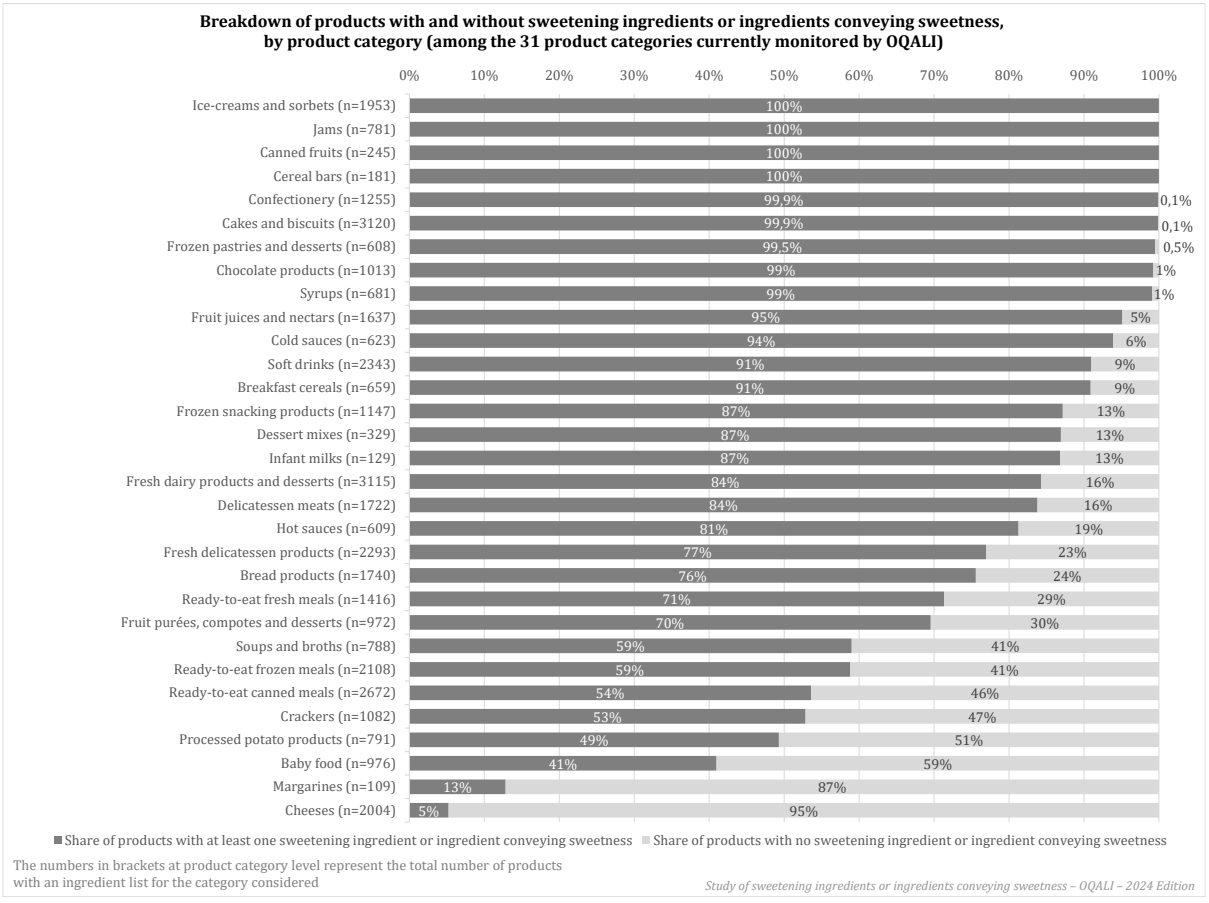



**Figure 2: Breakdown of products with and without sweetening ingredients or ingredients conveying sweetness, by food category (among the 31 categories currently considered by OQALI; sorted in descending order of the proportion of products with sweetening ingredients or ingredients conveying sweetness)**

The Margarines and Cheeses categories had the lowest proportions of products with at least one sweetening ingredient or ingredient conveying sweetness (with 13% and 5% of their products, respectively).

Note that for certain categories with a sweet connotation, a few products stood out due to the absence of any sweetening ingredients or ingredients conveying sweetness. These special cases are explained below:

- Confectionery: only one product had no sweetening ingredients or ingredients conveying sweetness. It concerned propolis-based gummies that claimed to have no added sugars;

- Cakes and biscuits: three products had no sweetening ingredients or ingredients conveying sweetness. They were fruit or carrot biscuits claiming to have "no added sugars";

- Chocolate products: among other things, this category includes products such as unsweetened cocoa powder, which explains why a small share of its offering had no sweetening ingredients or ingredients conveying sweetness;

- Syrups: six products corresponding to aniseed-flavoured beverages and flavoured liquorice concentrates for dilution did not contain any sweetening ingredients or ingredients conveying sweetness;

- Fruit juices and nectars: 5% of products (n=80) in this category had no sweetening ingredients or ingredients conveying sweetness. Most of these were vegetable juices (mainly tomato, carrot or beetroot juices; vegetable juices were not regarded as sweetening ingredients or ingredients conveying sweetness in this study, unlike fruit juices and their derivatives, see Table 1). Fruit juices and nectars were also concerned: this can be explained either, in the vast majority of cases, by the fact that the ingredient list only mentions the fruit or fruits (with or without added water), without saying whether the fruit is in the form of juice, extract, concentrate, etc.; or because the ingredient list only indicates fruit in purée form. According to the classification drawn up, a fruit is only considered as a sweetening ingredient or ingredient conveying sweetness when a part extracted from the fruit is used. A whole fruit is not conventionally regarded as a sweetening ingredient or ingredient conveying sweetness. This clearly illustrates how the results of this study are dependent on the way in which the ingredient lists are labelled.

As with the previous part and in order to be able to compare our data with other studies, the proportion of products containing at least one sweetening ingredient or ingredient conveying sweetness per product category was recalculated, counting as sweeteners only those ingredients systematically considered in these other studies[7]. The corresponding results are shown in Annex 2. These results are consistent with those observed for other countries, even if there were differences in the collection years and scope for a given product category, which explain some of the discrepancies observed (as a reminder, the scope of OQALI covered processed food products, whereas the other studies took all packaged foods into account, including products not monitored by OQALI). For example, the ice cream category contained the highest proportion of products with at least one added sugar for the four countries studied by

[7] The five classes considered were Sucrose, Syrups, Other sugars, Lactose and Honey.

Dunford *et al*. (Dunford *et al.* 2018) (97.7% for Australia, 93.5% for New Zealand, 86.0% for the United States and 81.7% for Mexico). In the OQALI Ice creams and sorbets category, almost all products contained at least one sweetening ingredient (99.9%). In addition, the Canadian study (Acton *et al.* 2017) showed a high frequency of presence in the cereals and beverages categories, with 85.7% and 78.7%, respectively, of products containing at least one added sugar. This confirmed the results observed for similar OQALI categories, with a high proportion of products containing at least one sweetening ingredient: Cereal bars (100%), Breakfast cereals (89%), Syrups (86%) and Soft drinks (75%). Similarly, sweetening ingredients were found in 98.1% of Australian confectionery products (Probst *et al.* 2017) and 81% of products in the OQALI category (the difference can be explained by the inclusion of sweeteners in the Australian study), and in 81.9% of Australian sauces and condiments, compared with 91% and 79%, respectively, for the OQALI Cold sauces and Hot sauces categories (note that condiments are excluded from the Cold sauces category, which partly explains the higher figure for OQALI). In the OQALI Bread products category, 74% of products had at least one sweetening ingredient or ingredient conveying sweetness, while in the bread and bakery products category of the Australian study the figure was 79.7%. The study covering Australia, Mexico, New Zealand and the United States (Dunford *et al.* 2018) also showed that this proportion could differ according to category and country. Thus, the figures ranged from 30% for the Mexican beverages category to 59% for its New Zealand equivalent.

### 3.2.3 By type of brand

**In all five types of brands studied, more than 75% of products had at least one sweetening ingredient or ingredient conveying sweetness (Figure 3).**

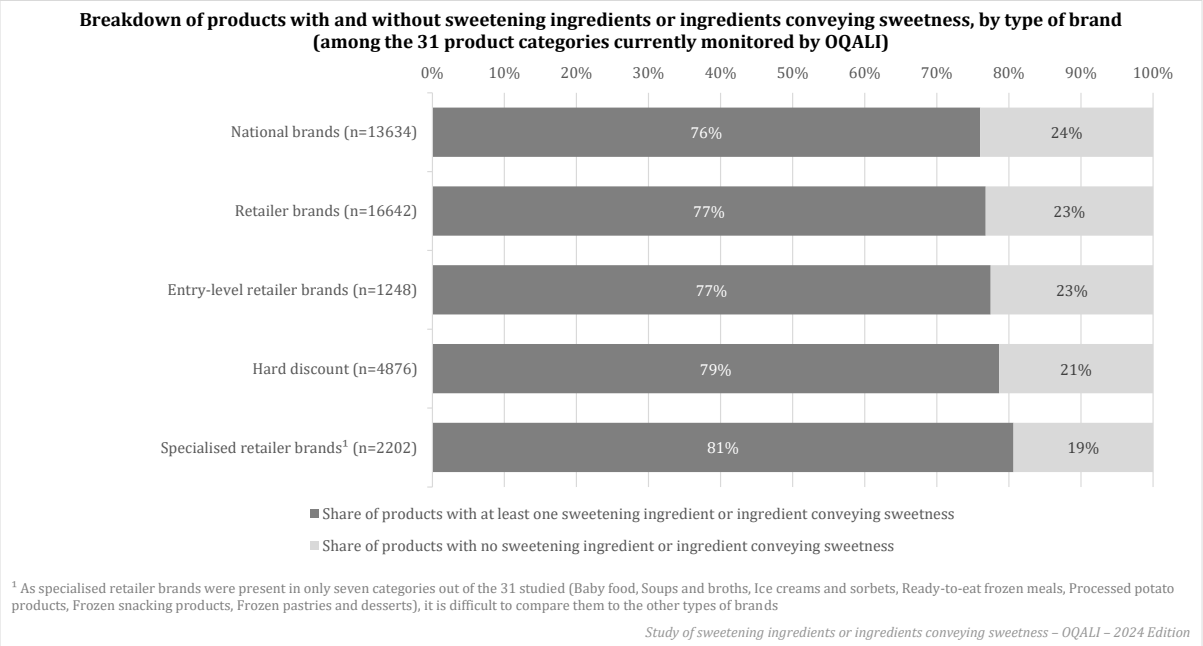



**Figure 3: Breakdown of products with and without sweetening ingredients or ingredients conveying sweetness, by type of brand (among the 31 food categories currently considered by OQALI)**

**The variations observed between types of brands are partly due to differences between their respective product offerings:** several food categories with a large share of products containing sweetening ingredients or ingredients conveying sweetness were more heavily represented in certain types of brands**.** The results for specialised retailer brands can be explained by the fact that this type of brand has an offering concentrated in seven of the 31

categories studied, and in particular those with among the highest proportions of products containing at least one sweetening ingredient or ingredient conveying sweetness: Ice creams and sorbets, Frozen pastries and desserts and, to a lesser extent, Frozen snacking products and Ready-to-eat frozen meals. Hard discount includes a large proportion of Cereal bars, Cakes and biscuits, Chocolate products and Canned fruits. Conversely, national brands have a higher share of products in categories with a lower proportion of products with sweetening ingredients or ingredients conveying sweetness, such as Margarines, Baby food and, to a lesser extent, Soups and broths. This may partly explain the slightly lower proportion of products containing at least one sweetening ingredient or ingredient conveying sweetness observed in this type of brand.

A table detailing the numbers and proportions of products by category and type of brand is available in Annex 3.

## 3.3 Frequency of presence of classes of sweetening ingredients or ingredients conveying sweetness

This section details the study of the frequency of presence of sweetening ingredients or ingredients conveying sweetness, by class, based on the most recent data available for the 31 product categories currently monitored by OQALI. As a reminder, because the same product may contain several different classes of sweetening ingredients or ingredients conveying sweetness, it is not possible to add the proportions together.

### 3.3.1 All products combined

**The most heavily represented class was Sucrose, contained in 58% of the products considered** (n=22,710; Figure 4). As a reminder, this class groups together ingredients containing sucrose or mentioning "sugar".

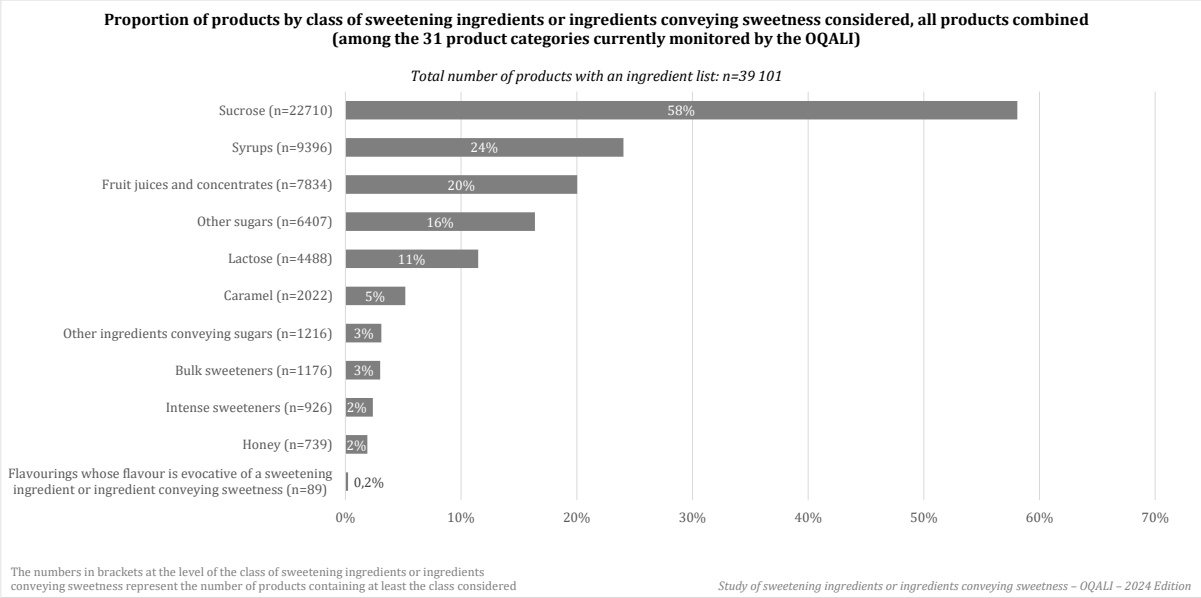



**Figure 4: Proportion of products containing at least the class of sweetening ingredients or ingredients conveying sweetness considered, all products combined (among the 31 food categories currently considered by OQALI, i.e. 39,101 products studied; sorted in descending order of the proportion of products)**

**The four other classes of sweetening ingredients or ingredients conveying sweetness for which a frequency of presence greater than 10% was observed were Syrups** (n=9,396; 24%), **Fruit juices and concentrates** (n=7,834; 20%), **Other sugars** (n=6,407; 16%) and **Lactose** (n=4,488; 11%).

The six remaining classes of sweetening ingredients or ingredients conveying sweetness were found in 5% or less of products. In particular, Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness had a very low frequency of presence (n=89; 0.2%). As its name suggests, this class groups together flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness. However, a flavouring does not necessarily have to be accompanied by information about the flavour it imparts (European Parliament and Council 2008a). This means that only products mentioning a flavour corresponding to a sweetening ingredient or ingredient conveying sweetness were counted in this study. It is therefore likely that the result for this class is underestimated (relatively few products mention the flavour of the flavouring(s) used in the ingredient list).

By way of comparison, two studies (Acton *et al.* 2017, Probst *et al.* 2017) found that the term "sugar" was most commonly found in the ingredient lists considered (n=21,869 or 53.6% in Canada (Acton *et al.* 2017) and n=21,869 or 60.6% in Australia (Probst *et al.* 2017)). In addition, the Australian study indicated that after sugar, syrups were the most commonly used sweetening ingredients (18.7% of products), followed by glucose and dextrose (13.1%; these two were grouped together in the "Other sugars" class for the OQALI study). It should be noted that the scope of the products studied was not the same for each of these studies and that their classification of sweetening ingredients or ingredients conveying sweetness was somewhat different from that used by OQALI (based on isolated ingredients and not grouped into classes). Despite differences in the definition of the ingredients and categories studied, the Lactose class appeared to be found more frequently in the ingredient lists of OQALI products than in those of the products in the Canadian study (Acton *et al.* 2017) (16% and 2.2%, respectively, all categories combined). In the European Union, it is mandatory to declare ingredients that cause allergies (e.g. milk) or intolerances (e.g. lactose) (European Parliament and Council 2011). For Canada, a food allergen is any protein, modified or not (including any protein fraction) derived from almonds, Brazil nuts, cashews, hazelnuts, macadamia nuts, pecans, pine nuts, pistachios or walnuts, peanuts, sesame seeds, wheat or triticale, eggs, milk, soybeans, crustaceans, molluscs, fish or mustard seeds (Ministre de la Justice 2023). As lactose is not regarded as an allergen, it is not mandatory to declare its presence in an ingredient (such as a "flavouring (contains lactose)"). The frequency of presence of lactose noted by the Canadian study therefore corresponds solely to the addition of the ingredient lactose, unlike the results observed for France, where it was not possible to distinguish lactose mentioned for its allergenic nature from lactose added as a constituent ingredient of the product, in the ingredient lists. Caramel was found in 6% of the ingredient lists studied by OQALI and 0.7% of the Canadian lists. Conversely, it appears that honey was more frequently identified in Canadian products than the Honey class was in the products studied by OQALI (3.9% and 2%, respectively, for all categories combined). Moreover, regarding intense sweeteners, the study by Dunford *et al.* (Dunford *et al.* 2018) compared the presence of this type of ingredient in 332,402 products collected from four countries (Australia, Mexico, New Zealand and the United States). Among these products, 5% contained at least one intense sweetener, with disparities between countries: 0.9% of products in Australia compared with 11% in Mexico. According to the OQALI study, France, with 2% of processed food products containing at least one intense sweetener, falls between New Zealand (1.4%) and the United States (4.4%). Note also that the products in the other four countries were collected between 2015 and 2017, whereas the collection period for the OQALI study was longer and depended on the category (Table 2). In addition, a Spanish study (Beltra *et al.* 2022) indicated that 9.3% of the products collected from the Spanish market between 2017 and 2022 (a total of 4,218 products) used at least one sweetener (either bulk sweeteners such as polyols or intense sweeteners). This proportion was higher compared with the OQALI data, for which 3% of products contained at least one bulk sweetener and 2% at least one intense sweetener. This seems to be explained by the fact that the Spanish study did not exhaustively cover fresh foods, with the exception of fish and seafood products, and that retailer brand products were not collected (Ropero, Blain, and Beltra 2020).

### 3.3.2 By product category and by type of brand

This section details the frequency of presence for each of the 11 classes of sweetening ingredients or ingredients conveying sweetness, by product category and by type of brand.

### 3.3.2.1 Sucrose class

**By product category**

**The Sucrose class, which had the highest frequency of presence in all products combined, was found in 30 of the 31 categories** currently monitored by OQALI, with frequency values ranging from 1% (n=21) for the Cheeses category to 100% (n=181) for the Cereal bars category (Figure 5).

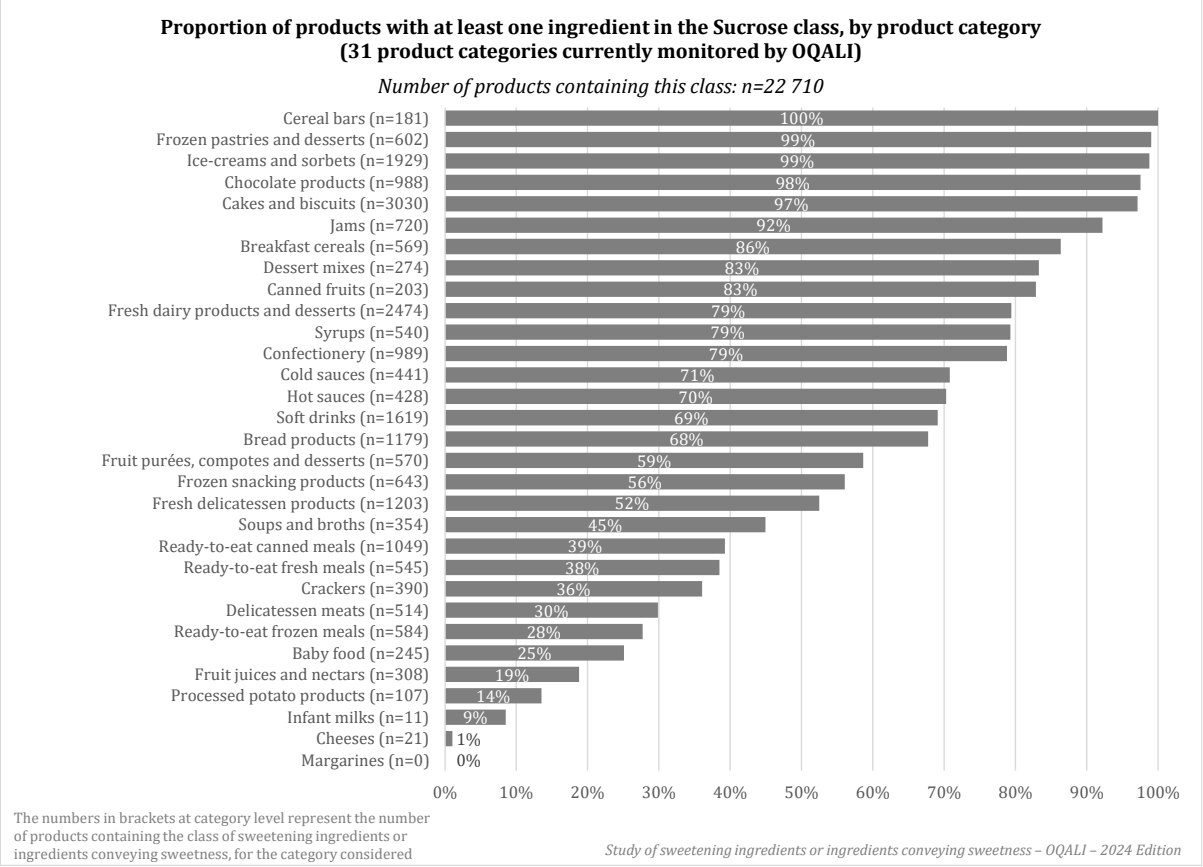



**Figure 5: Proportion of products with at least one ingredient in the Sucrose class, by food category (31 categories currently monitored by OQALI; sorted in descending order of the proportion of products containing the Sucrose class)**

**In the majority of product categories (19 out of the 31 studied), more than half of the product offerings contained at least one ingredient in the Sucrose class. Most of these categories had a sweet connotation**, such as Frozen pastries and desserts (99% of products containing at least one ingredient from the Sucrose class; n=602), Ice creams and sorbets (99%; n=1,929), Chocolate products (98%; n=988), Cakes and biscuits (97%; n=3,030) and Jams (92%; n=720) (Figure 5). However, **in four categories with a more savoury connotation, more than half of the products also had at least one ingredient from this class**:

- Cold sauces (71%; n=441), mainly tomato-based sauces, mayonnaises and low-fat vinaigrettes;
- Hot sauces (70%; n=428): mostly in tomato-based sauces;
- Frozen snacking products (56%; n=643), where sucrose ingredients were found in pizza dough and/or toppings, in product sauces and in bread;

- Fresh delicatessen products (52%; n=1,203), mainly in sauces used to dress salads, surimi (crab sticks) and bread, as well as sauces used in sandwiches and pizza or crepe dough (note that this last category also includes desserts).

Other categories with a savoury connotation also had a significant proportion of products containing at least one ingredient in the Sucrose class, such as:

- Soups and broths (45%);
- Ready-to-eat canned meals (39%, particularly in sauces and seasonings, as well as in cured meats and sausages);
- Ready-to-eat fresh meals (38%, also found in sauces, marinated meats and stuffings);
- Crackers (36%, partly found in seasonings/flavouring bases for products and in dried or candied fruit);
- Delicatessen meats (30%, particularly in sausages, dry sausages and hams);
- Ready-to-eat frozen meals (28%, particularly in vegetable/fish/poultry stocks, seasoning, sauces or marinades and breadcrumbs);
- Processed potato products (14%, particularly in flavoured crisps).

The presence of the Sucrose class in a few products in the Cheeses category (1%; n=21) can be explained by the presence of breadsticks accompanying processed cheese or a processed cheese speciality, products such as flavoured processed cheese, or aperitif cheese bites with fillings or inclusions (such as sweetened dried fruit).

Lastly, only the Margarines category had no products with an ingredient from this class.

By way of comparison, the Australian study (Probst *et al.*2017) showed that the term "sugar" was the most commonly found in 14 of the 21 categories studied, including confectionery (n=730; 87.5%) and bread and bakery products (n=870; 74.0%). The proportions observed in the OQALI data were slightly lower: 79% for the Confectionery category (n=989) and 68% for the Bread products category (n=1179).

**By type of brand**

**The Sucrose class was found in more than half of the products in each of the five types of brands studied**, with relatively similar frequency values ranging from 55% (n=682) for entry-level retailer brands to 62% (n=1,356) for specialised retailer brands (Figure 6).

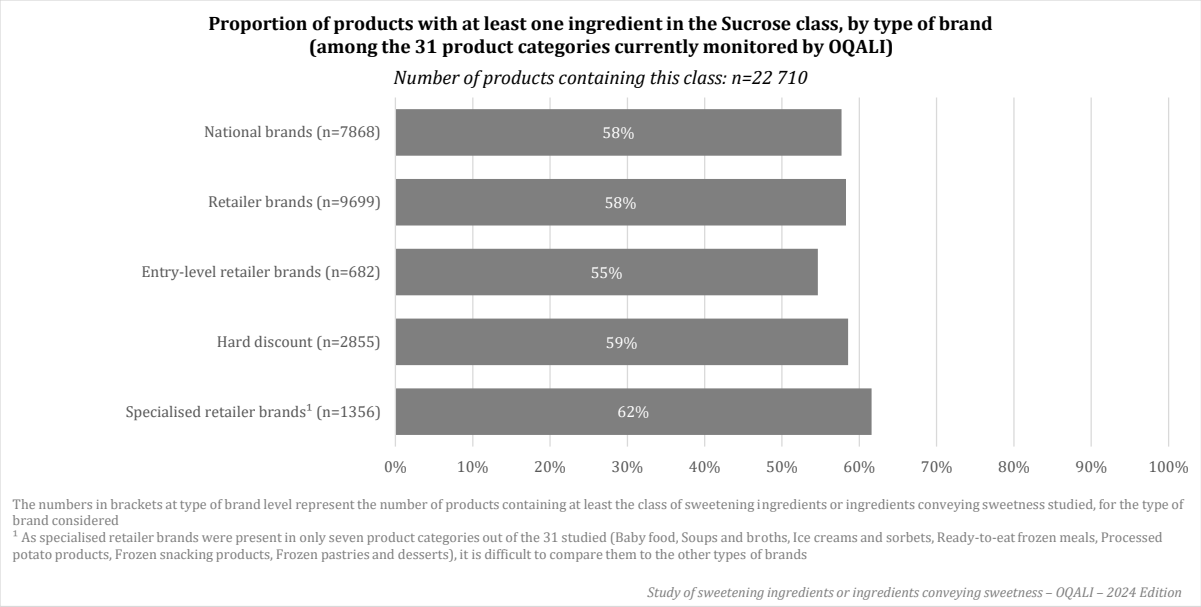



**Figure 6: Proportion of products with at least one ingredient in the Sucrose class, by type of brand (among the 31 food categories currently monitored by OQALI).**

As a reminder, specialised retailer brands focus on frozen foods, including the Ice creams and sorbets and Frozen pastries and desserts categories: 99% of the products in these categories contained at least one ingredient from this class (Figure 5). They therefore contributed to the high proportion of products with at least one ingredient from the Sucrose class found in this type of brand.

#### 3.3.2.2 Syrups class

**By product category**

**The Syrups class was found in 30 of the 31 product categories** currently monitored by OQALI, with frequency values ranging from 0.1% (n=3) for the Cheeses category to 99% (n=179) for the Cereal bars category (Figure 7).

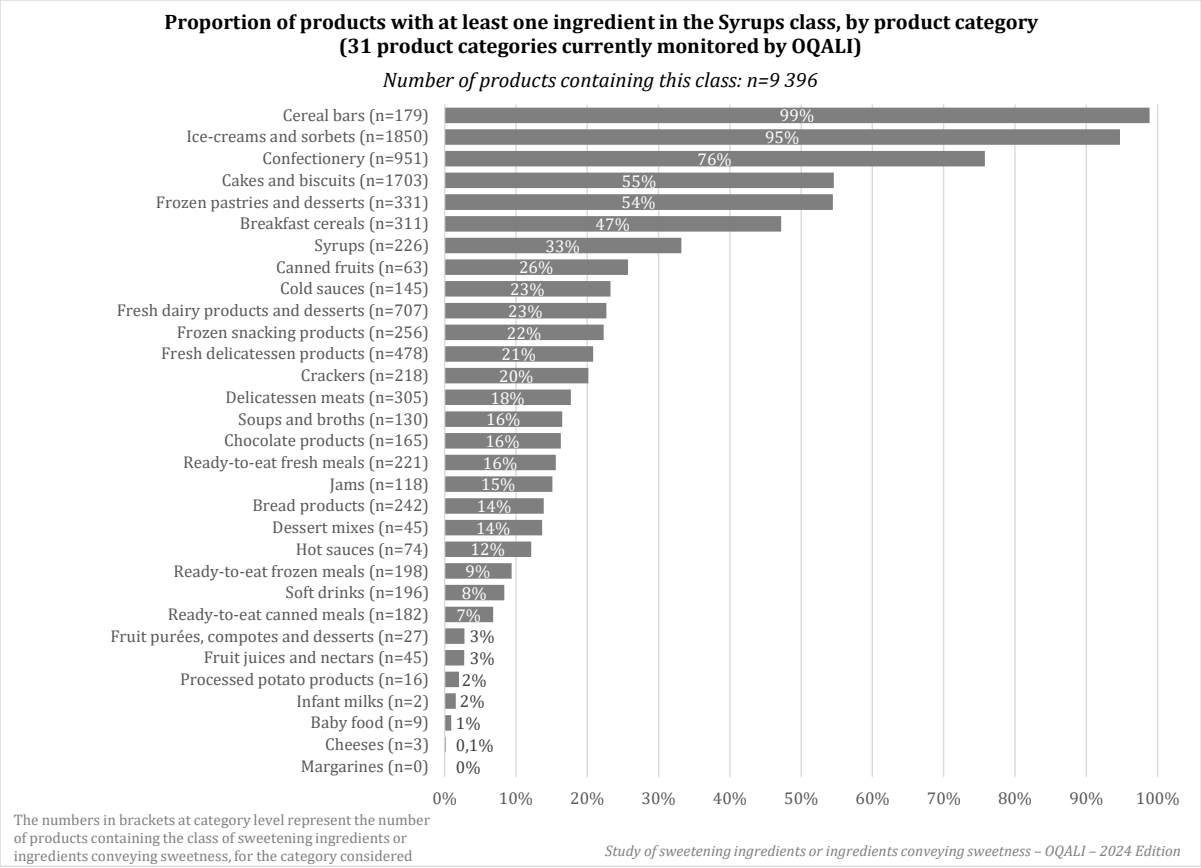



**Figure 7: Proportion of products with at least one ingredient in the Syrups class, by food category (31 categories currently monitored by OQALI; sorted in descending order of the proportion of products containing the Syrups class).**

Besides Cereal bars, Syrups were present in the **majority of ingredient lists in categories with a sweet connotation**, such as Ice creams and sorbets (n=1,850; 95%), Confectionery (76%; n=951), Cakes and biscuits (55%; n=1,703) and Frozen pastries and desserts (54%; n=331) (Figure 7).

Note that **frequency of presence values of at least 20% were found in a few categories with a savoury connotation**:

- Cold sauces (23%; n=145), mainly in emulsified sauces such as burger sauce, ketchups and non-emulsified sauces such as barbecue sauce;
- Frozen snacking products (22%; n=256), mainly due to the presence of ham, bechamel sauce or cured meat used in products in this category;
- Fresh delicatessen products (21%; n=478), mainly products with ham, lardons or bacon, cured meats and products using sauces such as ketchup or mayonnaise;
- Crackers (20%, n=218), mainly in products such as salted cocktail crackers, tuile biscuits, salted crepes dentelles and puffs.

In other categories with a savoury connotation, between 10% and 20% of products contained an ingredient from this class: Delicatessen meats (18%, mainly in hams, and cooked and dry sausages), Soups and broths (16%), Ready-to-eat fresh meals (16%, mainly in products using delicatessen meat products such as ham, chorizo, bacon, merguez, cooked sausages and marinated or cured meat), Hot sauces (12%, mainly in meat/vegetable stocks).

**By type of brand**

**The Syrups class was found in every type of brand**, with frequencies ranging from 22% for national brands (n=3,044) and retailer brands (n=3,677) to 43% for specialised retailer brands (n=950) (Figure 8). **These differences can be at least partly explained by the respective offerings of the different types of brands**.

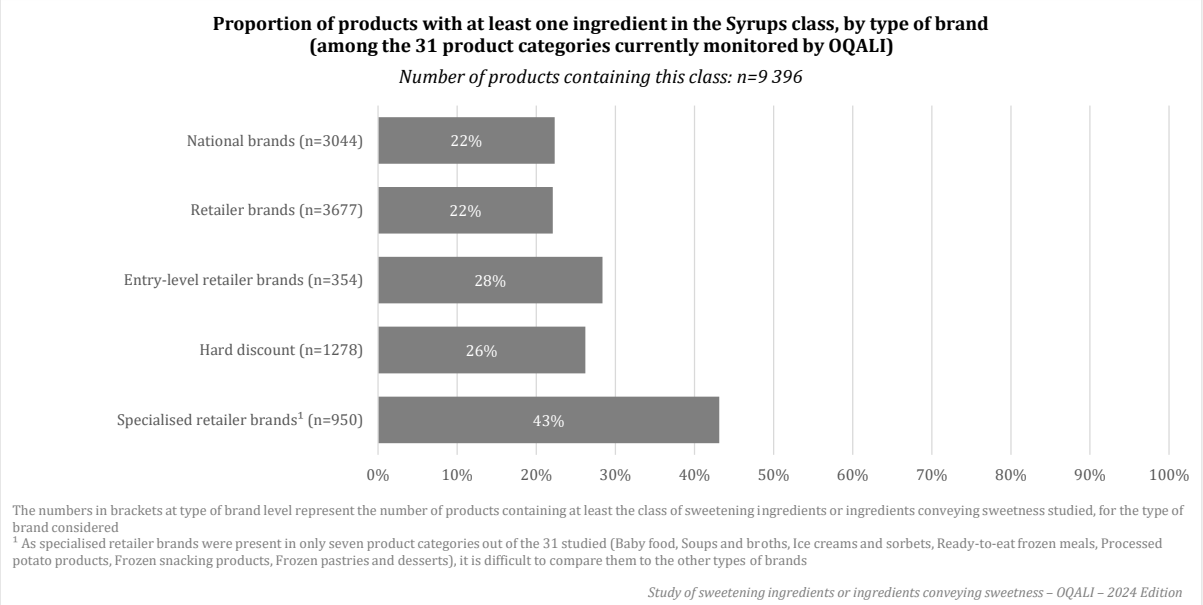



**Figure 8: Proportion of products with at least one ingredient in the Syrups class, by type of brand (among the 31 food categories currently monitored by OQALI).**

For example, the two "budget price" types of brands (entry-level retailer brands and hard discount products) offer a wide range of products in the Cakes and biscuits and Ice creams and sorbets categories. These two product categories respectively accounted for 55% and 95% of products with an ingredient from the Syrups class, which partly explains the higher proportion than that observed for national brands and retailer brands. Furthermore, depending on the product category, it appears that the "budget price" types of brands use ingredients from the Syrups class slightly more often in their products. Thus, in the Ice creams and sorbets category, all entry-level retailer brands and almost all hard discount products (98%) used this class of sweetening ingredients or ingredients conveying sweetness, while the proportion was 96% for retailer brands, 94% for national brands and 93% for specialised retailer brands.

As a reminder, specialised retailer brands focus on frozen foods, including the Ice creams and sorbets and Frozen pastries and desserts categories: they therefore made a major contribution to the proportion of products with at least one ingredient from the Syrups class in this type of brand.

#### 3.3.2.3 Fruit juices and concentrates class

**By product category**

**The Fruit juices and concentrates class was found in 30 of the 31 product categories** currently monitored by OQALI, with frequency values ranging from 0.1% (n=1) in the Delicatessen meats category to 90% (n=1,478) in the Fruit juices and nectars category (Figure 9).

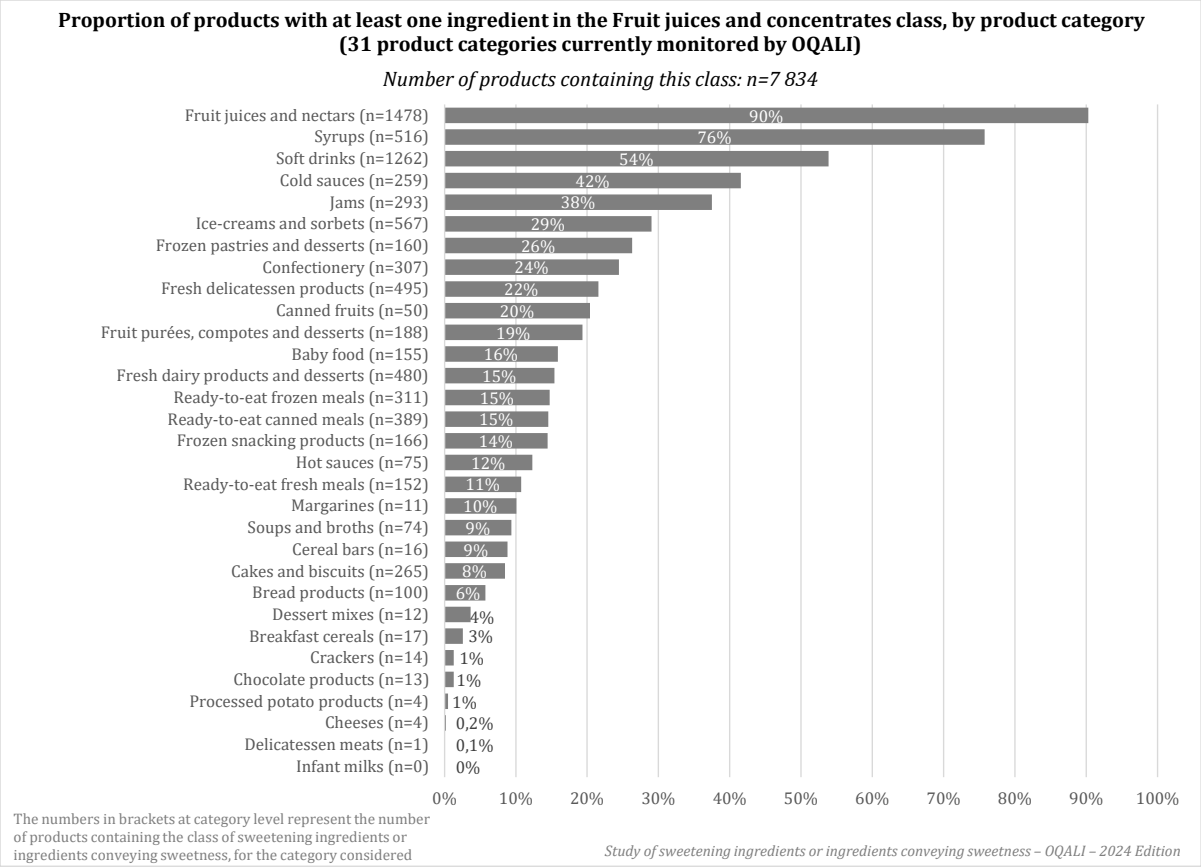



**Figure 9: Proportion of products with at least one ingredient in the Fruit juices and concentrates class, by food category (31 categories currently monitored by OQALI; sorted in descending order of the proportion of products containing the Fruit juices and concentrates class).**

**In five of these categories, more than 30% of products contained at least one ingredient from this class. They tended to have a sweet connotation** and were largely (if not entirely) made from fruit juice and/or concentrates. Besides Fruit juices and nectars, a high proportion of products containing this class was observed in the Syrups (76%; n=516), Soft drinks (54%; n=1,262) and Jams (38%, n=293) categories (Figure 9). Note that not all the products in the Fruit juices and nectars category were presented as containing at least one ingredient from this class, as some ingredient lists only indicated the fruit without mentioning the state, or specified that they contained fruit purées. These are not regarded as sweetening ingredients or ingredients conveying sweetness. **The fifth category, Cold sauces, had a more savoury connotation** and 42% of its products (n=259) contained at least one ingredient from the Fruit juices and concentrates class (Figure 9), mainly lemon juice (in concentrated form or not, or from concentrate).

In seven other categories with a savoury connotation, 10% or more of the products contained at least one ingredient from the Fruit juices and concentrates class. These categories were Fresh delicatessen products (22%; n=495), Ready-to-eat frozen meals (15%; n=311), Ready-to-eat canned meals (15%; n=389), Frozen snacking products (14%; n=166), Hot sauces (12%; n=75), Ready-to-eat fresh meals (11%; n=152) and Margarines (10%; n=11) (Figure 9). As with Cold sauces, this was due to the fact that these categories used lemon juice (in concentrated form or not, or from concentrate).

**By type of brand**

**Fruit juices and concentrates were found in every type of brand**, with frequency values ranging from 15% for entry-level retailer brands (n=190) and hard discount products (n=755) to 24% for specialised retailer brands (n=529) (Figure 10).

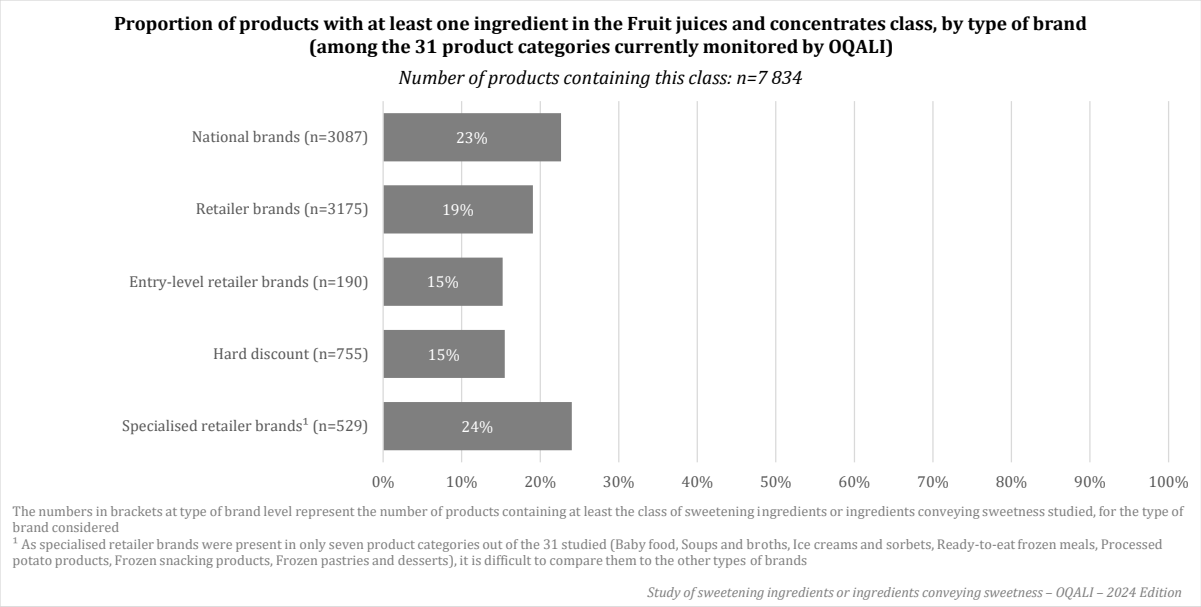



**Figure 10: Proportion of products with at least one ingredient in the Fruit juices and concentrates class, by type of brand (among the 31 food categories currently monitored by OQALI).**

**These differences can be partly explained by the respective offerings of the different types of brands**, with national brands and retailer brands offering many products in the Fruit juices and nectars and Soft drinks categories (with 90% and 54%, respectively, of products containing at least one ingredient from the Fruit juices and concentrates class; Figure 9) compared with products from the hard discount and entry-level retailer brands in particular.

#### 3.3.2.4 Other sugars[8] class

**By product category**

**The Other sugars class was found in 28 of the 31 product categories** currently monitored by OQALI, with frequency values ranging from 0.1% (n=1) for the Fruit juices and nectars category to 65% for the Cereal bars (n=118) and Delicatessen meats (n=1,112) categories (Figure 11).

[8] As a reminder, the "Other sugars" class groups together all mono- and disaccharides, alone or in combination (excluding sucrose, mention of "sugar" and lactose)

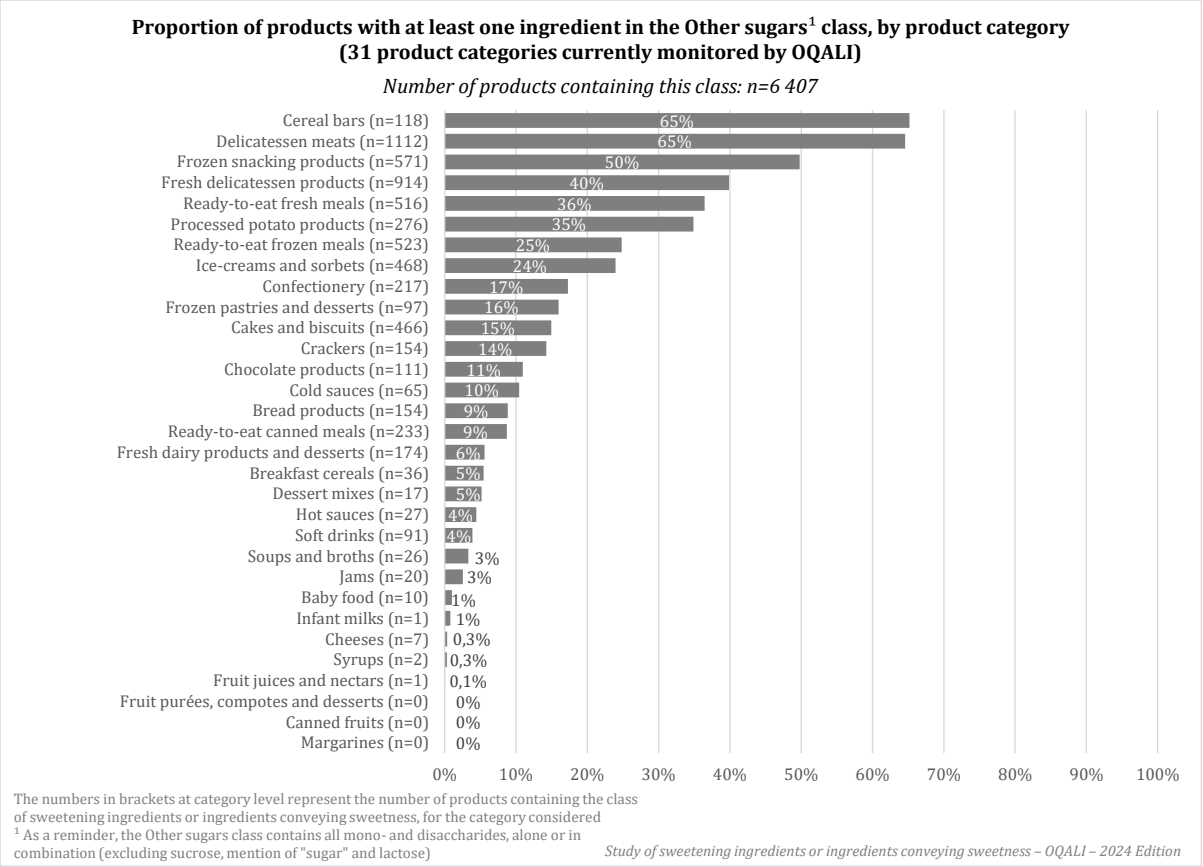



**Figure 11: Proportion of products with at least one ingredient in the Other sugars class, by food category (31 categories currently monitored by OQALI; sorted in descending order of the proportion of products containing the Other sugars class).**

**In eight of these categories, more than 20% of products contained at least one ingredient from this class. With the exception of the Cereal bars and Ice creams and sorbets categories (24%; n=468), the other six categories had a more savoury connotation**: Delicatessen meats (65%; n=1,112), Frozen snacking products (50%; n=571), Fresh delicatessen products (40%; n=914), Ready-to-eat fresh meals (36%; n=516), Processed potato products (35%; n=276) and Ready-to-eat frozen meals (25%; n= 523) (Figure 11). For these six categories, this can be explained by **the use of dextrose**. It has multiple roles in **Delicatessen meat products**. It is mainly used for preservation, as it can bind to water molecules, preventing them from being used by micro-organisms to grow. In cured products, dextrose facilitates the diffusion of salt and enables certain micro-organisms to react with nitrites and myoglobin to give the products a pink/red colour (particularly in dried meats and ham). Note also that in addition to sucrose, the sweet taste of dextrose can be used to counterbalance the bitterness of liver mousses and pâtés (Solignat 2004). Lastly, it also plays a part in the Maillard reaction, which produces a brown colour and grilled/braised flavours, for example in braised cooked hams or products such as pâté in pastry (in which the reaction takes place in the dextrose contained in the pastry) (Solignat 2004). In the Frozen snacking products, Fresh delicatessen products, Ready-to-eat fresh meals and Ready-to-eat frozen meals categories, dextrose is found in products using delicatessen meats (cordon bleu with cured turkey fillet, couscous with merguez, ham pancakes/crepes, croque monsieur, tartiflette with lardons, paella with chorizo, etc.). In Processed potato products, dextrose is mainly used in pre-fried products (probably to give the product a golden colour when cooked at home) and, to a lesser extent, in seasonings/flavouring bases for crisps.

Lastly, in a few categories, between 5% and 15% of products had at least one ingredient from this class: Crackers (14%; n=154), Cold sauces (10%; n=65) and Ready-to-eat canned meals (9%; n=233). As with the previous categories, dextrose was the main ingredient found. In the Crackers category, as with Processed potato products, it is used in seasonings/flavouring bases for products. In the Cold sauces category, it is mainly found in emulsified sauces, particularly tomato-based and/or red wine-based. Lastly, as with the other categories of ready meals, dextrose is found in delicatessen meat or cured meat products in the Ready-to-eat canned meals category.

**By type of brand**

**The Other sugars class was found in every type of brand, with frequencies varying according to the type of brand**: from 13% for national brands (n=1,708) to 31% for specialised retailer brands (n=684) (Figure 12). **These differences can be explained by the respective offerings of the different types of brands.**

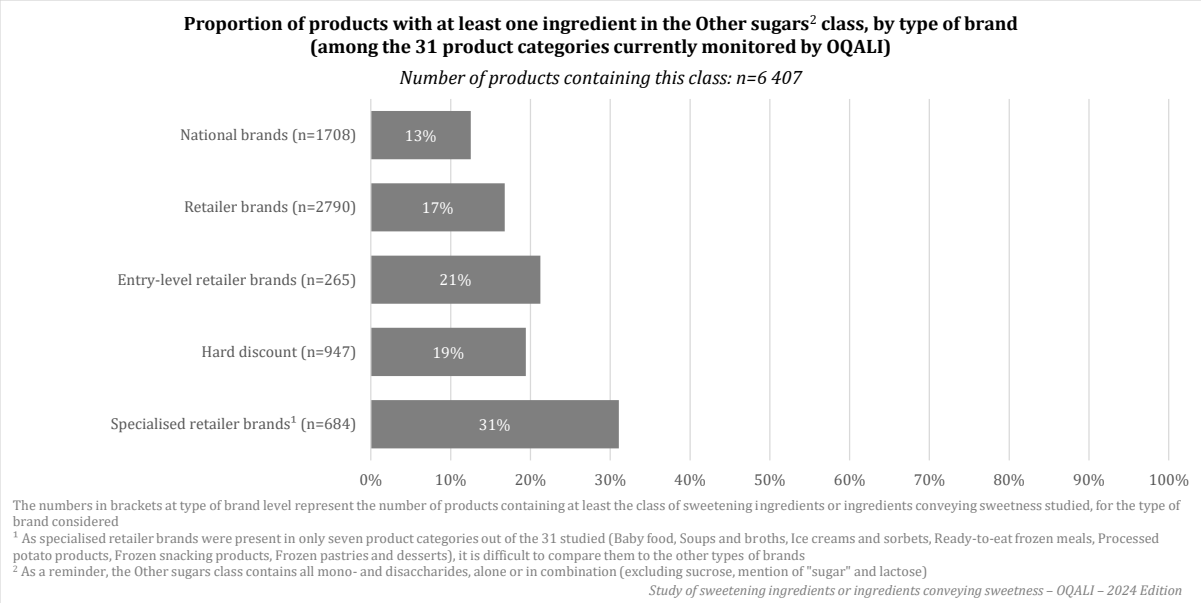



**Figure 12: Proportion of products with at least one ingredient in the Other sugars class, by type of brand (among the 31 food categories currently monitored by OQALI).**

Note that the two "budget price" types of brands offer a wider range of products in the Delicatessen meats and Fresh delicatessen products categories than the national brands and retailer brands. In these two categories, 65% and 40% of products, respectively, had an ingredient from the Other sugars class, which partly explains the difference in proportion between these types of brands. To a lesser extent, the Processed potato products category also contributed to the high proportion of products containing the Other Sugars class observed for entry-level retailer brands, while the Ready-to-eat frozen meals, Ready-to-eat fresh meals and Frozen snacking products categories also contributed to the proportion observed for hard discount products.

As a reminder, and as with the previous classes, specialised retailer brands focus on frozen foods. Thus, the Ice creams and sorbets, Frozen snacking products and Ready-to-eat frozen meals categories, whose proportions of products with at least one ingredient from the Other sugars class were among the highest (24%, 50% and 25%, respectively; Figure 11), contributed to the proportion of products containing this class for specialised retailer brands.

### 3.3.2.5 Lactose class

As a reminder, because lactose is an allergen, it must be declared in the ingredient list. The lactose counted in this study may therefore be present in the ingredient list due to its allergenic nature, even though it is not an ingredient as such (e.g. a flavour carrier).

**By product category**

**The Lactose class was found in 26 of the 31 product categories** currently monitored by OQALI, with frequency values ranging from 0.1% (n=1) for the Fruit purées, compotes and desserts category to 83% for the Infant milks category (n=107) (Figure 13).

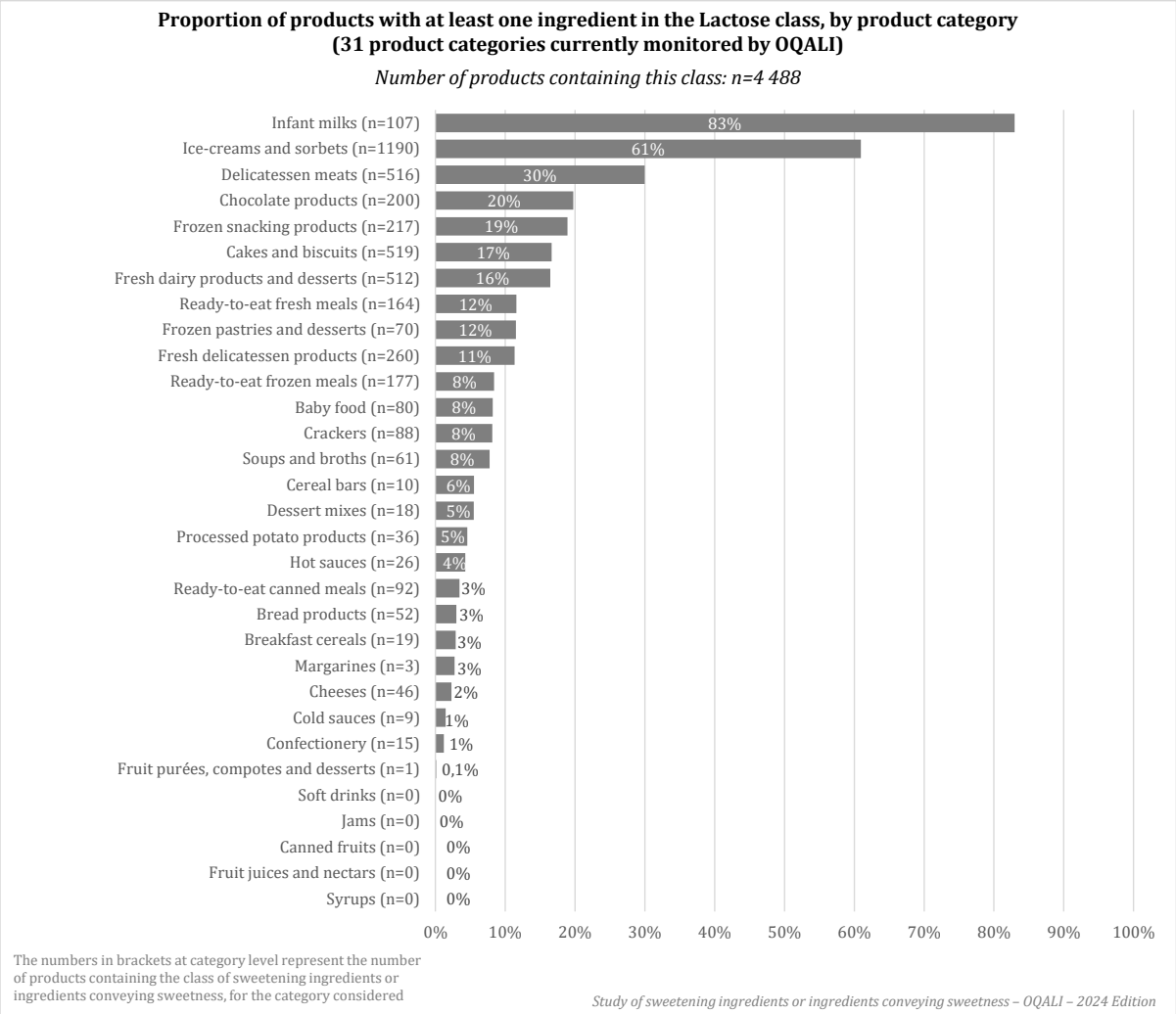



**Figure 13: Proportion of products with at least one ingredient in the Lactose class, by food category (31 categories currently monitored by OQALI; sorted in descending order of the proportion of products containing the Lactose class).**

**There was a high proportion of products containing at least one ingredient from the Lactose class among the Infant milks and the Ice creams and sorbets** (61%; n=1190). In the Infant milks category, this ingredient is used to approximate the composition of breast milk. In the Ice creams and sorbets category, lactose is found mainly in ice cream-based products.

**The other categories had a lower proportion of products**, with 30% or less containing an ingredient from this class (Figure 13). In particular, eight categories had a frequency of presence of between 10% and 30%, four of which had a more savoury connotation. These were the Delicatessen meats (30%; n=516), Frozen snacking products (19%; n=217), Ready-to-eat

fresh meals (12%; n=164) and Fresh delicatessen products (11%; n=260) categories. As with dextrose, the ingredients from this class were found in delicatessen meat products. These ingredients are mainly used in dry and cooked sausages, chorizo and rosette. These products contain ferments that break down lactose to produce lactic acid, acidifying the environment and adding flavour and texture. In the Frozen snacking products and Fresh delicatessen products categories, lactose is also present in products containing bechamel sauce or white sauce, one of whose basic ingredients is milk. In certain products, the sauce preparation stated in the ingredient list contained lactose, which may be accompanied by whey and/or skimmed milk.

Note that in the Crackers and Processed potato products categories, 8% (n=88) and 5% (n=36) of products, respectively, had at least one ingredient from this class. Lactose is mainly found in seasonings and flavouring bases as a sub-ingredient or as a declared allergen (it may be used as a flavour carrier). Some cream-based mashed potatoes may also contain added lactose.

**By type of brand**

**The Lactose class was found in every type of brand, with frequencies varying according to the type of brand**: from 8% for national brands (n=1,099) to 22% for specialised retailer brands (n=478) (Figure 14). **These differences can be explained by the respective offerings of the different types of brands.**

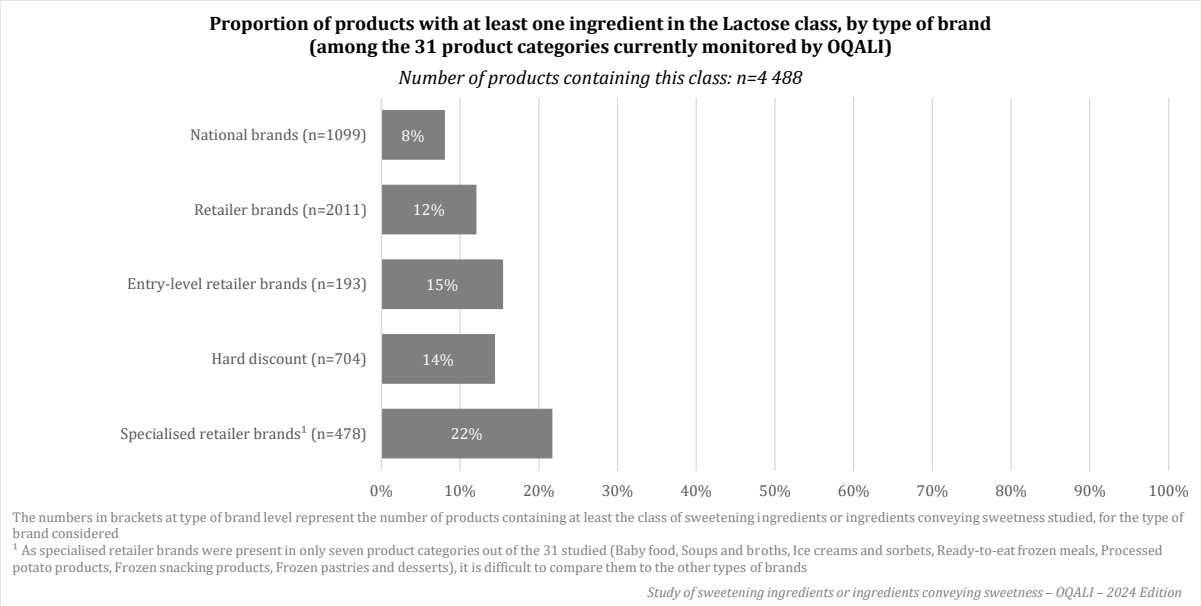



**Figure 14: Proportion of products with at least one ingredient in the Lactose class, by type of brand (among the 31 food categories currently monitored by OQALI).**

Note that the two "budget price" types of brands offer a wider range of products in the Delicatessen meats, Ice creams and sorbets and Fresh dairy products and desserts categories than the national brands and retailer brands. In these three product categories, 30%, 61% and 16% of products, respectively, had an ingredient from the Lactose class, which partly explains the differences in proportions observed for these types of brands.

As a reminder, and as with the previous classes, specialised retailer brands focus on frozen foods. Thus, the Ice creams and sorbets and Frozen snacking products categories, which had among the highest proportions of products with at least one ingredient in the Lactose class (61% and 19%, respectively; Figure 13), contributed to the proportion of products containing this class for specialised retailer brands.

### 3.3.2.6 Caramel class

**By product category**

**Overall, few products used an ingredient from the Caramel class, although it was present in 26 of the 31 product categories** currently monitored by OQALI, with frequency values ranging from 0.1% (n=1) for the Jams category to 19% for the Ice creams and sorbets category (n=365) (Figure 15).

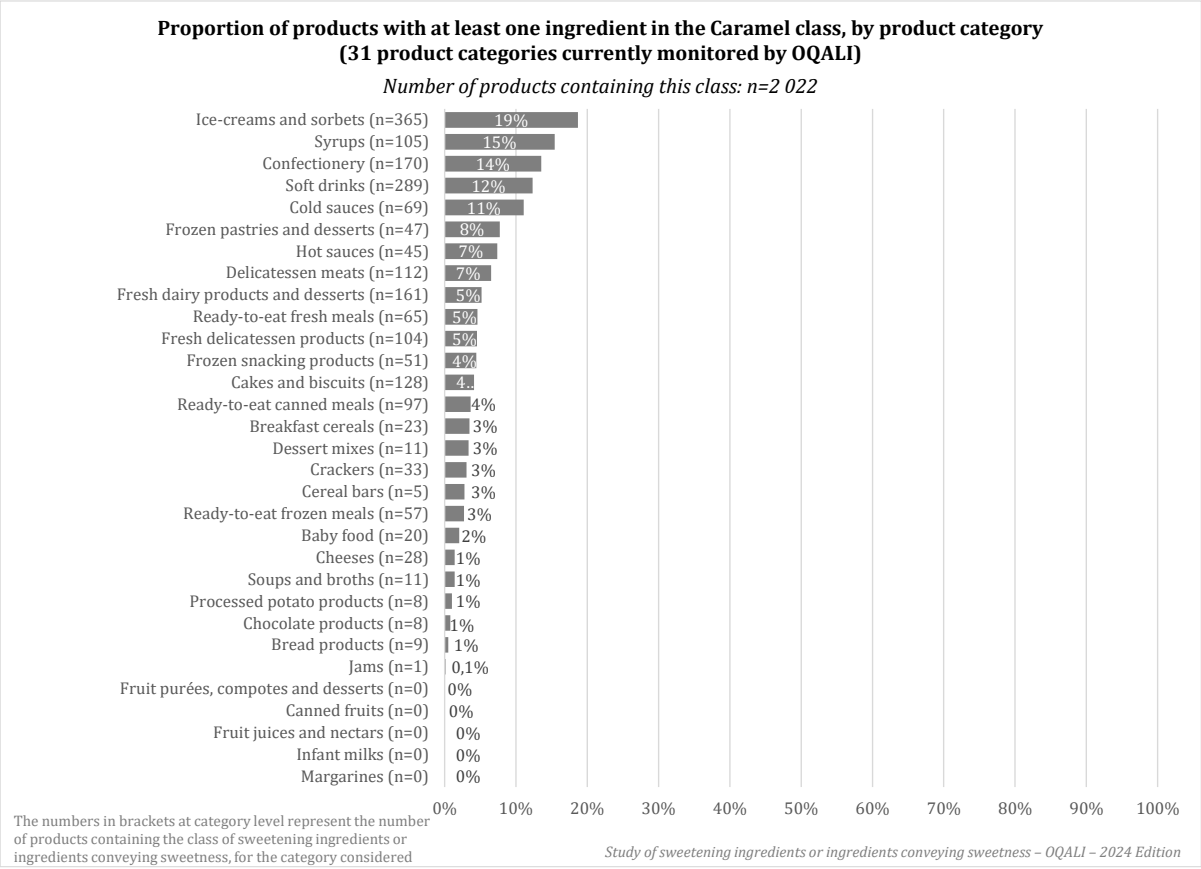



**Figure 15: Proportion of products with at least one ingredient in the Caramel class, by food category (31 categories currently monitored by OQALI; sorted in descending order of the proportion of products containing the Caramel class).**

**In addition to Ice creams and sorbets, the categories with the highest proportions mostly had a sweet connotation**:

- Syrups (15%; n=105, mainly syrups and some concentrated beverages to dilute without added sugars);
- Confectionery (14%; n=170);
- Soft drinks (12%; n=289, mainly colas, energy drinks and some beers).

**In five of the categories with a more savoury connotation, 5% or more of products had at least one ingredient from this class**:

- Cold sauces (11%; n=69, mainly in balsamic vinegar used in certain vinaigrettes, some emulsified sauces and some mayonnaises);

- Hot sauces (7%; n=45, used as a colouring agent, mainly in sauces for meat);
- Delicatessen meats (7%; n=112, also used as a colouring agent in the jelly of liver mousses and pâtés and in poultry roasts and hams);
- Ready-to-eat fresh meals (5%; n=65);
- Fresh delicatessen products (5%; n=104, used as a colouring agent and mainly found in the jelly of pâté in pastry as well as in vinegars, particularly balsamic vinegars in pasta salads or mixed salads, for example).

Note that in the Fresh dairy products and desserts category, the presence of at least one ingredient from this class (5%; n=161) mainly but not exclusively concerned caramel-flavoured dessert creams and Liégeois desserts, because chocolate flavours may also contain an ingredient from this class.

Moreover, and across all product categories, the presence of the ingredient "caramel" was very often broken down into water and classes of sweetening ingredients or ingredients conveying sweetness such as sucrose and/or syrups. This study set out to select sweetening ingredients or ingredients conveying sweetness that had been broken down as far as possible. This means that in the above example of the deconstructed caramel ingredient, the Sucrose and/or Syrups class was counted rather than the Caramel class. This Caramel class was therefore more likely to contain additives such as E150a (plain caramel), E150b (caustic sulphite caramel), E150c (ammonia caramel) and E150d (sulphite ammonia caramel) used as colouring agents.

**By type of brand**

**Overall, the Caramel class was found in similar proportions across all five types of brands studied**, with frequency values ranging from 4% (n=47) for entry-level retailer brands to 6% (n=141) for specialised retailer brands (Figure 16).

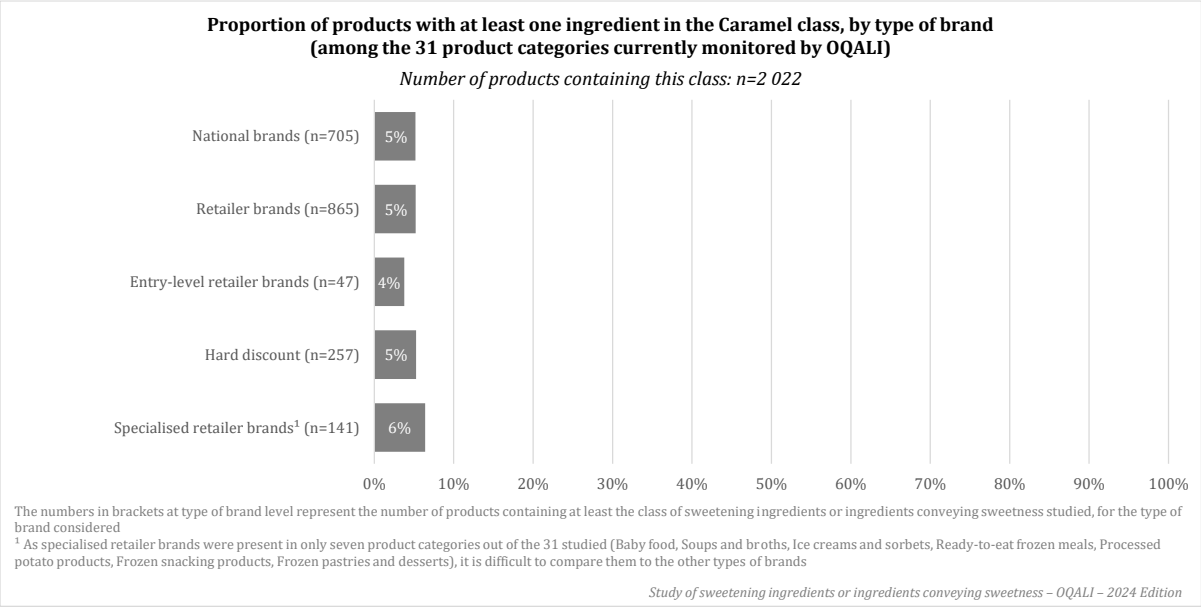



**Figure 16: Proportion of products with at least one ingredient in the Caramel class, by type of brand (among the 31 food categories currently monitored by OQALI).**

As a reminder, specialised retailer brands focus on frozen foods, including the Ice creams and sorbets category, which makes great use of this Caramel class (19% of its products; Figure 15).

### 3.3.2.7 Other ingredients conveying sugars[9] class

**By product category**

**Relatively few products used an ingredient from this class, although it was present in 25 of the 31 product categories** currently monitored by OQALI, with frequency values ranging from 0.01% (n=1) for the Ready-to-eat canned meals category to 17% for the Ice creams and sorbets category (n=327) (Figure 17).

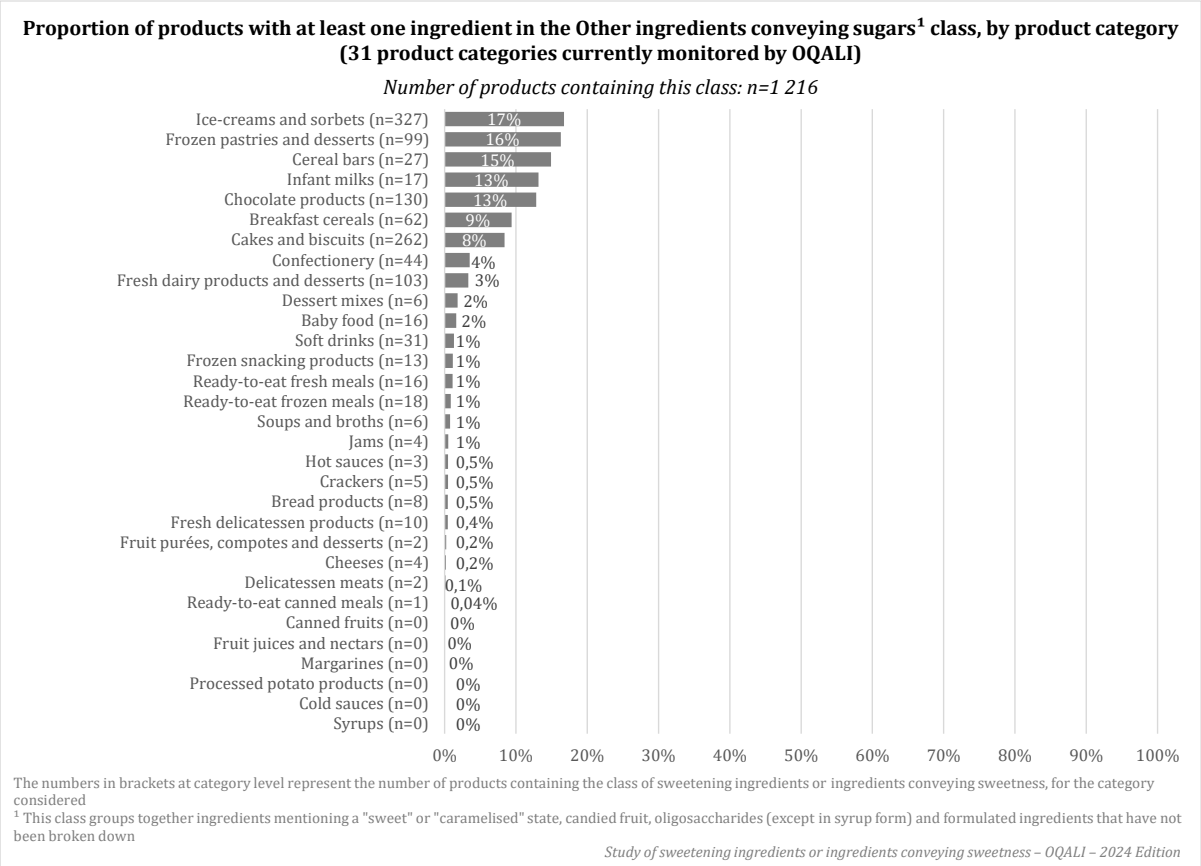



**Figure 17: Proportion of products with at least one ingredient in the Other ingredients conveying sugars class, by food category (31 categories currently monitored by OQALI; sorted in descending order of the proportion of products containing the Other ingredients conveying sugars class).**

Besides Ice creams and sorbets, in six other categories at least 8% of products had at least one ingredient from this class. The vast majority of these categories tended to have a sweet connotation: Frozen pastries and desserts (16%; n=99), Cereal bars (15%; n=27), Chocolate products (13%; n=130), Breakfast cereals (9%; n=62) and Cakes and biscuits (8%; n=262) (Figure 17). Most of them contained the ingredient "hazelnut paste". In the Ice creams and sorbets, Chocolate products and Cakes and biscuits categories, the presence of sweetened milk that had not been broken down was also observed. Also of note was the presence of fibre in the form of inulin and/or oligofructose, particularly in Cakes and biscuits, Cereal bars and Breakfast cereals. In the Infant milks category (13%; n=17), the products containing this class were essentially products enriched with galacto-oligosaccharides and/or fructo-oligosaccharides.

[9] As a reminder, this class groups together ingredients mentioning a "sweet" or "caramelised" state, candied fruit, oligosaccharides (except in syrup form) and formulated ingredients that have not been broken down

In categories with a more savoury connotation, 1% or less of products contained this class. Among these categories, those with a proportion of 1% were Frozen snacking products (1%; n=13), Ready-to-eat fresh meals (1%; n=16), Ready-to-eat frozen meals (1%; n=18) and Soups and broths (1%; n=6). Most of these products contain added fibre (inulin).

**By type of brand**

**Not including the specialised retailer brands, the Other ingredients conveying sugars class was rarely used overall in the other four types of brands studied**, with frequency values ranging from 1% (n=14) for entry-level retailer brands to 3% (n=472) for national brands (Figure 18).

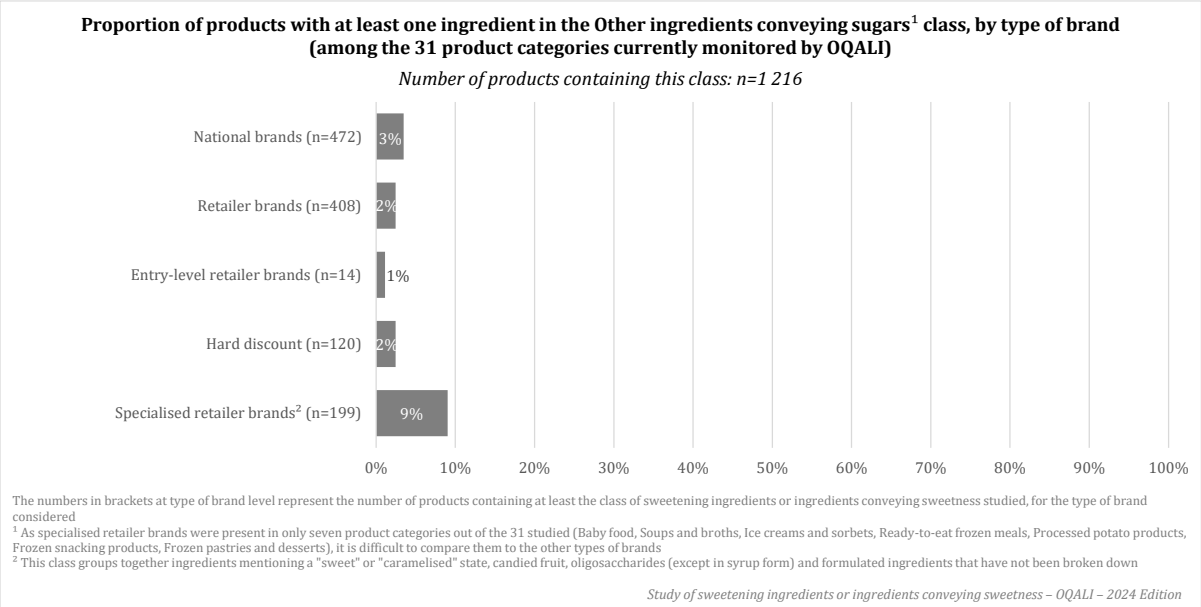



**Figure 18: Proportion of products with at least one ingredient in the Other ingredients conveying sugars class, by type of brand (among the 31 food categories currently monitored by OQALI).**

As a reminder, specialised retailer brands focus on frozen foods, including the Ice creams and sorbets and Frozen pastries and desserts categories, which make particular use of this Other ingredients conveying sugars class in 17% and 16% of their products, respectively (Figure 17).

### 3.3.2.8 Bulk sweeteners class

**By product category**

**Relatively few products used an ingredient from this class. It was found in 18 of the 31 product categories** currently monitored by OQALI, with highly variable frequency values ranging from 0.04% (n=1) for the Ready-to-eat canned meals category to 76% for the Cereal bars category (n=138) (Figure 19).

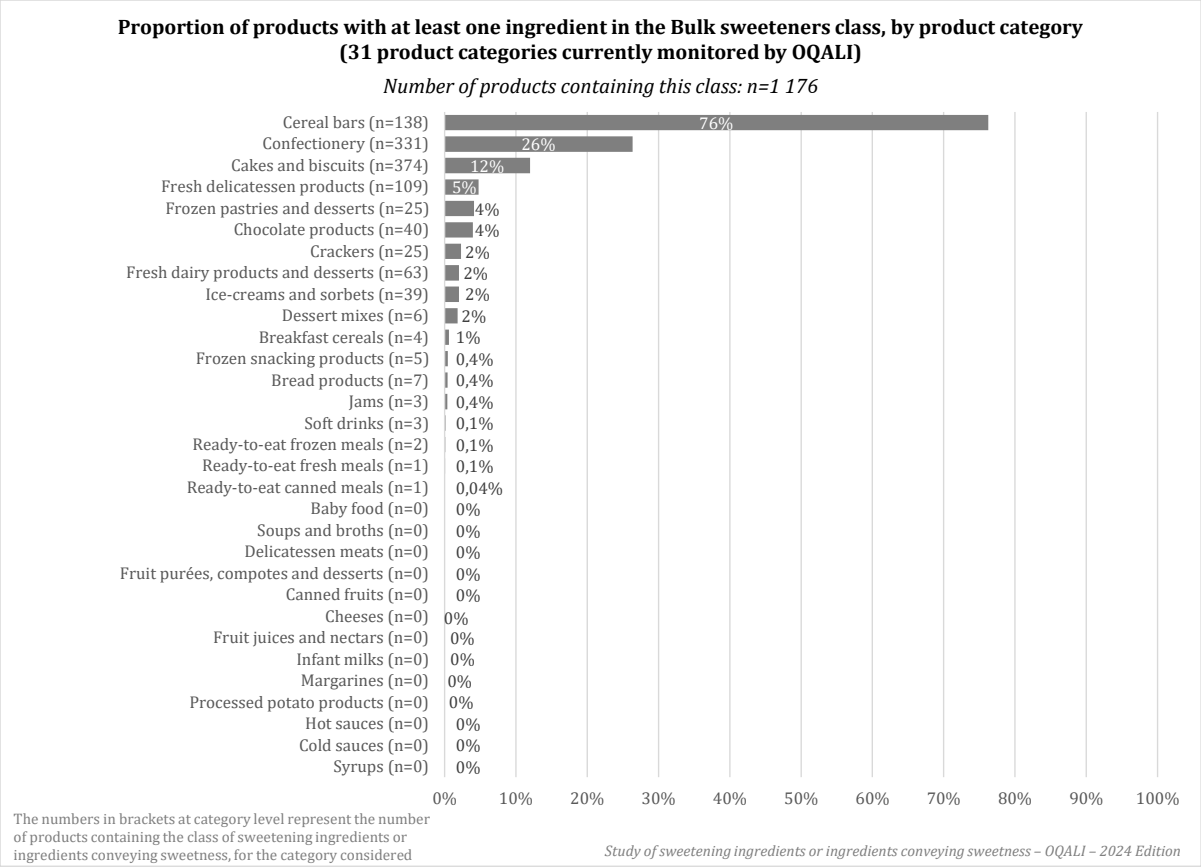



**Figure 19: Proportion of products with at least one ingredient in the Bulk sweeteners class, by food category (31 categories currently monitored by OQALI; sorted in descending order of the proportion of products containing the Bulk sweeteners class).**

Besides Cereal bars, only two other categories had more than 10% of their products with at least one ingredient from this class. These were the Confectionery (26%; n=331) and Cakes and biscuits (12%; n=374) categories. The Cereal bars and Cakes and biscuits categories mainly use sorbitols for their stabilising properties. In the Confectionery category, sorbitols and/or maltitols were found most often in products, particularly those with no added sugars. According to the ingredient lists, these additives are used for their sweetening function. As a reminder, bulk sweeteners have a sweetening power less than or similar to that of sugar. As a comparison, the Spanish study (Beltra *et al.* 2022) also reported finding products containing bulk sweeteners in its cereals–sweet derivatives, and sweets and chocolates categories.

In categories with a more savoury connotation, such as Fresh delicatessen products and Crackers, 5% (n=109) and 2% (n=25) of the products, respectively, contained ingredients from this class, particularly sorbitols used as stabilisers, in plain surimi for Fresh delicatessen products and in mini choux pastries for Crackers.

Note that for the Jams category, the three products with at least one ingredient in this class corresponded to sweetened chestnut purées with pieces of candied chestnut, where sorbitols were used as stabilisers or humectants.

**By type of brand**

**Bulk sweeteners were rarely used in any of the types of brands studied**, with frequency values ranging from 1% for specialised retailer brands (n=26) to 4% for entry-level retailer brands (n=44) and hard discount products (n=198) (Figure 20).

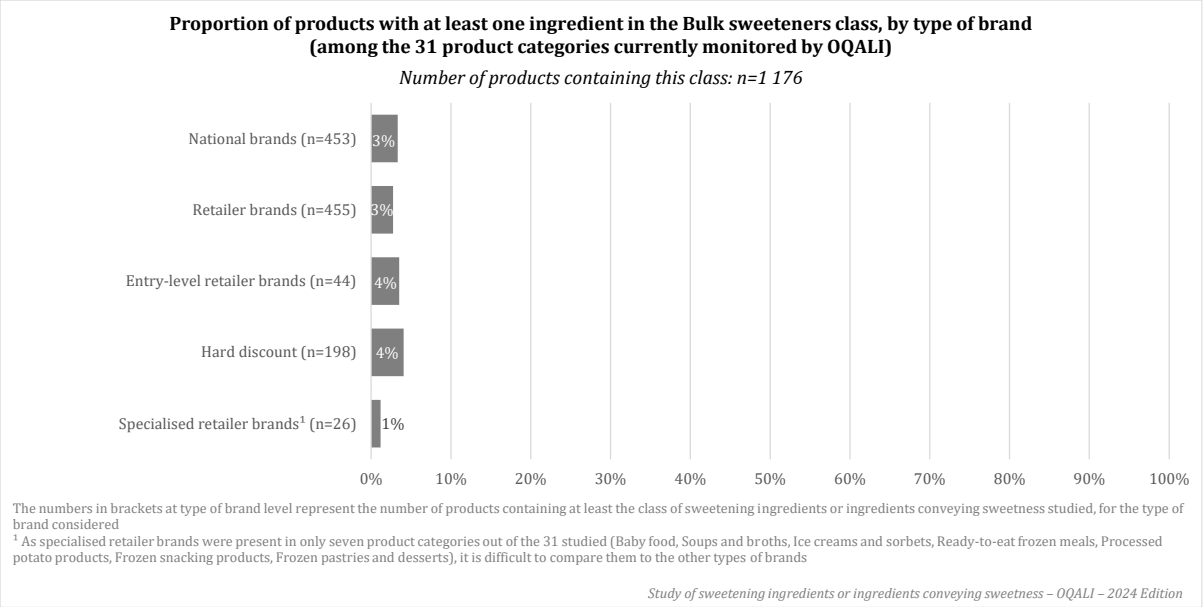



**Figure 20: Proportion of products with at least one ingredient in the Bulk sweeteners class, by type of brand (among the 31 food categories currently monitored by OQALI).**

As a reminder, specialised retailer brands focus on frozen foods that rarely use this class (Figure 19). This partly explains the low proportion of products (1%; n=26) observed in this type of brand (Figure 20).

#### 3.3.2.9 Intense sweeteners class

**By product category**

**Very few products used an ingredient from this class. It was found in 18 of the 31 product categories** currently monitored by OQALI, with frequency values ranging from 0.04% (n=1) in the Ready-to-eat canned meals category to 19% in the Confectionery category (n=239) (Figure 21).

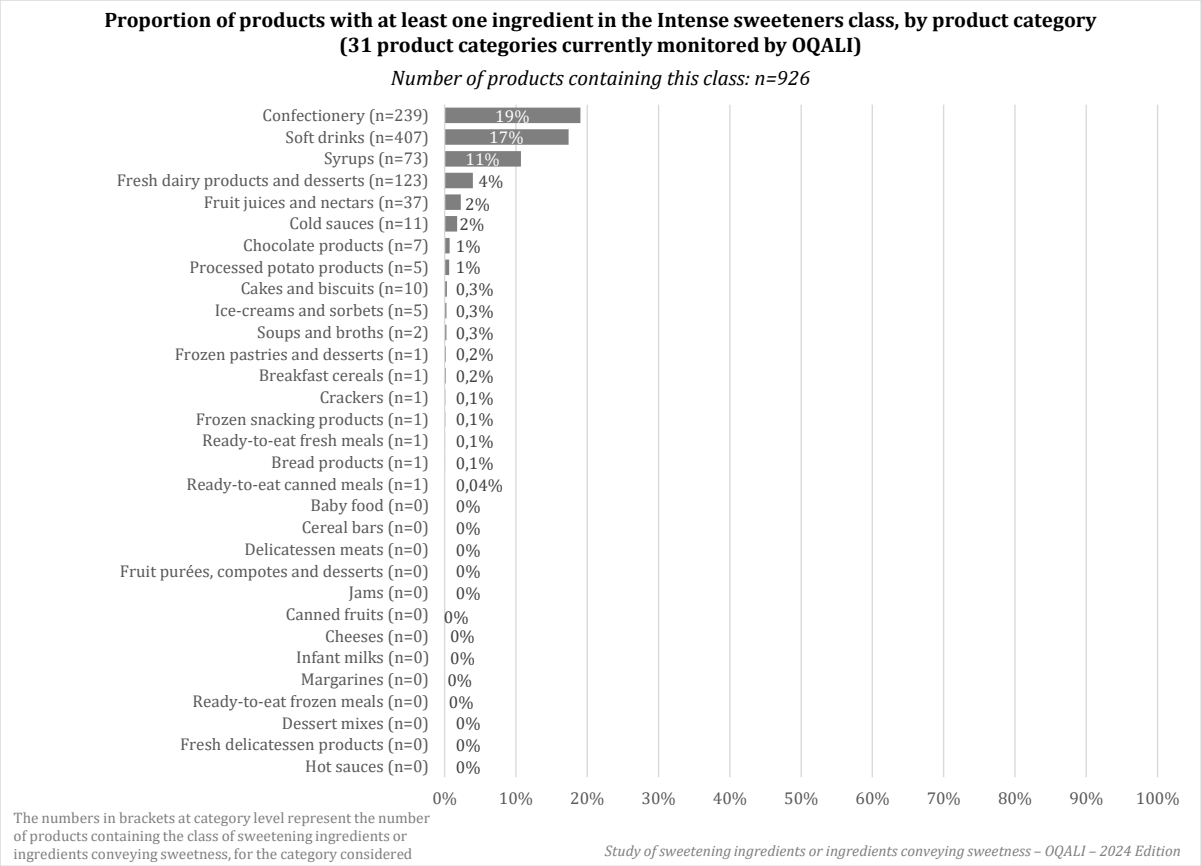



**Figure 21: Proportion of products with at least one ingredient in the Intense sweeteners class, by food category (31 categories currently monitored by OQALI; sorted in descending order of the proportion of products containing the Intense sweeteners class).**

**Besides Confectionery, the use of intense sweeteners was concentrated in three other categories**: **Soft drinks** (17%; n=407), **Syrups** (11%; n=73) and **Fresh dairy products and desserts** (4%; n=123). For these categories, the products using one or more intense sweeteners were mainly those with no added sugars (Confectionery, Soft drinks, Syrups) or artificially- and sugar-sweetened products (Soft drinks), as well as sweetened low-fat products in the Fresh dairy products and desserts category. As these four categories were the ones making greatest use of intense sweeteners, they were the most relevant categories for conducting a more in-depth study (see *3.5. Frequency of presence of intense sweeteners*).

In the other 14 categories, 2% or less of products contained one or more intense sweeteners. Among these, Fruit juices and nectars and Cold sauces had the most, with 2% of their products (n=37 and n=11, respectively). The products concerned were nectars in the first category and mainly low-sugar ketchups in the second.

The study of the presence of intense sweeteners in products on the Australian, Mexican, New Zealand and American markets (Dunford *et al.* 2018) showed that the two product categories with the highest proportions of products containing at least one intense sweetener were beverages and dairy. As a reminder, there were differences between the collection years and the scope of the products compared with the OQALI study. Their beverages category encompassed the OQALI Soft drinks and Syrups categories. These two categories combined had a higher proportion of products containing at least one intense sweetener than the OQALI Confectionery category. Moreover, regarding dairy desserts, Australia and New Zealand had no products containing intense sweeteners, whereas they were found in 6% of American products and 34% of Mexican products. Note that for this category, firstly the scope of the products was probably

not the same and secondly, the product offering may differ within each country. Indeed, 3,115 products were collected in this category in France, while the study showed numbers ranging from 77 products (for Mexico) to 1,741 (for the United States). Furthermore, the OQALI results on intense sweeteners were supported by those of the Spanish study (Beltra *et al.* 2022), which showed that intense sweeteners were mainly found in the non-alcoholic drinks, dairies and substitutes, and sweets and chocolates categories.

**By type of brand**

**The Intense sweeteners class was found in every type of brand, with a slightly higher frequency in national brands and entry-level retailer brands** (4% and n=532; 4% and n=47, respectively) compared with 2% for hard discount products (n=109), 1% for retailer brands (n=234) and 0.2% for specialised retailer brands (n=4) (Figure 22).

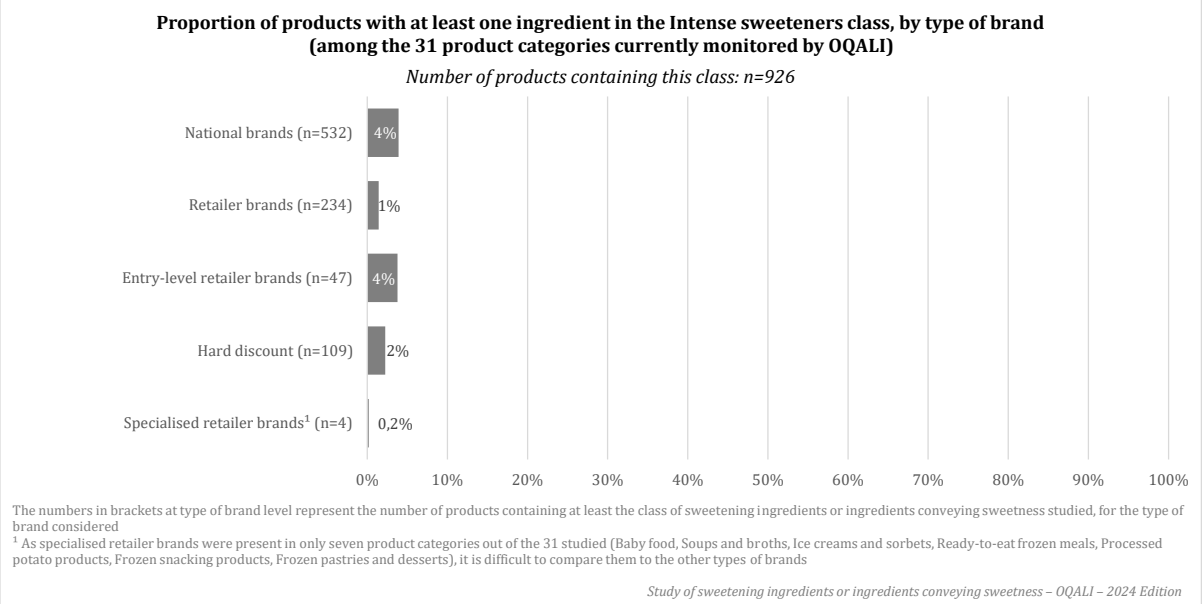



**Figure 22: Proportion of products with at least one ingredient in the Intense sweeteners class, by type of brand (among the 31 food categories currently monitored by OQALI).**

Note that national brands and entry-level retailer brands offer many products in the Soft drinks category. This category had one of the highest shares of products containing at least one intense sweetener (17%; Figure 21), which partly explains the high proportion of products containing this class in these two types of brands. The Confectionery and Fresh dairy products and desserts categories also contributed to the high proportion observed for national brands.

As a reminder, specialised retailer brands focus on frozen foods that very rarely use this class (this type of brand did not have any products in the four categories that used intense sweeteners the most; Figure 21). This explains the low proportion (0.2%; n=4) observed for this type of brand (only Ice creams and sorbets) (Figure 21 and Figure 22).

### 3.3.2.10 Honey class

**By product category**

**Very few products used an ingredient from this class, even though 25 of the 31 categories** currently monitored by OQALI had at least one product using this class. The frequency values ranged from 0.1% (n=1) for the Processed potato products category to 21% for the Breakfast

cereals category (n=137) (Figure 23). In this last category, products using this class also usually had a name or sales description indicating the presence of honey.

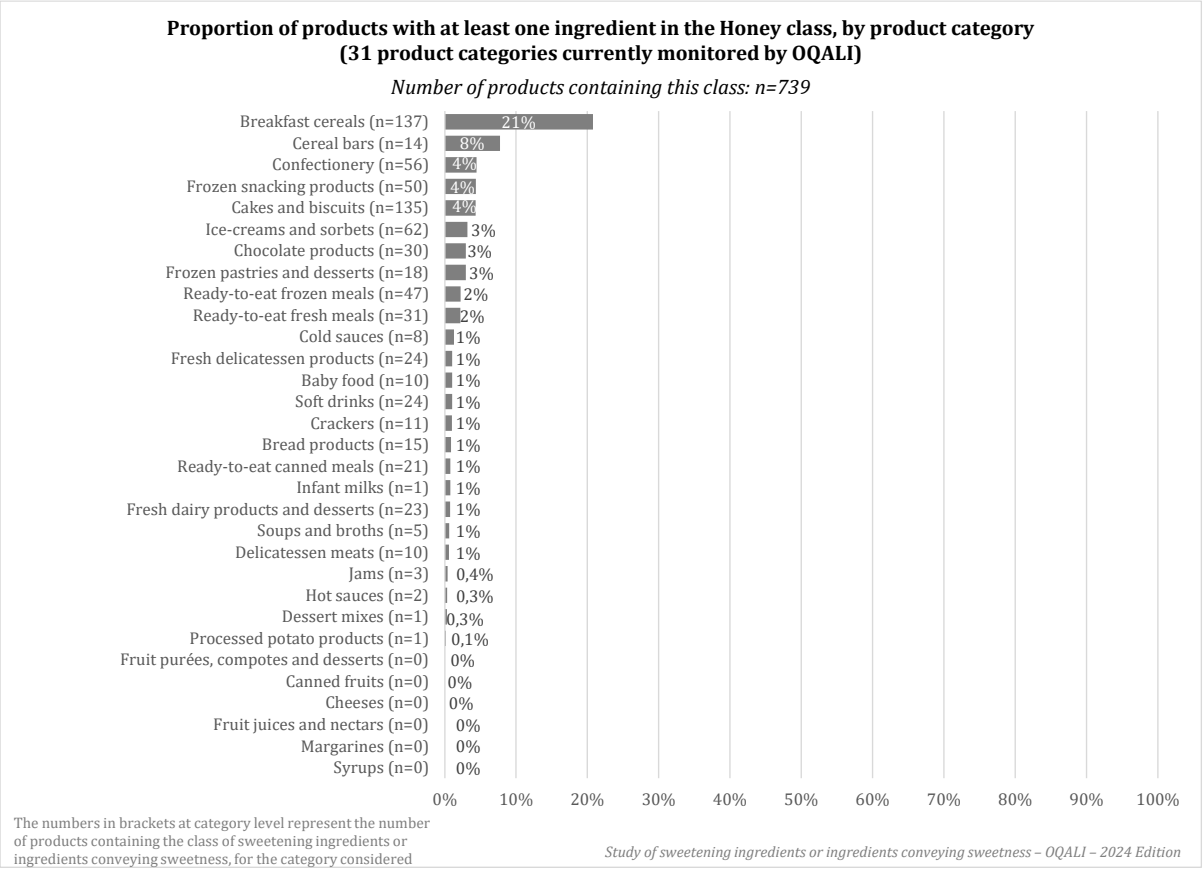



**Figure 23: Proportion of products with at least one ingredient in the Honey class, by food category (31 categories currently monitored by OQALI; sorted in descending order of the proportion of products containing the Honey class).**

Cereal bars was the category with the second highest proportion (8%; n=14). These products are cereal bars made from nuts and chocolate, with no mention of honey in either the name or the sales description.

In addition, in three categories, 4% of products contained at least one ingredient from this class. These were Confectionery (n=56, mainly honey sweets and nougat-based sweets), Frozen snacking products (n=50, mainly party loaves and cocktail canapés) and Cakes and biscuits (n=135, mainly gingerbread, nonnettes or honey- or nougat-based products, although with some products, the presence of honey was not mentioned in the name and/or sales description).

**By type of brand**

**The Honey class was used very little in any of the types of brands studied**, with frequency values ranging from 1% for entry-level retailer brands (n=8) and hard discount products (n=60) to 5% for specialised retailer brands (n=105) (Figure 24).

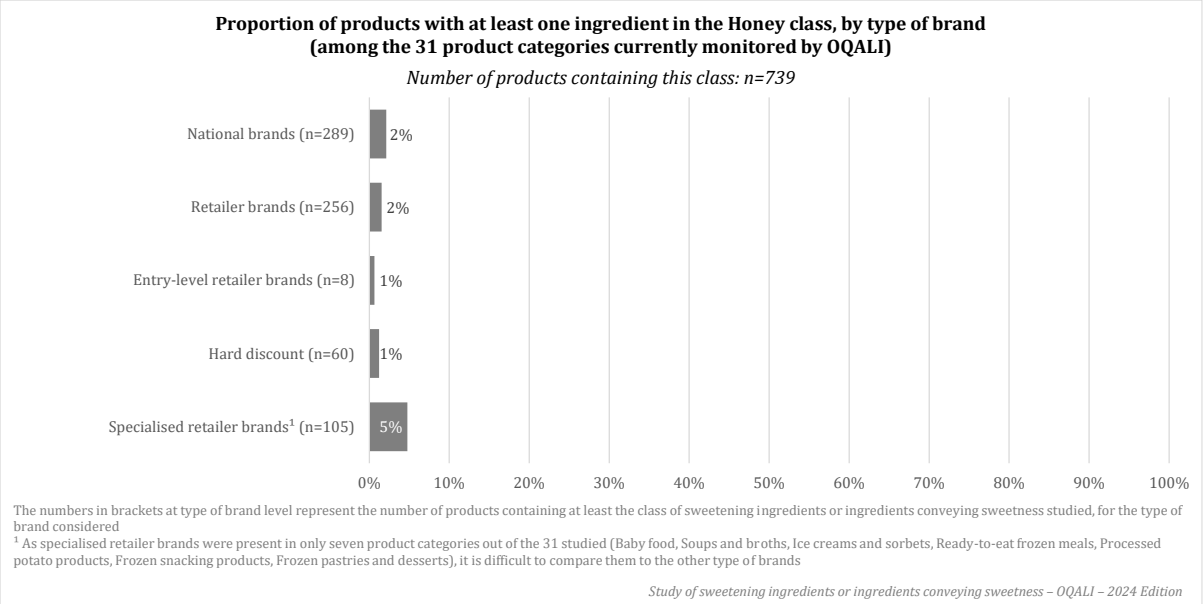



**Figure 24: Proportion of products with at least one ingredient in the Honey class, by type of brand (among the 31 food categories currently monitored by OQALI).**

As a reminder, specialised retailer brands focus on frozen foods, including the Ice creams and sorbets and Ready-to-eat frozen meals categories, which used this Honey class in 3% and 2% of their products, respectively (Figure 23).

#### 3.3.2.11 Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness class

As a reminder, specifying the flavour provided by the flavouring(s) in the ingredient list is optional. This class only takes into account flavourings that specify a flavour evocative of a sweetening ingredient or ingredient conveying sweetness. The results presented may therefore be underestimated.

**By product category**

**Fewer than 100 products used an ingredient from this class, and these were spread across 13 of the 31 categories** currently monitored by OQALI, with frequency values ranging from 0.1% (n=1) for the Syrups category to 2% for the Cereal bars (n=4), Dessert mixes (n=7) and Frozen pastries and desserts (n=10) categories (Figure 25). These were essentially caramel flavourings (as well as a chocolate flavouring for Cereal bars).

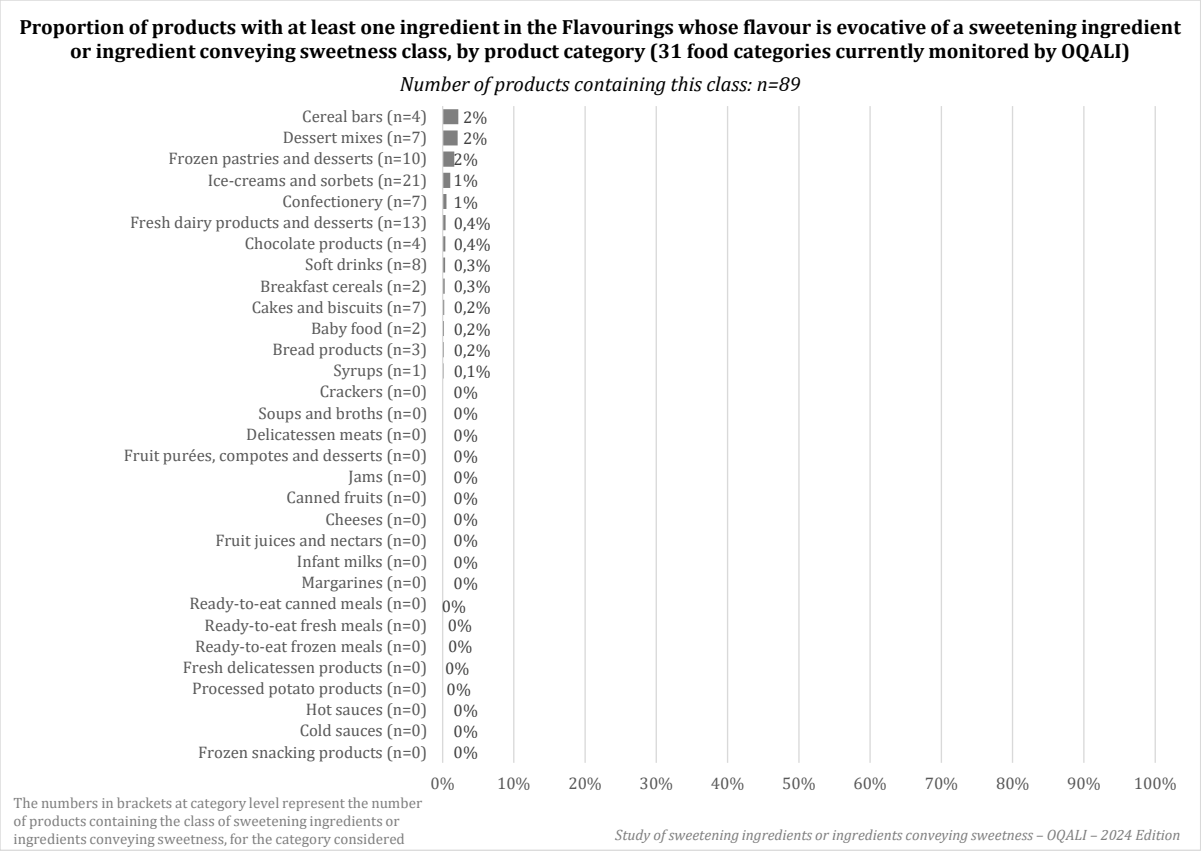



**Figure 25: Proportion of products with at least one ingredient in the Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness class, by food category (31 categories currently monitored by OQALI; sorted in descending order of the proportion of products containing the Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness class).**

## By type of brand

**The Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness class was used very little in any of the five types of brands studied**, with a frequency of presence below 0.5% (Figure 26).

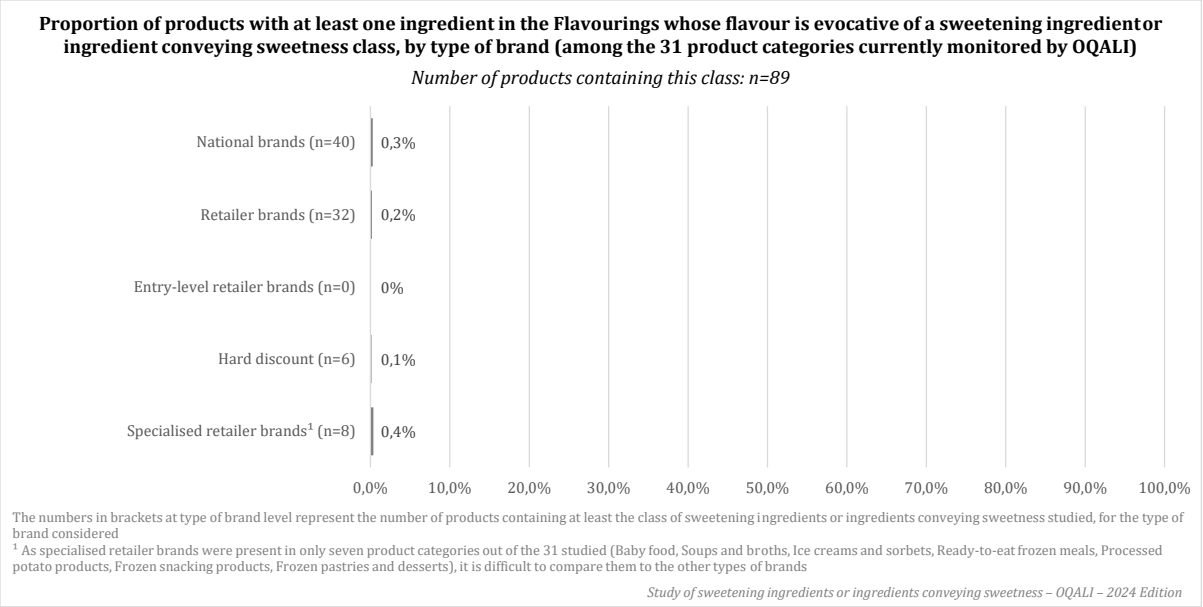



**Figure 26: Proportion of products with at least one ingredient in the Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness class, by type of brand (among the 31 food categories currently monitored by OQALI).**

## 3.4 Combinations of classes of sweetening ingredients or ingredients conveying sweetness

This section looks at the use, alone or in combination, of classes of sweetening ingredients or ingredients conveying sweetness. Initially (Section *3.4.1*), the number of different classes found simultaneously in the same product are studied. This is followed by a presentation of the details of the classes used alone or in combination (Section *3.4.2*).

### 3.4.1 Study of the number of different classes of sweetening ingredients or ingredients conveying sweetness found in the products

#### 3.4.1.1 All products combined

**Among all the products studied, the vast majority (59%) used one class or a combination of two different classes of sweetening ingredients or ingredients conveying sweetness**. Thus, 34% (n=13,117) of the products studied used only one class and 25% (n=9,953) used a combination of two classes. A few products used up to seven different classes simultaneously (0.05%; n=19).

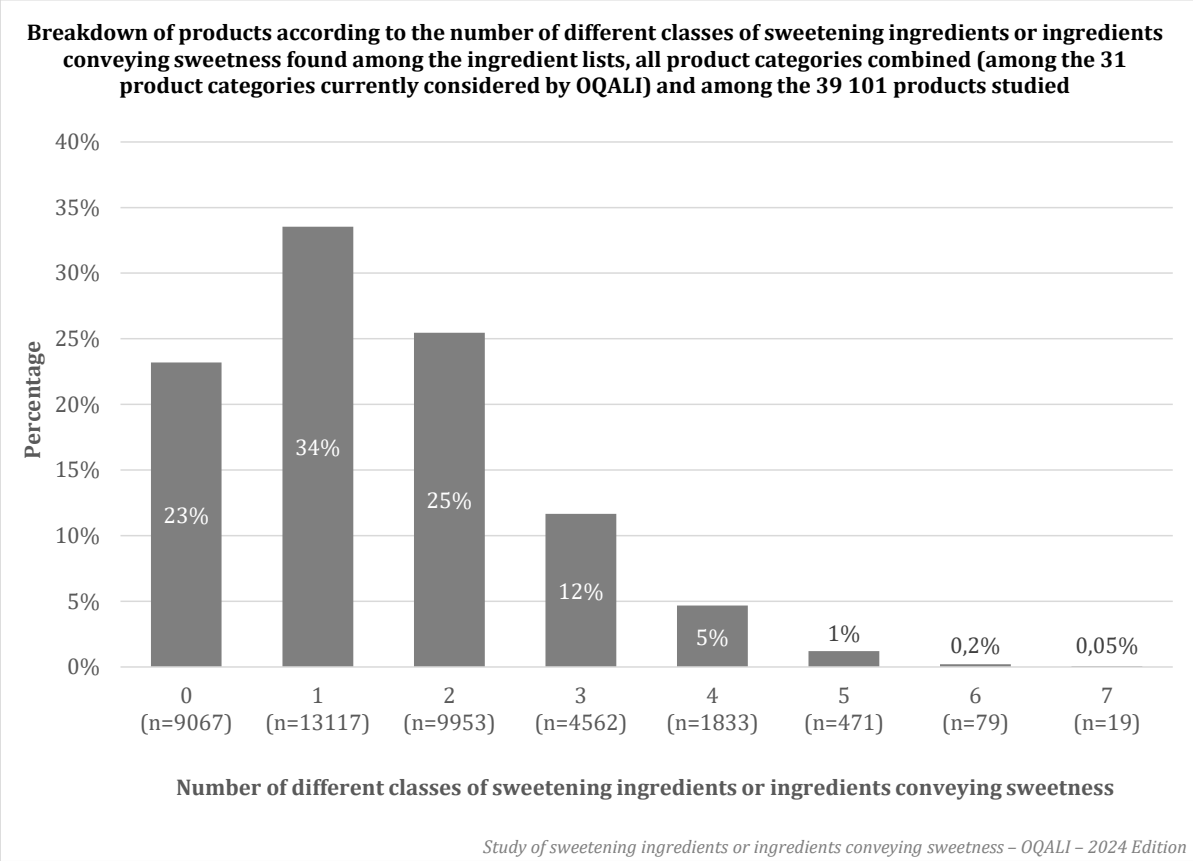



**Figure 27: Breakdown of products by the number of different classes of sweetening ingredients or ingredients conveying sweetness found in the same product, all products combined (among the 31 food categories currently monitored by OQALI).**

#### 3.4.1.2 By product category

**Not including the Cereal bars and Ice creams and sorbets categories, in the other 29 categories, the majority of products had no sweetening ingredients or ingredients conveying sweetness, or used either a single class or a combination of two different classes of sweetening ingredients or ingredients conveying sweetness** (Figure 28).

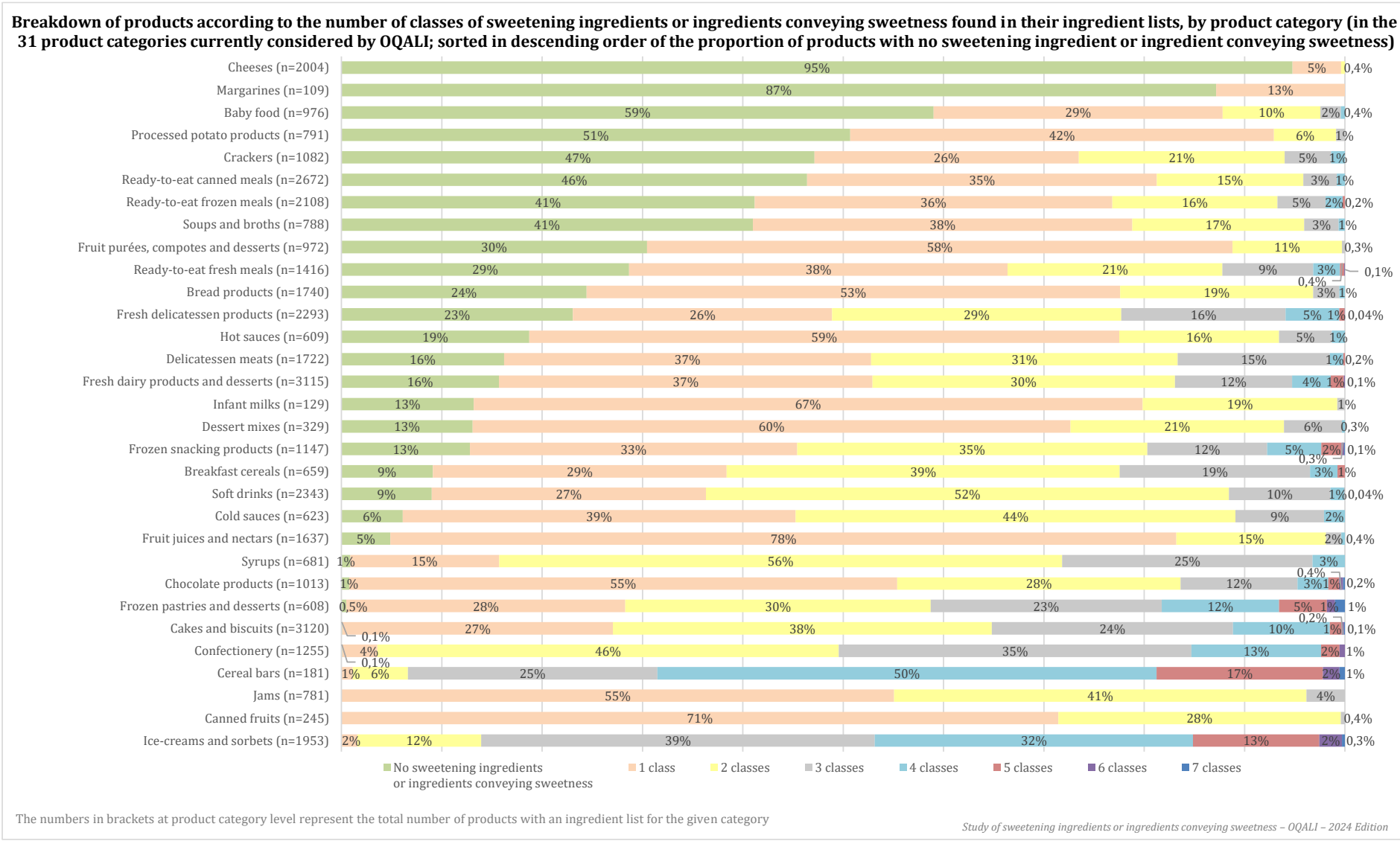



**Figure 28: Breakdown of products by the number of different classes of sweetening ingredients or ingredients conveying sweetness found in the same product, by food category (31 categories currently monitored by OQALI; sorted in descending order of the proportion of products with no sweetening ingredients or ingredients conveying sweetness)**

A high proportion of products using three or more classes simultaneously was found in the Cereal bars (93% of products in this category) and Ice creams and sorbets (86%) categories. The products with five or more classes in the Cereal bars category corresponded to products with fruit and/or chocolate. In the Ice creams and sorbets category, the products using four or more classes most often corresponded to gourmet recipes with very elaborate flavours, sauces, inclusions and/or coatings.

Occasionally, in six of the 31 product categories studied, a few products combined seven different classes of sweetening ingredients or ingredients conveying sweetness. They were found in the Frozen pastries and desserts (1%; n=6), Cereal bars (1%; n=1), Ice creams and sorbets (0.3%; n=6), Chocolate products (0.2%; n=2), Cakes and biscuits (0.1%; n=3) and Frozen snacking products (0.1%; n=1) categories. Note that half of these products corresponded to assortments with a common ingredient list for all the items in the assortment: it is unlikely that each product of the assortment combined all seven classes, but it is not possible to link each ingredient to the different products of the assortment precisely. The other products corresponded to elaborate recipes mixing different elements (mainly fillings, sauces and/or inclusions).

A table summarising the numbers and proportions of products according to the number of different classes found in the same product, by product category, is provided in Annex 4.

#### 3.4.1.3 By type of brand

**Not including the specialised retailer brands, the types of brands all had the same overall proportions of products by number of combined classes, and these proportions corresponded to those observed for all products combined** (Figure 27, Figure 29).

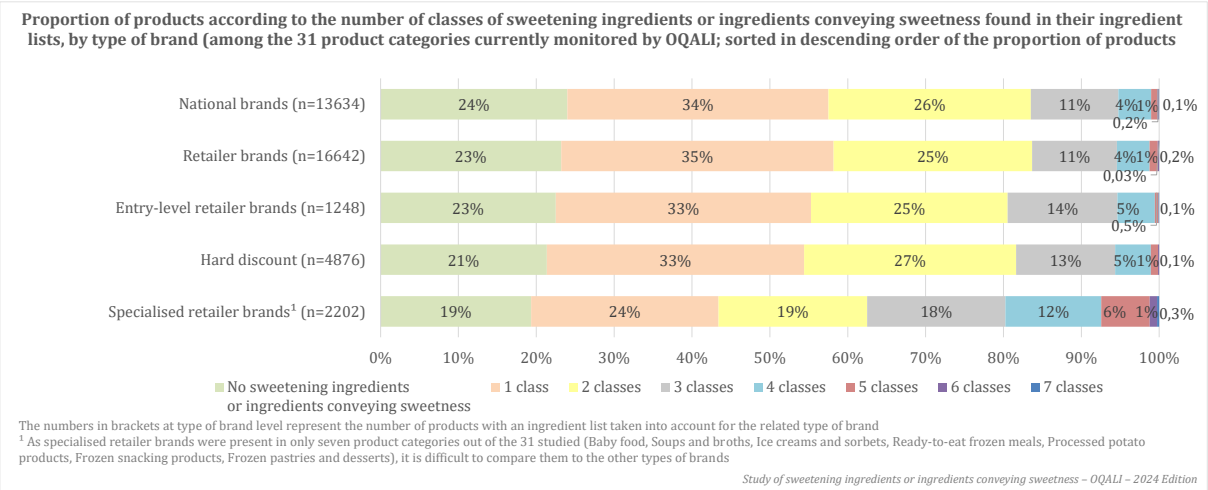



**Figure 29: Breakdown of products by the number of different classes of sweetening ingredients or ingredients conveying sweetness found in the same product, by type of brand (among the 31 food categories currently monitored by OQALI; sorted in descending order of the proportion of products with no sweetening ingredients or ingredients conveying sweetness)**

Specialised retailer brands were characterised by a slightly higher share of products combining a large number of different classes of sweetening ingredients or ingredients conveying sweetness, particularly combinations of three, four and five classes (18%, 12% and 6%, respectively). This can be explained by an offer that is concentrated on certain product categories, all of which are frozen, with a high proportion of products combining several classes of sweetening ingredients or ingredients conveying sweetness, in particular the Ice creams and

sorbets category and, to a lesser extent, Frozen pastries and desserts and Frozen snacking products.

In addition, not including products from hard discount, all the types of brands had one or more products combining seven classes of sweetening ingredients or ingredients conveying sweetness (ranging from 0.03% for retailer brands to 0.3% for specialised retailer brands; Figure 29).

A table summarising the numbers and proportions of products per type of brand according to the number of different classes found simultaneously in the same product is provided in Annex 5.

### 3.4.2 Frequency of presence of combinations of classes of sweetening ingredients or ingredients conveying sweetness found in the products

The study of frequency of presence by combinations of classes of sweetening ingredients or ingredients conveying sweetness found 296 different combinations among all the products studied. These results, for all products combined, are available in Excel format on the OQALI website "Review in the use of sweetening ingredients or ingredients conveying sweetness" and tab "Co_occurrences without grouping ".

Of these 296 combinations, only 13 were used in 1% or more of the products. It was therefore decided to group together the classes that were absent from these 13 most commonly used combinations, i.e. Caramel, Other ingredients conveying sugars, Bulk sweeteners, Honey and Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness, to form the "Other classes" combination. Note that the Intense sweeteners class was not found among the 13 most commonly used combinations, but as particular attention is being paid to these substances, they were not included in "Other classes".

#### 3.4.2.1 All products combined

After grouping the classes together (as mentioned above), 97 different combinations were found for all products combined, with 16 combinations present in 1% or more of products. Again, combinations whose frequency of presence was below 1%, all products combined, were grouped together in "Other combinations". Seventeen combinations have therefore been detailed below. These same groupings were used to conduct analyses by product category and type of brand. Note that combinations including substances from the Intense sweeteners class, which was not included in "Other classes", were used very little and have therefore been added to "Other combinations". The results without this grouping are available in Excel format on the OQALI website "Review in the use of sweetening ingredients or ingredients conveying sweetness" and tab "Co_occurrences with group_prod".

A table summarising the numbers and proportions of products by combination of most commonly used classes of sweetening ingredients or ingredients conveying sweetness, for all products combined, is provided in Annex 6.

**The Sucrose class used alone had the highest frequency of presence** (20%; n=7,927; Figure 30 and Annex 6), **all products combined** (among the 31 product categories currently monitored by OQALI). The "Other combinations" group had the second highest frequency of

presence (13% of products, i.e. n=5,030; Figure 30 and Annex 6). As a reminder, it groups together 81 different combinations. This indicates a great diversity of combinations each found in a small number of products.

**In addition, the Sucrose class was used in combination with other classes**, mainly **Fruit juices and concentrates and Syrups** (Figure 30 and Annex 6). Thus, of the 17 combinations most frequently found in products, 10 involved the Sucrose class combined with one or more other classes of sweetening ingredients or ingredients conveying sweetness (30%; n=11,845). Fruit juices and concentrates/Sucrose and Syrup/Sucrose combinations were found in 7% of products (n=2,753 and n=2,652, respectively; Annex 6).

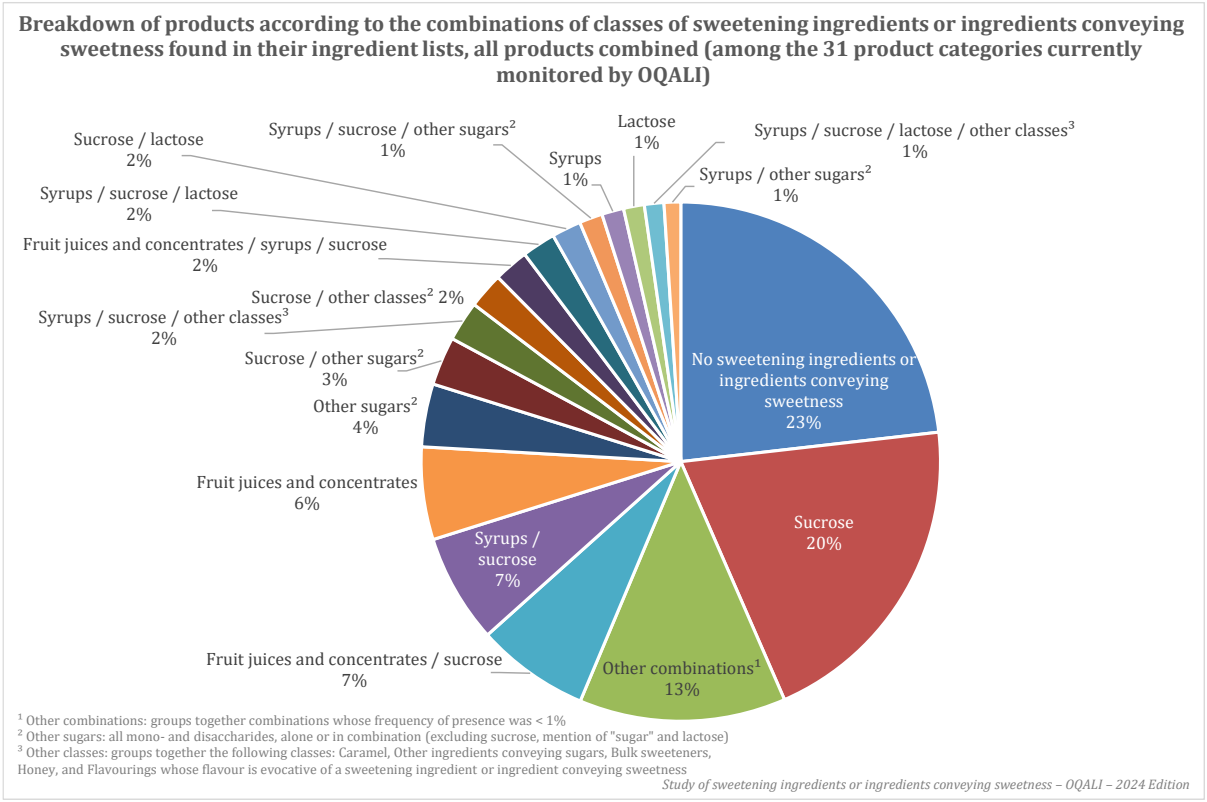



**Figure 30: Breakdown of products by combination of sweetening ingredients or ingredients conveying sweetness found in the ingredient lists, all products combined (among the 31 food categories currently monitored by OQALI).**

#### 3.4.2.2 By product category

The numbers and frequency of presence of combinations found in the products by category are available in Excel format on the OQALI website "Review in the use of sweetening ingredients or ingredients conveying sweetness" and tab "Co_occurrences with group_categ".

**The number of combinations and the combinations of classes of sweetening ingredients or ingredients conveying sweetness varied depending on the category.** For example, the Margarines category contained only two combinations of sweetening ingredients or ingredients conveying sweetness, while all 17 combinations studied were found in the Fresh delicatessen products category.

**The Sucrose class used alone was the most common combination in 17 of the 31 categories**. As observed for all products combined, **the Sucrose class was also used in combination with one or more other classes** (mainly the Syrups and Fruit juices and concentrates classes).

**In seven categories, the most frequently used combination was Other combinations** (64% of products for Cereal bars, 33% for Confectionery, 31% for Ice creams and sorbets, 30% for Delicatessen meats, 21% for Frozen snacking products, 18% for Fresh delicatessen products and 15% for Ready-to-eat frozen meals). In the Cereal bars, Ice creams and sorbets and Confectionery categories, two of the four most commonly used combinations combined three and/or four classes of sweetening ingredients.

Among the two categories containing the lowest proportions of products with a sweetening ingredient or ingredient conveying sweetness, Cheeses used the Lactose class alone, as expected (2% of products), as well as the Other combinations group (2% of products), while the Sucrose class alone was found in only 1% of products (such as flavoured processed cheese, processed cheese specialities that may be accompanied by breadsticks, and aperitif cheese bites with fillings or inclusions). In the Margarines category, products with sweetening ingredients or ingredients conveying sweetness used either the Fruit juices and concentrates class alone (10% of products) or the Lactose class alone (3% of products).

#### 3.4.2.3 By type of brand

**Not including the specialised retailer brands, the other four types of brands used broadly the same class combinations (Figure 31). The use of Sucrose alone was therefore the most common combination** (from 17% of entry-level retailer brand products to 22% of retailer brand products).

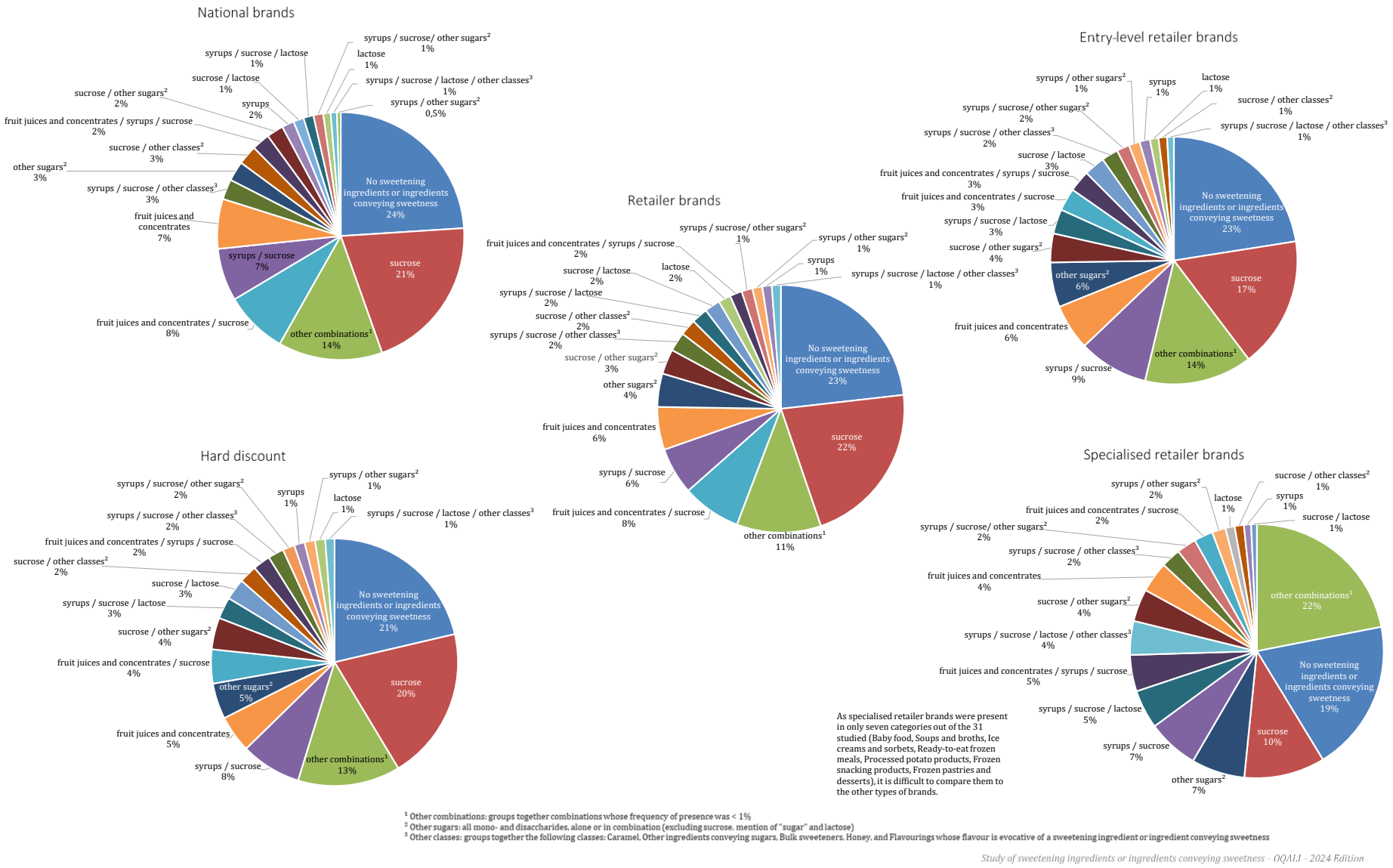



**Figure 31: Breakdown of products by combination of sweetening ingredients or ingredients conveying sweetness found in the ingredient lists, by type of brand (among the 31 food categories currently monitored by OQALI).**

As with all products combined, the "Other combinations" group was found in 11% (retailer brands) to 14% of products (national brands and entry-level retailer brands). For all the types of brands therefore (apart from specialised retailer brands), there was a great diversity of combinations found in a small number of products. National brands and retailer brands used the Fruit juices and concentrates/Sucrose combination (in 8% of products in these two types of brands), while this combination was used less by "budget price" brands (4% of hard discount products and 3% of retailer brands), which preferred the Syrups/Sucrose combination (9% and 8%, respectively).

Specialised retailer brands stood out with the "Other combinations" group found in 22% of products, meaning that this type of brand contained a great diversity of combinations. The Sucrose class used alone had the second highest frequency of presence (10% of products in this type of brand), followed by the use of the Other sugars class alone (7%) and the Syrups/Sucrose combination (7%). This reflects the more specific product offering in this type of brand (as a reminder, this type of brand focuses on frozen food categories, which explains why its use of sweetening ingredients or ingredients conveying sweetness differed from that of the other types of brands). These combinations were particularly common in the Ice creams and sorbets, Frozen pastries and desserts, Frozen snacking products and Ready-to-eat frozen meals categories.

The results by type of brand, without the grouping into "Other combinations" of frequency of presence values below 1%, for all products combined, are available in Excel format on the OQALI website "Review in the use of sweetening ingredients or ingredients conveying sweetness" and tab "Co_occurrences with group_brand".

## 3.5 Frequency of presence of intense sweeteners

This section focuses on the use of intense sweeteners and supplements the previous sections by providing more detail on the intense sweeteners used. In the remainder of this section, the term "sweetened" refers only to intense sweeteners and does not include bulk sweeteners.

### 3.5.1 Study by intense sweetener

#### 3.5.1.1 All products combined

As indicated in the previous sections, intense sweeteners were found in only 2% (n=926) of products (Figure 4 and Table 3). **Their use is therefore generally low.**

**Table 3: Numbers and proportions of products containing at least one intense sweetener considered in sweetened products and in all products (among the 31 food categories currently monitored by OQALI; sorted in descending order of the proportion of sweetened products).**

| Intense sweetener | Number of products containing at least the intense sweetener studied* | Proportion in relation to products containing at least one intense sweetener (n=926) | Proportion in relation to all products taken into account in the study (n=39 101) |
|---|---|---|---|
| Acesulfame K | 636 | 69% | 1,6% |
| Sucralose | 506 | 55% | 1,3% |
| Aspartame | 290 | 31% | 0,7% |
| Steviol glycosides | 159 | 17% | 0,4% |
| Cyclamates | 47 | 5% | 0,1% |
| Saccharins | 29 | 3% | 0,1% |
| Neohesperidin DC | 10 | 1% | 0,03% |
| Salt of aspartame-acesulfame | 3 | 0,3% | 0,01% |
| Neotame | 1 | 0,1% | 0,003% |
| Advantame | 0 | 0% | 0% |
| Thaumatin | 0 | 0% | 0% |

* the same product may contain several intense sweeteners

Among the 11 intense sweeteners authorised on the European market, nine were found in the products studied (proportions ranging from 0.003% to 1.6%) but only four were used in more than 10% of sweetened products. Thus, **acesulfame K** and **sucralose** were found in more than half of sweetened products (69% and 55% of sweetened products, respectively). **Aspartame** was found in 31% of sweetened products and **steviol glycosides** in 17% of sweetened products. The Spanish study (Beltra *et al.* 2022) found similar results: the most commonly used intense sweeteners were sucralose and acesulfame K (found in 52.4% and 48.2% of sweetened products, respectively), followed by steviol glycosides (20.9%) and aspartame (16.4%). As a reminder, there are differences between the Spanish and French data regarding the way the products were collected.

On the other hand, advantame and thaumatin were not found in any of the products studied.

#### 3.5.1.2 By relevant product category

As stated in Section *3.3.2.9*, the use of intense sweeteners was concentrated in four categories: Soft drinks, Confectionery, Fresh dairy products and desserts and Syrups, which will be referred to below as the "relevant categories".

**Acesulfame K was the most commonly used intense sweetener in each of the four relevant categories** (ranging from 4% of the products studied for Fresh dairy products and desserts to 14% for Confectionery; Figure 32).

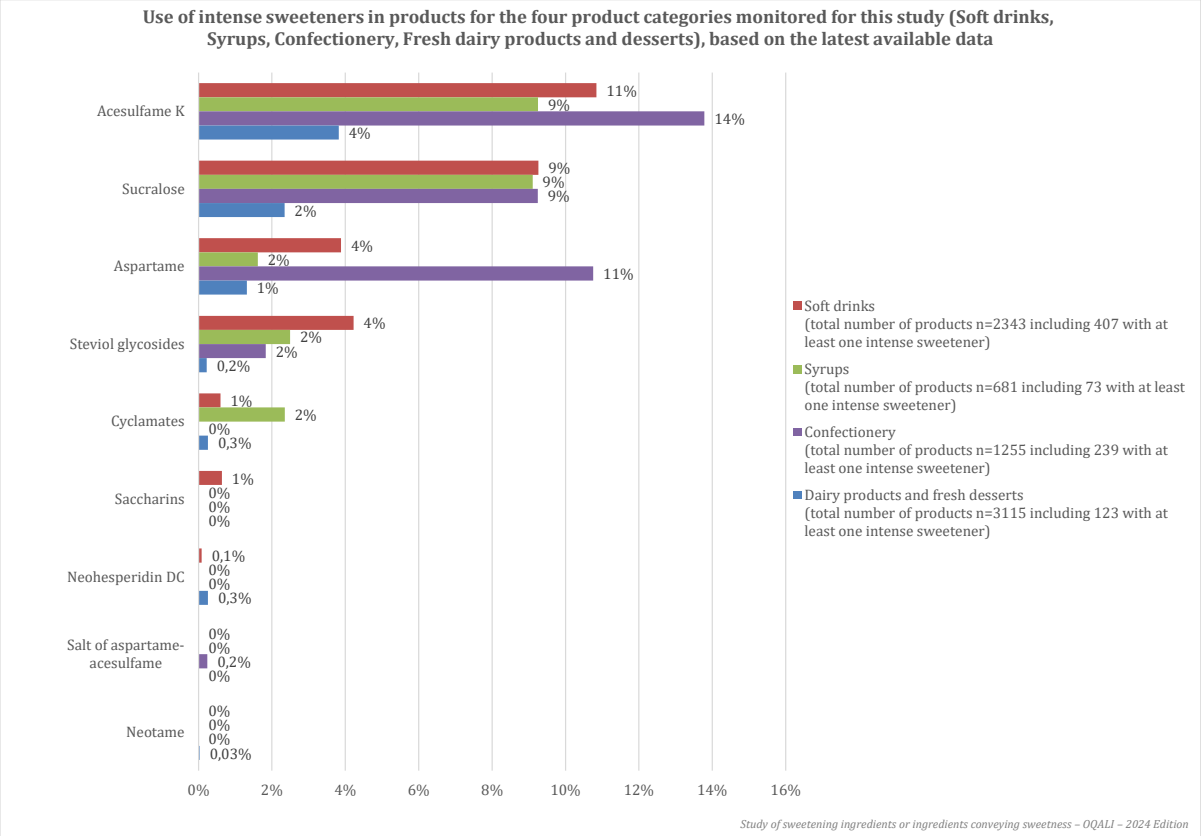



**Figure 32: Use of intense sweeteners in the four relevant food categories (Soft drinks, Confectionery, Fresh dairy products and desserts, Syrups) based on the latest available data (sorted by most commonly used intense sweetener, all products combined).**

**Sucralose, aspartame and steviol glycosides were found in these four categories, but their frequency of presence varied according to the category**. Thus, sucralose was found in 9% (n=62) of products in the Soft drinks, Syrups and Confectionery categories, but in only 2% of products in the Fresh dairy products and desserts category, while steviol glycosides were present in 4% (n=99) of products in the Soft drinks category, compared with 0.2% (n=7) in the Fresh dairy products and desserts category. Aspartame was found in 11% (n=135) of products in the Confectionery category and in only 1% (n=41) of those in the Fresh dairy products and desserts category.

Lastly, some intense sweeteners were only used in a very small number of products and in just one category: saccharins were only found in 1% (n=15) of products in the Soft drinks category, salt of aspartame-acesulfame in 0.2% (n=3) of products in the Confectionery category, and neotame in 0.03% (n=1) of products in the Fresh dairy products and desserts category.

These differences between intense sweeteners cannot be explained by regulation. Indeed, all the intense sweeteners are authorised in these four categories, although certain sub-categories have a few regulatory exceptions (for example, cyclamates are not authorised in the Chewing gum regulatory sub-category) (European Parliament and Council 2008b).

The numbers and proportions of products containing at least one of the intense sweeteners considered, in both sweetened products and for all products, by relevant product category, are presented in Annex 7.

### 3.5.1.3 By type of brand

**Not including the specialised retailer brands, the other four types of brands generally used the same intense sweeteners, but with different frequency of presence values (Figure 33)**. Thus, six of the nine intense sweeteners used were found in all four types of brands. The most common were acesulfame K, sucralose and aspartame. The frequency of presence of these three sweeteners was lower for retailer brands and, to a lesser extent, hard discount brands than for the other types of brands. Note that for entry-level retailer brands, saccharins and cyclamates were found in a slightly higher proportion of products (1%, i.e. n=11 and n=10, respectively) than for the other types of brands (less than 0.5%).

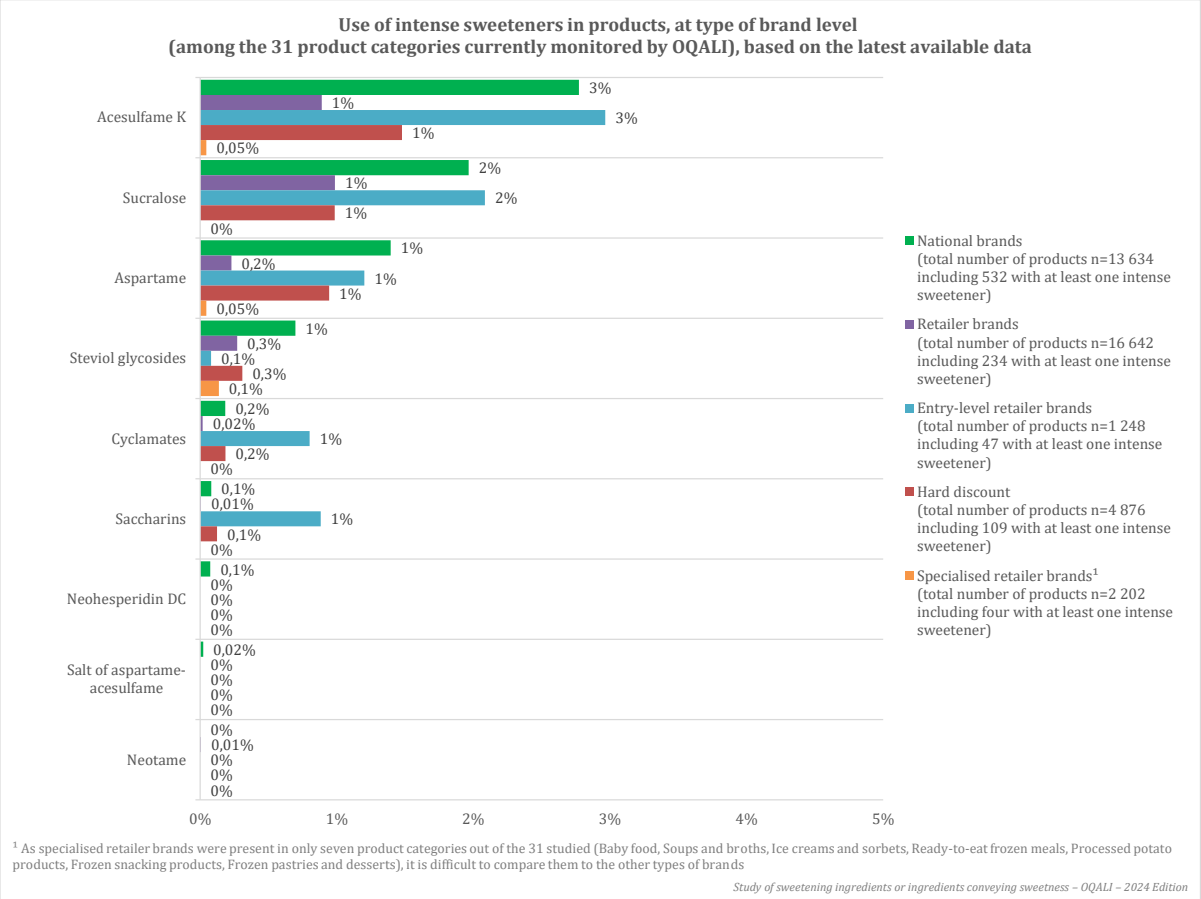



**Figure 33: Use of intense sweeteners by type of brand, based on the latest data available (among the 31 food categories currently monitored by OQALI; sorted by most commonly used intense sweetener, all products combined).**

In addition, three other rarely-used intense sweeteners were each found in a single type of brand: neohesperidin DC and salt of aspartame-acesulfame in 0.1% (n=10) and 0.02% (n=3) of national brands, respectively, and neotame in 0.01% (n=1) of retailer brands.

Specialised retailer brands had no products in the four relevant product categories in which the intense sweeteners were most commonly found. Their use of intense sweeteners therefore differed from that in the other four types of brands: only three intense sweeteners were used in the four sweetened products in this type of brand, all belonging to the Ice creams and sorbets category: steviol glycosides (0.1%; n=3), acesulfame K (0.05%; n=1) and aspartame (0.05%; n=1).

The numbers and proportions of products containing at least one of the intense sweeteners considered, in both sweetened products and for all products, by type of brand, are presented in Annex 8.

### 3.5.2 Study of combinations of intense sweeteners

#### 3.5.2.1 All products combined

**Acesulfame K and aspartame, which were the intense sweeteners most commonly found in sweetened products, tended to be used in combination**: the acesulfame K/aspartame combination was used in 21% (n=190; Figure 34) of sweetened products. **Sucralose was used both alone** (13% of products with at least one intense sweetener) and **in combination** with other intense sweeteners (mainly the acesulfame K/sucralose combination found in 32% of products with at least one intense sweetener and the acesulfame K/aspartame/sucralose combination found in 7%). **Steviol glycosides tended to be used on their own** (15% of products).

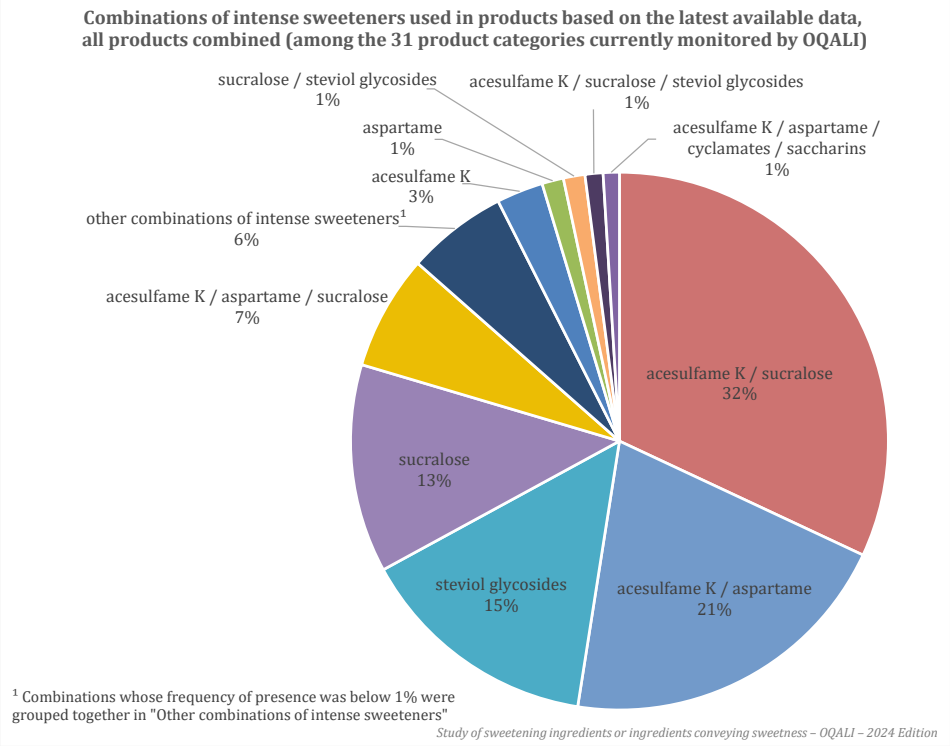



**Figure 34: Breakdown of artificially-sweetened products by combination of intense sweeteners found in the ingredient lists, all products combined (among the 31 food categories currently monitored by OQALI).**

The acesulfame K/aspartame/cyclamates/saccharins combination, which includes four different intense sweeteners, was present in only 1% (n=9) of products with at least one intense sweetener.

The numbers and proportions of products by combination of intense sweeteners, in both sweetened products and for all products (among the 31 product categories currently monitored by OQALI) and without grouping together the least used combinations, are presented in Annex 9.

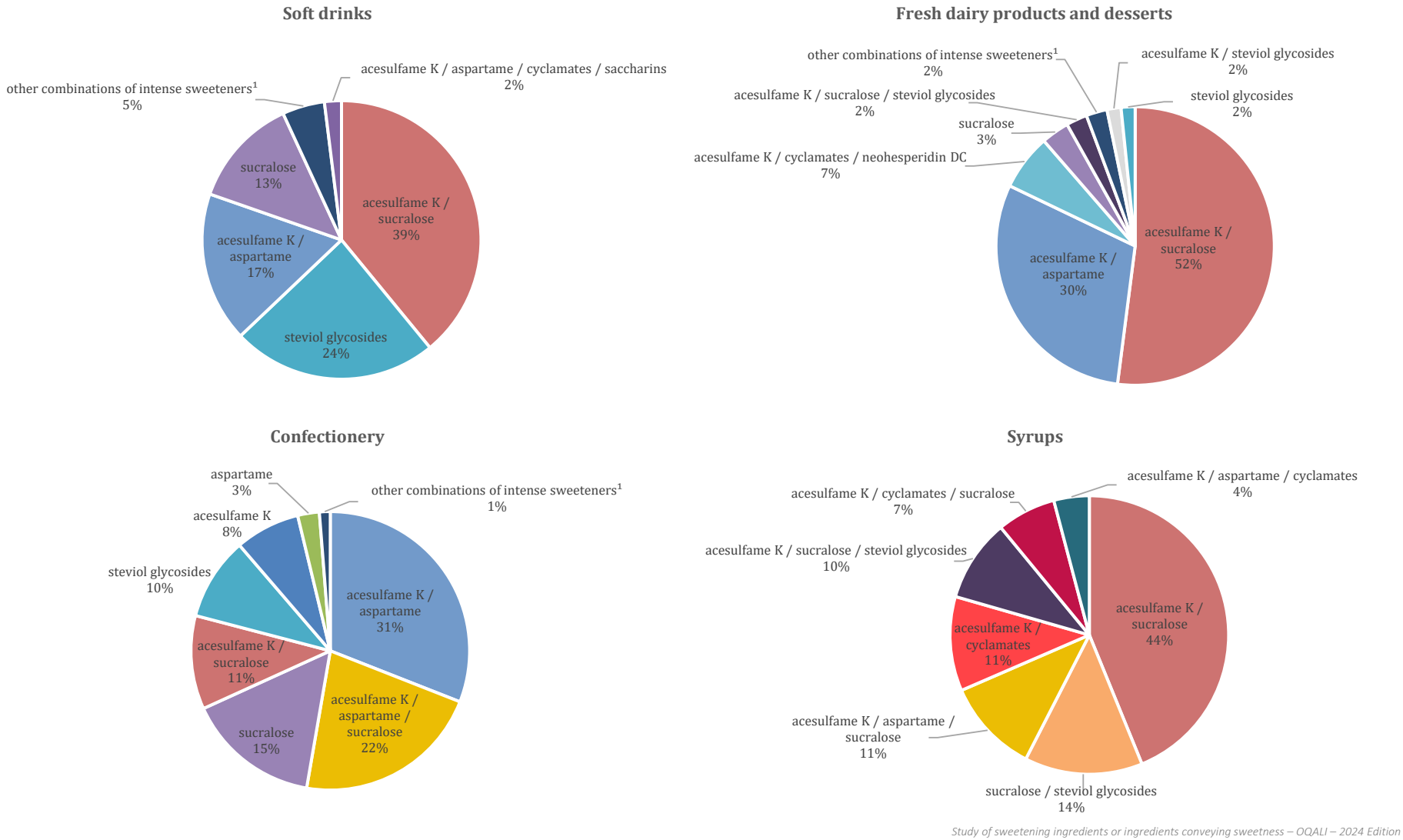
#### 3.5.2.2 By relevant product category

**The combinations found were fairly similar for Soft drinks and Fresh dairy products and desserts, but differed for Confectionery and Syrups (Figure 35).**

The acesulfame K/sucralose combination was the most commonly used in three of the four relevant categories (Fresh dairy products and desserts with 52% (n=64) of sweetened products in this category; Syrups with 44% (n=32); Soft drinks with 39% (n=159)). In addition, in the Fresh dairy products and desserts category, the acesulfame K/aspartame combination was frequently found (30% (n=37) of its sweetened products). The Soft drinks category, where the acesulfame K/sucralose combination was the most common, also included the use of steviol glycosides alone (24% (n=97) of its sweetened products) and the acesulfame K/aspartame combination (17%; n=71). The Syrups category also used sucralose/steviol glycosides (14%; n=10) in its sweetened products, acesulfame K/aspartame/sucralose (11%; n=8) and acesulfame K/cyclamates (11%; n=8).

In the Confectionery category, acesulfame K/aspartame (31%; n=74) and sucralose alone (15%; n=37) or combined with other intense sweeteners (acesulfame K/aspartame/sucralose found in 22% (n=52) of sweetened products in this category; acesulfame K/sucralose in 11% (n=26)) were the combinations mainly used.

The numbers and proportions of products by combination of intense sweeteners, in both sweetened products and for all products, for the four relevant product categories and without grouping together the least used combinations, are presented in Annex 10.

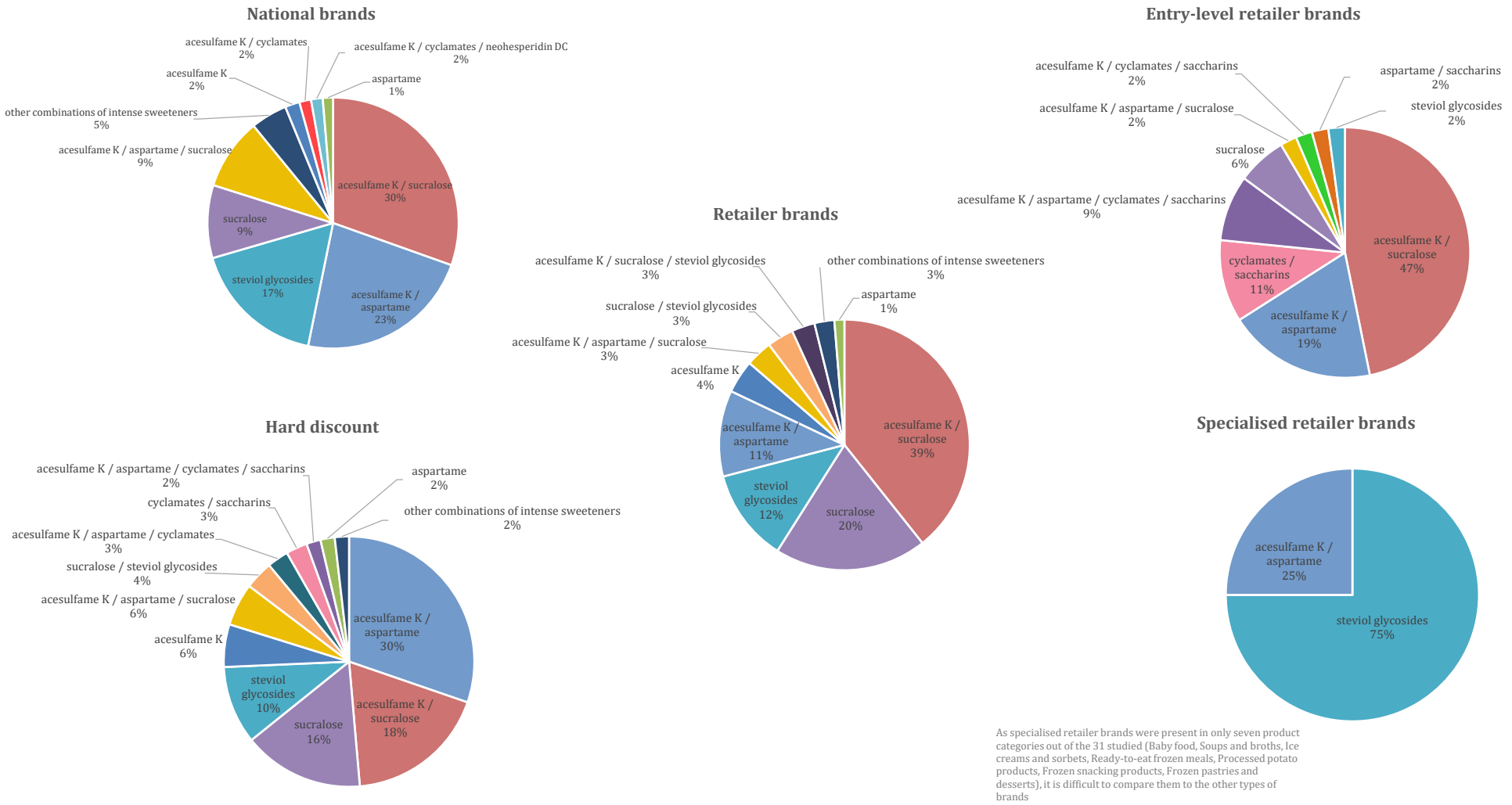



[1] *Combinations with frequency of presence values below 1% were grouped together in "Other combinations of intense sweeteners"*

**Figure 35: Breakdown of artificially-sweetened products by combination of intense sweeteners found in the ingredient lists, for the four relevant food categories**

#### 3.5.2.3 By type of brand

**Not including the specialised retailer brands, the most commonly used combinations were generally the same for all the types of brands, but their frequency of use depended on the type of brand (Figure 36). These uses reflected the range of products in each type of brand.**




*[1] Combinations with frequency of presence values below 1% were grouped together in "Other combinations of intense sweeteners"*

*Study of sweetening ingredients or ingredients conveying sweetness – OQALI – 2024 Edition*

**Figure 36: Breakdown of artificially-sweetened products by combination of intense sweeteners found in the ingredient lists, by type of brand (among the 31 food categories currently monitored by OQALI)**

The **acesulfame K/sucralose combination was the most commonly used in three types of brands** (entry-level retailer brands with 47% of sweetened products in the type of brand, i.e. n=22; retailer brands with 39%, i.e. n=92; national brands with 30%, i.e. n=162). **National brands** also often used the acesulfame k/aspartame combination (23% of their sweetened products; n=121), steviol glycosides alone (17%; n=92) or sucralose alone (9%; n=50). These uses can be explained by the composition of the offering in the national brands, which includes a high proportion of Soft drinks, Fresh dairy products and desserts and, to a lesser extent, Confectionery. **Retailer brands** also often used sucralose alone (20%; n=26), steviol glycosides alone (12%; n=28) and the acesulfame K/aspartame combination (11%; n=26). These uses reflected those observed in particular in the relevant categories Soft drinks and Confectionery, which are often found among retailer brands. **Entry-level retailer brands** mainly used two other combinations: acesulfame K/aspartame (19%; n=9) and cyclamates/saccharins (11%; n=5). These uses were partly comparable to those in the Soft drinks category (note the low use of steviol glycosides in this type of brand) and in the Fruit juices and nectars category (the cyclamate/saccharin combination was found in nectars), which are frequently found among entry-level retailer brands.

**Hard discount** products mainly used acesulfame K/aspartame (30%; n=33) and acesulfame K/sucralose (18%; n=20) combinations, as well as sucralose alone (16%; n=17) and steviol glycosides alone (10%; n=11). These uses reflect those observed in particular in the relevant categories Confectionery and Syrups, which are frequently found among hard discount products.

As mentioned in the previous sections, because their product offering focuses on a few frozen food categories, **specialised retailer brands** had no products for the four relevant categories. Furthermore, there are very few sweetened products in this type of brand and all belong to the Ice creams and sorbets category, which explains the large difference observed with the other types of brands.

The numbers and proportions of products by combination of intense sweeteners, in both sweetened products and for all products, for the types of brands and without grouping together the least used combinations, are presented in Annex 11.

## 3.6 Conclusion on the use of sweetening ingredients or ingredients conveying sweetness, based on the most recent data

Among the 39,101 products studied, **three quarters (77%) used at least one sweetening ingredient or ingredient conveying sweetness**, as defined by OQALI. **This result was similar by type of brand**, with 76% of national brands and 81% of specialised retailer brands[10] containing at least one sweetening ingredient or ingredient conveying sweetness. **In most product categories (27 out of the 31 studied), the majority of the offerings had at least one sweetening ingredient or ingredient conveying sweetness. Ten of these categories had a more savoury connotation** (Cold sauces: 94%, Frozen snacking products: 87%, Delicatessen meats: 84%, Hot sauces: 81%, Fresh delicatessen products: 77%, Ready-to-eat fresh meals: 71%, Soups and broths: 59%, Ready-to-eat frozen meals: 59%, Ready-to-eat canned meals: 54%, Crackers: 53%).

**Among the 11 classes of sweetening ingredients or ingredients conveying sweetness, five were found in at least 10% of products:**

- **Sucrose was the predominant class**, since it was found in more than half of the products studied, whether for all products combined (58%; n=22,710) or by type of brand (from 55% for entry-level retailer brands to 62% for specialised retailer brands[10]). In a majority of product categories (19 out of the 31 studied), more than half of the offerings contained at least one ingredient from this class. Most of these categories had a sweet connotation, but four were more savoury (Cold sauces, Hot sauces, Frozen snacking products and Fresh delicatessen products);
- **Syrups** (n=9,396; 24%): in five product categories, more than half of the offerings had an ingredient from this class. These were categories with a sweet connotation (Cereal bars: 99%; Ice creams and sorbets: 95%; Confectionery: 76%; Cakes and biscuits: 55%; Frozen pastries and desserts: 54%). These ingredients were found in all the types of brands, with frequencies ranging from 22% for national brands and retailer brands to 28% for entry-level retailer brands, and even 43% for specialised retailer brands;
- **Fruit juices and concentrates** (n=7,834; 20%): in five product categories, more than 30% of the offerings had an ingredient from this class (Fruit juices and nectars[11]: 90%; Syrups: 76%; Soft drinks: 54%; Jams: 38%). Their use varied from 15% for entry-level retailer brands and hard discount products to 24% for specialised retailer brands[10];
- **Other sugars** (n=6,407; 16%): in six product categories, more than 30% of the offerings had an ingredient in this class, most often dextrose (Cereal bars: 65%; Delicatessen meats: 65%; Frozen snacking products: 50%; Fresh delicatessen products: 40%; Ready-

[10] Specialised retailer brands focus on frozen foods, i.e. seven of the 31 categories studied, and mainly those with among the highest proportions of products containing at least one sweetening ingredient or ingredient conveying sweetness, including Ice creams and sorbets, Frozen pastries and desserts and, to a lesser extent, Frozen snacking products and Ready-to-eat frozen meals.

[11] Not all the products in the Fruit juices and nectars category were presented as containing at least one ingredient from the Fruit juices and concentrates class, as some ingredient lists identified freshly squeezed fruit or fruit in purée form, or only indicated the fruit without mentioning the state. By convention, these are not considered by OQALI to be sweetening ingredients or ingredients conveying sweetness.

to-eat fresh meals: 36%; Processed potato products: 35%). Their use varied from 13% for national brands to 31% for specialised retailer brands[12];

- **Lactose[13]** (n=4,488; 11%): in three product categories, at least 30% of the offerings had an ingredient from this class (Infant milks: 83%; Ice creams and sorbets: 61% and Delicatessen meats: 30%). Its use varied from 8% for national brands to 22% for specialised retailer brands[12].

**The vast majority of products studied used one class (34% of the products studied) or a combination of two different classes of sweetening ingredients or ingredients conveying sweetness (25% of products)**. A few products used up to seven different classes simultaneously (0.05% of all products belonging to the Frozen pastries and desserts, Cereal bars, Ice creams and sorbets, Chocolate products, Cakes and biscuits and Frozen snacking products categories; products in assortments with a common ingredient list for all the items in the assortment or elaborate recipes mixing several elements such as fillings, sauces and/or inclusions for example). **This result was similar by type of brand and for almost all the product categories studied**, with the exception of Cereal bars and Ice creams and sorbets, which had high proportions of products using three or more classes simultaneously (93% of Cereal bars and 86% of Ice creams and sorbets). The **Sucrose class used alone was the most frequently found** in all products combined (20%) and by type of brand (from 10% of products from specialised retailer brands to 22% of retailer brands). This class was also frequently used in combination: the combinations **Fruit juices and concentrates/Sucrose** and **Syrups/Sucrose were the most common after the Sucrose class used alone** (7% of products for each combination, all products combined).

Use of **intense sweeteners** was generally low (2% of products studied) and was concentrated in four product categories: Confectionery (19%), Soft drinks (17%), Syrups (11%) and Fresh dairy products and desserts (4%). These uses depended on the category and type of brand. Overall, only four intense sweeteners were used in more than 10% of artificially sweetened products: acesulfame K (69% of artificially sweetened products), sucralose (55%), aspartame (31%) and steviol glycosides (17%). They were used alone and/or in combination: **acesulfame K/sucralose** and **acesulfame K/aspartame combinations** were the most commonly found (in 32% and 21% of artificially sweetened products, respectively), followed by **steviol glycosides alone** (15%) and **sucralose alone** (13%).

[12] Specialised retailer brands focus on frozen foods, including the Ice creams and sorbets and Frozen pastries and desserts categories. The latter made a major contribution to the proportion of products with at least one sweetening ingredient or ingredient conveying sweetness in this type of brand.

[13] As lactose is an allergen, it must be declared in the ingredient list. The lactose may therefore be counted in this study because it is present in the ingredient list due to its allergenic nature, even though it is not an ingredient as such (e.g. a flavour carrier).

# 4. CHANGES IN THE FREQUENCY OF PRESENCE OF SWEETENING INGREDIENTS OR INGREDIENTS CONVEYING SWEETNESS IN 27 OF THE 31 PRODUCT CATEGORIES CURRENTLY MONITORED BY OQALI

## 4.1 Presentation of the data used

This section focuses on the 27 product categories for which at least two collection campaigns were carried out, among the 31 currently studied by OQALI. Each of them was therefore the subject of an initial characterisation, described as "baseline", as well as a study to monitor changes a few years later, described below as "follow-up". It should be noted that 10 product categories have already been monitored on three occasions (Cakes and biscuits, Soft drinks, Breakfast cereals, Fruit purées, compotes and desserts, Jams, Canned fruits, Bread products, Ready-to-eat canned meals, Ready-to-eat frozen meals and Fresh dairy products and desserts). For these categories, the study considered the data separated by the longest intervals, i.e. the oldest and most recent available.

Note that the Frozen snacking products category includes frozen pizzas. For these products, earlier data from 2010 were available (n=214) and were therefore used instead of 2015 data. However, the year indicated as the baseline was the most recent for this category, as it did not take into account the earlier date for frozen pizzas.

The 27 product categories studied in the remainder of this report are Crackers, Cereal bars, Cakes and biscuits, Soft drinks, Soups and broths, Breakfast cereals, Delicatessen meats, Chocolate products, Fruit purées, compotes and desserts, Jams, Canned fruits, Ice creams and sorbets, Fruit juices and nectars, Margarines, Bread products, Ready-to-eat canned meals, Ready-to-eat fresh meals, Ready-to-eat frozen meals, Dessert mixes, Fresh dairy products and desserts, Fresh delicatessen products, Processed potato products, Hot sauces, Cold sauces, Syrups, Frozen snacking products and Frozen pastries and desserts.

**Thus, the remainder of this report covers a total of 54,460 products, broken down into 19,723 products for the baseline and 34,737 for the follow-up and classified into 27 product categories** (Table 4). Note that among the categories studied, 15 had a mainly sweet connotation and 12 were more savoury. The numbers of products increased between baseline and follow-up, due to a better coverage rate and the growing diversification of the offering.

**Table 4: List of the 27 OQALI product categories included in the change study (among the 31 food categories currently monitored by OQALI) and numbers of associated products.**

| Product category | Year(s) of data collection | | Number of products taken into account in the change study | | Estimated coverage* | |
|---|---|---|---|---|---|---|
| | Baseline | Follow-up | Baseline | Follow-up | Baseline | Follow-up |
| Crackers | 2009 | 2013 | 551 | 1082 | 53% | 59% |
| Cereal bars | 2010-2011 | 2016 | 169 | 181 | 79% | 82% |
| Cakes and biscuits | 2008 | 2018 | 1723 | 3120 | 66% | 76% |
| Soft drinks | 2009-2010 | 2019 | 891 | 2343 | 76% | 82% |
| Soups and broths | 2011 | 2017 | 569 | 788 | 74% | 66% |
| Breakfast cereals | 2008 | 2018 | 332 | 659 | 80% | 87% |
| Delicatessen meats | 2010 | 2013 | 1161 | 1722 | 65% | 64% |
| Chocolate products | 2009 | 2012 | 731 | 1013 | 68% | 74% |
| Fruit purées, compotes and desserts | 2009 | 2017 | 480 | 972 | 72% | 90% |
| Jams | 2009 | 2017 | 337 | 781 | 58% | 81% |
| Canned fruits | 2009 | 2017 | 181 | 245 | 49% | 76% |
| Ice-creams and sorbets | 2010-2011 | 2015 | 1416 | 1953 | 67% | 87% |
| Fruit juices and nectars | 2009-2010 | 2013 | 816 | 1637 | 56% | 83% |
| Margarines | 2011 | 2016 | 95 | 109 | 82% | 86% |
| Bread products | 2009 | 2019 | 584 | 1740 | 55% | 86% |
| Ready-to-eat canned meals | 2010 | 2020 | 794 | 2672 | 43% | 67% |
| Ready-to-eat fresh meals[1] | 2009-2010 | 2016 | 779 | 1416 | 28% | 36% |
| Ready-to-eat frozen meals | 2012 | 2020 | 1861 | 2108 | 59% | 76% |
| Dessert mixes | 2009 | 2013-2014 | 160 | 329 | 61% | 76% |
| Fresh dairy products and desserts | 2008-2009 | 2017 | 1613 | 3115 | 67% | 87% |
| Fresh delicatessen products | 2009-2010 | 2015 | 1141 | 2293 | 42% | 58% |
| Processed potato products | 2011 | 2017 | 683 | 791 | 76% | 85% |
| Hot sauces | 2010 | 2017 | 295 | 609 | 75% | 78% |
| Cold sauces | 2011 | 2016 | 544 | 623 | 78% | 80% |
| Syrups | 2010 | 2019 | 316 | 681 | 69% | 90% |
| Frozen snacking products[2] | 2015[2] | 2018 | 930[2] | 1147 | 80%[2] | 80% |
| Frozen pastries and desserts | 2015 | 2018 | 571 | 608 | 72% | 75% |
| ***All categories*** | ***2008-2015*** | ***2012-2020*** | ***19 723*** | ***34 737*** | ***65%[3]*** | ***77%[3]*** |

* Ratio of product volumes identified by OQALI to the total market volume characterised by Kantar Worldpanel

[1] For the Ready-to-eat fresh meals category, as 2020 data were not available at the time of processing sweetening ingredients or ingredients conveying sweetness, the most recent data at that time were used, i.e. data from 2016

[2] The Frozen snacking products category includes frozen pizzas. For these products, earlier data from 2010 (n=214) were available, which replaced those from 2015 (n=392). The coverage given for the baseline is an approximation as it does not take into account the change made for frozen pizzas.

[3] Average estimated coverage by product category

Depending on the category, the product collection years ranged from 2008 to 2015 for the baseline and from 2012 to 2020 for the follow-up. This means that the dates on which data were collected may overlap for some categories and the intervals between two monitoring periods may differ, which is a limitation that should be taken into account when interpreting the results presented by category.

Coverage rates[14] for products collected by OQALI differed depending on the categories and collection periods (data from Kantar Worldpanel[15]). Overall, they increased between baseline and follow-up (except for Soups and broths and Delicatessen meats). This reflects improved representativeness of the products collected by OQALI at follow-up and should also be taken into account when interpreting the results. However, the coverage rates presented are underestimated due to the fact that some products found on the market could not be assigned precisely to a line in the database communicated by Kantar Worldpanel and that, conversely, some products in the Kantar Worldpanel database were not found among the products collected by OQALI.

A table detailing the numbers and proportions of products by category and type of brand is provided in Annex 12.

[14] Ratio of product volumes identified by OQALI to the total market volume characterised by Kantar Worldpanel.

[15] Kantar Worldpanel: purchasing data from households representative of the French population.

As in the previous part, some products were not considered in this change study. This concerned products:

- from out-of-home catering, central purchasing agencies and pharmacies, as these could not be collected for all categories;
- for which ingredient lists were unavailable, except for cheeses, as the regulations do not require them to provide a list of ingredients on the packaging (European Parliament and Council 2011)[16].

It should also be remembered that the results in this section may differ from those of studies already published by OQALI. Indeed, when making corrections to the OQALI database, the scope of the studies or any information studied in the OQALI reports may have been modified or corrected. This study was carried out using corrected updated data.

[16] Cheeses containing no ingredients other than lactic products, food enzymes, micro-organism cultures and salt are not required to be labelled with an ingredient list. As none of these are regarded as sweetening ingredients or ingredients conveying sweetness, these products are counted as having no sweetening ingredients or ingredients conveying sweetness.

## 4.2 Change in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness

This section details the study of the changes in frequency of presence of all the classes of sweetening ingredients or ingredients conveying sweetness found in the ingredient lists of the products considered, based on the 27 product categories for which at least two collection campaigns were carried out, among the 31 categories currently studied by OQALI.

### 4.2.1 All products combined

Among all the products studied, **the proportion of those containing at least one sweetening ingredient or ingredient conveying sweetness fell significantly, by 5.5 points**, from 86.5% (n=17,068) to 81% (n=28,163) (Figure 37).

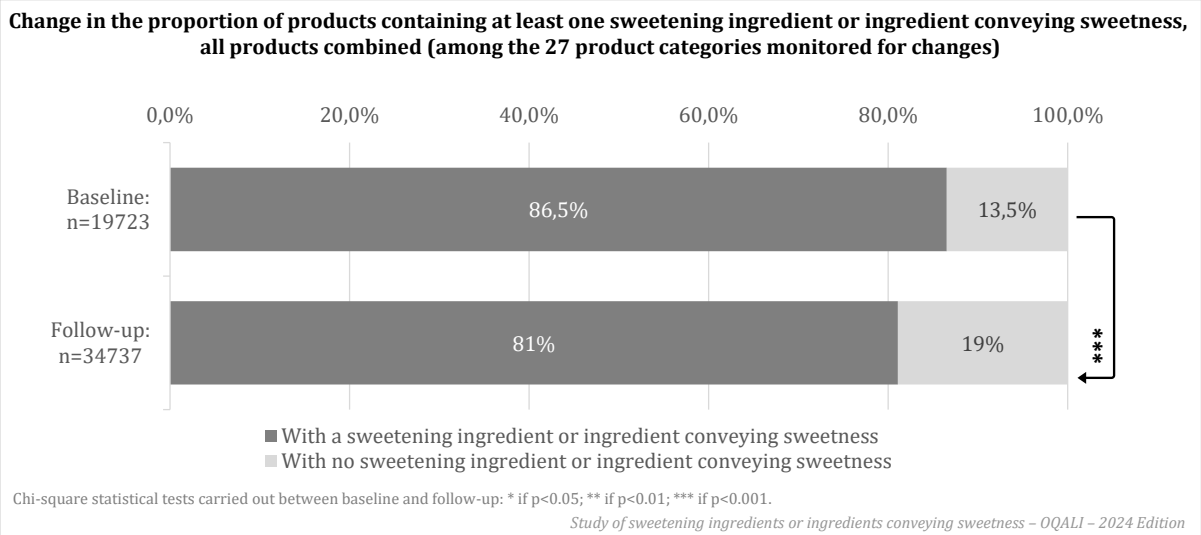



**Figure 37: Change in the breakdown of products with and without sweetening ingredients or ingredients conveying sweetness, all products combined (among the 27 food categories monitored for changes).**

Note that it is not possible to compare the proportions of products with at least one sweetening ingredient or ingredient conveying sweetness at follow-up with those observed in the previous part (Section *3.2. Frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness*). This is because four product categories that were taken into account in the previous part are not included here, in particular Baby food and Cheeses, where the proportions of products containing at least one sweetening ingredient or ingredient conveying sweetness were among the lowest[17] (Figure 2), explaining the lower percentage observed in the previous part.

### 4.2.2 By product category

**The significant 5.5 point reduction in the proportion of products containing at least one sweetening ingredient or ingredient conveying sweetness, observed in all products combined, was driven by almost half of the product categories studied. Sixteen of the changes were significant: 13 involved a decrease and three an increase (Table 5**).

[17] In addition to the Baby food and Cheeses categories, the Confectionery and Infant milks categories are described in Section *3.2. Frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness* but not in this part on changes.

**Table 5: Change in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness, all products combined and by food category (27 categories monitored for changes; sorted in descending order of the proportion of products with a sweetening ingredient or ingredient conveying sweetness at baseline).**

| Product category<br><br>*(n=number of products containing at least one sweetening ingredient or ingredient conveying sweetness, all products combined or by product category)* | **Change in the proportion of products containing at least one sweetening ingredient or ingredient conveying sweetness (27 product categories monitored for changes)** | | |
|---|---|---|---|
| | Baseline | Follow-up | **Change in the proportions (point)** |
| **All products combined (Baseline: n=17068; Follow-up: n=28163)** | **86,5%** | **81%** | ***-5.5****** |
| Cereal bars (Baseline: n=169; Follow-up: n=181) | 100% | 100% | ***+0*** |
| Jams (Baseline: n=337; Follow-up: n=781) | 100% | 100% | ***+0*** |
| Canned fruits (Baseline: n=181; Follow-up: n=245) | 100% | 100% | ***+0*** |
| Ice-creams and sorbets (Baseline: n=1416; Follow-up: n=1953) | 100% | 100% | ***+0*** |
| Cakes and biscuits (Baseline: n=1723; Follow-up: n=3117) | 100% | 99,9% | ***-0.1*** |
| Frozen pastries and desserts (Baseline: n=568; Follow-up: n=605) | 99% | 99,5% | ***+0.03*** |
| Chocolate products (Baseline: n=726; Follow-up: n=1005) | 99% | 99% | ***-0.1*** |
| Syrups (Baseline: n=312; Follow-up: n=675) | 99% | 99% | ***+0.4*** |
| Breakfast cereals (Baseline: n=326; Follow-up: n=599) | 98% | 91% | ***-7.3****** |
| Fruit juices and nectars (Baseline: n=794; Follow-up: n=1557) | 97% | 95% | ***-2.2**** |
| Soft drinks (Baseline: n=861; Follow-up: n=2132) | 97% | 91% | ***-5.6****** |
| Dessert mixes (Baseline: n=154; Follow-up: n=286) | 96% | 87% | ***-9.3**** |
| Hot sauces (Baseline: n=276; Follow-up: n=495) | 94% | 81% | ***-12.3****** |
| Bread products (Baseline: n=540; Follow-up: n=1315) | 92% | 76% | ***-16.9****** |
| Fresh delicatessen products (Baseline: n=1050; Follow-up: n=1764) | 92% | 77% | ***-15.1****** |
| Delicatessen meats (Baseline: n=1039; Follow-up: n=1443) | 89% | 84% | ***-5.7****** |
| Fresh dairy products and desserts (Baseline: n=1431; Follow-up: n=2626) | 89% | 84% | ***-4.4****** |
| Cold sauces (Baseline: n=482; Follow-up: n=585) | 89% | 94% | ***+5.3**** |
| Frozen snacking products (Baseline: n=817; Follow-up: n=1000) | 88% | 87% | ***-0.7*** |
| Ready-to-eat fresh meals (Baseline: n=605; Follow-up: n=1010) | 78% | 71% | ***-6.3**** |
| Ready-to-eat canned meals (Baseline: n=615; Follow-up: n=1432) | 77% | 54% | ***-23.9****** |
| Fruit purées, compotes and desserts (Baseline: n=345; Follow-up: n=676) | 72% | 70% | ***-2.3*** |
| Ready-to-eat frozen meals (Baseline: n=1333; Follow-up: n=1240) | 72% | 59% | ***-12.8****** |
| Soups and broths (Baseline: n=368; Follow-up: n=465) | 65% | 59% | ***-5.7**** |
| Crackers (Baseline: n=305; Follow-up: n=572) | 55% | 53% | ***-2.5*** |
| Processed potato products (Baseline: n=292; Follow-up: n=390) | 43% | 49% | ***+6.6**** |
| Margarines (Baseline: n=3; Follow-up: n=14) | 3% | 13% | ***+9.7**** |

Purple cells: significant decrease in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test

**The 13 categories that saw a significant reduction in the proportion of products containing at least one sweetening ingredient or ingredient conveying sweetness were**: Ready-to-eat canned meals (-23.9 points), Bread products (-16.9 points), Fresh delicatessen products (-15.1 points), Ready-to-eat frozen meals (-12.8 points), Hot sauces (-12.3 points), Dessert mixes (-9.3 points), Breakfast cereals (-7.3 points), Ready-to-eat fresh meals (-6.3 points), Delicatessen meats (-5.7 points), Soups and broths (-5.7 points), Soft drinks (-5.6 points), Fresh dairy products and desserts (-4.4 points) and Fruit juices and nectars (-2.2 points). Note that the majority of these categories (8 out of the 13 mentioned) had a more savoury connotation, and that five of them saw large reductions in products using a sweetening ingredient or ingredient conveying sweetness (significant decreases of more than 10 points).

Moreover, the eight categories with the highest proportions of products at baseline still had a very high proportion at follow-up. This is because these eight categories all had a sweet connotation (Cereal bars, Jams, Canned fruits, Ice creams and sorbets, Cakes and biscuits, Frozen pastries and desserts, Chocolate products and Syrups).

**Conversely, three product categories saw a significant increase in the proportion of their products containing at least one sweetening ingredient or ingredient conveying sweetness**. These were Margarines (+9.7 points), Processed potato products (+6.6 points) and Cold sauces (+5.3 points) categories. Note that Margarines and Processed potato products were the categories with the lowest proportion of products containing at least one sweetening ingredient or ingredient conveying sweetness at both baseline and follow-up (3% and 13%, respectively, for Margarines; 43% and 49% for Processed potato products).

### 4.2.3 By type of brand

**The significant reduction observed in all products combined (-5.5 points) was driven by all the types of brands (Table 6).** Indeed, the proportion of products with at least one sweetening ingredient or ingredient conveying sweetness fell significantly for all the types of brands, with large changes seen in certain types of brands, such as national brands (significant reduction of 6.4 points).

**Table 6: Change in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness, all products combined and by type of brand (27 food categories monitored for changes; sorted in descending order of the proportion of products with sweetening ingredients or ingredients conveying sweetness at baseline).**

| Type of brand<br><br>*(n=number of products containing at least one sweetening ingredient or ingredient conveying sweetness, all products combined or by type of brand)* | **Change in the proportion of products containing at least one sweetening ingredient or ingredient conveying sweetness (27 product categories monitored for changes)** | | |
|---|---|---|---|
| | Baseline | Follow-up | ***Change in the proportions (point)*** |
| **All products combined (Baseline: n=17068; Follow-up: n=28163)** | **86,5%** | **81%** | ***-5.5****** |
| Hard discount (Baseline: n=2774; Follow-up: n=3670) | 88% | 84% | *-3.7**** |
| Entry-level retailer brands (Baseline: n=973; Follow-up: n=931) | 87% | 83% | *-4.0*** |
| Retailer brands (Baseline: n=7361; Follow-up: n=12307) | 87% | 82% | *-4.9**** |
| National brands (Baseline: n=4383; Follow-up: n=9189) | 86% | 80% | *-6.4**** |
| Specialised retailer brands[1] (Baseline: n=1577; Follow-up: n=1776) | 85% | 81% | *-3.9**** |

Purple cells: significant decrease in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test
[1] As specialised retailer brands were present in only six product categories out of the 27 studied (5 categories for which baseline and follow-up data were available: Ice creams and sorbets, Ready-to-eat frozen meals, Processed potato products, Frozen snacking products, Frozen pastries and desserts; 1 product category for which only follow-up data were available: Soups and broths), it is difficult to compare them to the other types of brands.

## 4.3 Change in frequency of presence by class of sweetening ingredients or ingredients conveying sweetness

This part describes the changes in the frequency of presence by class of sweetening ingredients or ingredients conveying sweetness found in the ingredient lists of the products considered, by considering the 27 product categories monitored for changes. As a reminder, because the same product may contain several different classes of sweetening ingredients or ingredients conveying sweetness, it is not possible to add the proportions together.

### 4.3.1 All products combined

**There was a significant decline in the frequency of use of almost all classes of sweetening ingredients or ingredients conveying sweetness**, with the exception of the Fruit juices and concentrates class, which increased significantly, and the Honey class, which remained stable and is rarely used (Table 7).

**Table 7: Change in the frequency of presence by class of sweetening ingredients or ingredients conveying sweetness, all products combined (27 food categories monitored for changes; sorted in descending order of the proportion of products containing each of the classes considered, at baseline).**

| Class of sweetening ingredients or ingredients conveying sweetness<br>*(n=number of products containing at least the class of sweetening ingredients or ingredients conveying sweetness considered)* | **Change in the proportion of products, all classes combined or by class of sweetening ingredients or ingredients conveying sweetness (27 product categories monitored for changes)** | | |
|---|---|---|---|
| | Baseline | Follow-up | ***Change in the proportions (point)*** |
| **All classes of sweetening ingredients or ingredients conveying sweetness combined (Baseline: n=17068; Follow-up: n=28163)** | **86,5%** | **81%** | ***-5.5****** |
| Sucrose (Baseline: n=12552; Follow-up: n=21444) | 64% | 62% | ***-1.9****** |
| Syrups (Baseline: n=6354; Follow-up: n=8431) | 32% | 24% | ***-7.9****** |
| Other sugars (Baseline: n=5047; Follow-up: n=6172) | 26% | 18% | ***-7.8****** |
| Lactose (Baseline: n=3906; Follow-up: n=4240) | 20% | 12% | ***-7.6****** |
| Fruit juices and concentrates (Baseline: n=3703; Follow-up: n=7368) | 19% | 21% | ***+2.4****** |
| Caramel (Baseline: n=1429; Follow-up: n=1804) | 7% | 5% | ***-2.1****** |
| Other ingredients conveying sugars (Baseline: n=851; Follow-up: n=1135) | 4% | 3% | ***-1.0****** |
| Bulk sweeteners (Baseline: n=590; Follow-up: n=845) | 3% | 2% | ***-0.6****** |
| Intense sweeteners (Baseline: n=490; Follow-up: n=687) | 2,5% | 2% | ***-0.5****** |
| Honey (Baseline: n=380; Follow-up: n=672) | 2% | 2% | ***+0.01*** |
| Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness (Baseline: n=66; Follow-up: n=80) | 0,3% | 0,2% | ***-0.1**** |

Purple cells: significant decrease in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness/the class of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness/the class of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test

**Large reductions can be seen among the nine classes whose use fell significantly, particularly in the Syrups, Other sugars and Lactose classes** (-7.9 points, -7.8 points and -7.6 points, respectively)**.** These were followed by the Caramel class, down 2.1 points, and the Sucrose class (the one most commonly used in products at both baseline and follow-up), which saw a 1.9 point reduction (although this class was still found in 62% of products at follow-up). Other less commonly used classes – Other ingredients conveying sugars, Bulk sweeteners, Intense sweeteners and Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness – also decreased significantly (-1.0 point, -0.6 point, -0.5 point and -0.1 point respectively).

**Fruit juices and concentrates was the only class whose frequency of presence in products increased significantly (+2.4 points).**

All of these changes indicate a shift in the most commonly used classes: while Sucrose and Syrups remain the most common, they are now followed by Fruit juices and concentrates, the fifth most commonly used class at baseline, which relegated the Other sugars and Lactose classes by one place between baseline and follow-up.

### 4.3.2 By product category

**All categories except Cold sauces and Margarines (i.e. 25 out of the 27 monitored for changes) saw at least one significant reduction in the use of a class of sweetening ingredients or ingredients conveying sweetness. There were some upward changes, but these only represented a small proportion.**

**By class, the significant changes observed for all products combined can therefore be explained by changes driven by several product categories for all the classes, with the exception of Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness, where none of the categories saw significant changes (Table 8).**

**Table 8: Change in the frequency of presence by class of sweetening ingredients or ingredients conveying sweetness and by food category (27 categories monitored for changes)**

| Product category<br>*(n=total number of products considered in the study, all product categories combined or by product category)* | Change in the proportion of products, all classes combined or by class of sweetening ingredients or ingredients conveying sweetness (27 product categories monitored for changes) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **All classes combined** | Sucrose | Syrups | Other sugars[1] | Lactose | Fruit juices and concentrates | Caramel | Other ingredients conveying sugars | Bulk sweeteners | Intense sweeteners | Honey | Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness |
| **All product categories combined (Baseline: n=19723; Follow-up: n=34737)** | **-5.5*****| **-1.9*****| **-7.9*****| **-7.8*****| **-7.6*****| **+2.4*****| **-2.1*****| **-1.0*****| **-0.6*****| **-0.5*****| **+0.01** | **-0.1*** |
| Crackers (Baseline: n=551; Follow-up: n=1082) | **-2.5** | +4.3 | +2.0 | -6.3** | -7.7*** | +0.2 | +0.7 | -0.8 | -1.1 | +0.1 | +0.5 | -0,2 |
| Cereal bars (Baseline: n=169; Follow-up: n=181) | **0** | +1.2 | +1.9 | -4.0 | -11.6*** | -7.1* | -23.9*** | -4.6 | +10.0* | 0 | -15.9*** | +2.2 |
| Cakes and biscuits (Baseline: n=1723; Follow-up: n=3120) | **-0.1** | -1.4** | -1.9 | -6.9*** | -8.0*** | -0.6 | -1.0 | -2.2* | -3.4*** | +0.3 | +1.1 | -0.2 |
| Soft drinks (Baseline: n=891; Follow-up: n=2343) | **-5.6***** | +7.1*** | -7.7*** | +0.1 | -0,2 | -0.2 | -6.6*** | +0.4 | +0.1 | -12.6*** | +0.4 | +0.005 |
| Soups and broths (Baseline: n=569; Follow-up: n=788) | **-5.7*** | -2.2 | -0.4 | -2.5* | -11.4*** | +2.5 | -2.1** | -0.1 | 0 | +0.3 | -0.1 | 0 |
| Breakfast cereals (Baseline: n=332; Follow-up: n=659) | **-7.3***** | -8.2*** | +1.4 | -14.4*** | -1.0 | +1.1 | -10.1*** | +4.0* | +0.6 | +0.2 | -5.1 | -1,5 |
| Delicatessen meats (Baseline: n=1161; Follow-up: n=1722) | **-5.7***** | -0.3 | -2.9 | -6.1*** | +0.6 | -0.03 | -1.2 | +0.03 | -0.1 | 0 | +0.2 | 0 |
| Chocolate products (Baseline: n=731; Follow-up: n=1013) | **-0.1** | -0.8 | -2.0 | -4.1* | -2.4 | -0.1 | +0.5 | +5.3*** | -1.0 | +0.1 | +0.9 | -0.2 |
| Fruit purées, compotes and desserts (Baseline: n=480; Follow-up: n=972) | **-2.3** | -4.7 | -9.9*** | -0,4 | +0.1 | +6.4** | 0 | +0.2 | 0 | 0 | -0.2 | 0 |
| Jams (Baseline: n=337; Follow-up: n=781) | **0** | -6.3*** | -11.9*** | -10.5*** | 0 | +2.5 | -0.5 | +0.5 | +0.1 | 0 | +0.4 | 0 |
| Canned fruits (Baseline: n=181; Follow-up: n=245) | **0** | -6.1 | -15.2*** | 0 | 0 | -1.7 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ice-creams and sorbets (Baseline: n=1416; Follow-up: n=1953) | **0** | +0.9* | +0.02 | -11.8*** | -2.8 | +0.6 | +1.7 | -2.1 | +0.7 | -0.1 | +0.4 | -0.1 |
| Fruit juices and nectars (Baseline: n=816; Follow-up: n=1637) | **-2.2*** | +2.3 | -3.6*** | -0,4 | 0 | -2.1 | 0 | 0 | 0 | +0.3 | 0 | 0 |
| Margarines (Baseline: n=95; Follow-up: n=109) | **+9.7*** | 0 | 0 | 0 | +2.8 | +6.9 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bread products (Baseline: n=584; Follow-up: n=1740) | **-16.9***** | -12.0*** | -13.0*** | -12.9*** | -5.4*** | +4.5*** | +0.3 | -1,4 | -0,8 | +0.1 | -0.3 | +0.2 |
| Ready-to-eat canned meals (Baseline: n=794; Follow-up: n=2672) | **-23.9***** | -9.9*** | -6.9*** | -10.9*** | -10.4*** | -0.6 | -2.0* | -0,5 | -0.1 | +0.04 | +0.3 | 0 |
| Ready-to-eat fresh meals (Baseline: n=779; Follow-up: n=1416) | **-6.3**** | -8.8*** | -0.2 | -2.6 | -13.2*** | -4.4** | -7.7*** | -0.03 | -0,4 | +0.1 | +0.3 | 0 |
| Ready-to-eat frozen meals (Baseline: n=1861; Follow-up: n=2108) | **-12.8***** | -9.2*** | -3.6*** | -7.1*** | -11.2*** | +1.3 | -4.4*** | -0.3 | -0.1 | -0.1 | +0.6 | 0 |
| Dessert mixes (Baseline: n=160; Follow-up: n=329) | **-9.3**** | -11.7*** | -6.3 | -2.3 | -5.2* | +1.1 | -5.4* | -0.7 | -2.6 | 0 | +0.3 | -1.0 |
| Fresh dairy products and desserts (Baseline: n=1613; Follow-up: n=3115) | **-4.4***** | +1.0 | -17.4*** | -4.0*** | -6.9*** | +6.5*** | -3.1*** | -4.4*** | +0.9* | -4.4*** | +0.4 | -0.1 |
| Fresh delicatessen products (Baseline: n=1141; Follow-up: n=2293) | **-15.1***** | -8.9*** | -13.7*** | -13.2*** | -12.9*** | +3.9** | -2.9*** | -0.3 | -0.2 | -0.1 | -0.1 | -0,4 |
| Processed potato products (Baseline: n=683; Follow-up: n=791) | **+6.6*** | +0.1 | +0.4 | +5.0* | -3.4** | +0.5 | -0.7 | 0 | 0 | -1.4* | -0.02 | 0 |
| Hot sauces (Baseline: n=295; Follow-up: n=609) | **-12.3***** | -9.0** | +5.4* | -0.7 | -6.2*** | +0.5 | -0.7 | -0.2 | 0 | 0 | +0.3 | 0 |
| Cold sauces (Baseline: n=544; Follow-up: n=623) | **+5.3**** | +8.7** | -2.5 | +0.3 | +0.5 | +5.4 | +0.2 | 0 | 0 | +0.1 | +0.4 | 0 |
| Syrups (Baseline: n=316; Follow-up: n=681) | **+0.4** | +4.6 | -36.8*** | +0.3 | 0 | -2.1 | +9.4*** | 0 | 0 | -0.7 | 0 | +0.1 |
| Frozen snacking products (Baseline: n=930; Follow-up: n=1147) | **-0.7** | +2.3 | -9.8*** | -3.8 | -8.8*** | -2.5 | -0.6 | -0.2 | +0.1 | -0.1 | +0.7 | 0 |
| Frozen pastries and desserts (Baseline: n=571; Follow-up: n=608) | **+0.03** | +0.4 | -5.1 | -1.2 | -6.0** | +6.0* | -0.5 | +2.4 | -2.5 | +0.2 | +0.9 | -0.1 |

Purple cells: significant decrease in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness/the class of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness/the class of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test
[1] Other sugars: all mono- and disaccharides, alone or in combination (excluding sucrose, mention of "sugar" and lactose)

At category level, the large reductions seen in all classes combined can almost always be explained by changes in use practices relating to several classes. For example, with Ready-to-eat canned meals, which was the savoury category with the largest significant reduction in the proportion of products using at least one sweetening ingredient or ingredient conveying sweetness (-23.9 points), the change observed can be explained by significant downward changes in five of the 11 classes studied (Other sugars: -10.9 points; Lactose: -10.4 points; Sucrose: -9.9 points; Syrups: -6.9 points and Caramel: -2.0 points). Also of note were Soft drinks, where a significant reduction was observed for all classes combined (-5.6 points). This can mainly be explained by a significant reduction in the use of intense sweeteners (-12.6 points), accompanied with significant falls for the Syrups (-7.7 points) and Caramel (-6.6 points) classes.

Conversely, in this same category, a significant increase of 7.1 points was observed for the Sucrose class. Note that this study is not saying that the nutrient content (and therefore sugar content) of the products studied has changed in the same way, but is rather characterising the use of different types of sweetening ingredients or ingredients conveying sweetness. This last result can be compared with the study of the product offering in this category, which showed that between 2010 and 2019 there was a large reduction in the proportion of artificially-sweetened products (with no added sugars), while the proportion of sugar-sweetened products remained stable and the proportion of products that were both sugar-sweetened and artificially-sweetened increased (Oqali 2023a).

For five categories (Fruit purées, compotes and desserts, Bread products, Fresh dairy products and desserts, Fresh delicatessen products and Frozen pastries and desserts), there was a significant increase in the use of the Fruit juices and concentrates class, while the use of one or more of the other classes fell significantly. The significant increases observed in the other classes were one-off and category-dependent.

**There was a significant increase in the Processed potato products and Cold sauces categories for all classes combined, due to a significant increase in the use of just one class** (respectively, Other sugars: +5.0 points and Sucrose: +8.7 points). Note that for the Processed potato products category, this increase was accompanied by a smaller significant reduction for two other classes (Lactose: -3.4 points; Intense sweeteners: -1.4 points).

Lastly, **there was no significant change by class for the Margarines category, despite this category seeing a significant increase for all classes combined**. However, there was an upward change in the use of two classes of sweetening ingredients or ingredients conveying sweetness: Fruit juices and concentrates (+6.9 points) and Lactose (+2.8 points).

The proportions of products at baseline and follow-up, as well as the changes by class of sweetening ingredients or ingredients conveying sweetness and by product category (27 product categories monitored for changes), are presented in Annex 13.

### 4.3.3 By type of brand

**The use of classes of sweetening ingredients or ingredients conveying sweetness mostly declined for all the types of brands, with many classes decreasing significantly within the same type of brand (2 out of 11 classes for entry-level retailer brands, 3 for specialised retailer brands, 6 for retailer brands and 7 for national brands and hard discount products)**. There were only a few significant increases: in the Fruit juices and concentrates class among national brands (+4.2 points) and specialised retailer brands (+2.7 points), and in the Honey class among specialised retailer brands (+1.6 points).

**The significant changes observed for all products combined by class were therefore driven by several types of brands (except for the Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness and Intense sweeteners classes) (Table 9).**

**Table 9: Change in the frequency of presence by class of sweetening ingredients or ingredients conveying sweetness and by type of brand (27 food categories monitored for changes)**

| Type of brand<br>*(n=total number of products considered in the study, all products combined or by type of brand)* | **Change in the proportion of products, all classes combined or by class of sweetening ingredients or ingredients conveying sweetness (27 product categories monitored for changes)** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **All classes combined** | Sucrose | Syrups | Other sugars[2] | Lactose | Fruit juices and concentrates | Caramel | Other ingredients conveying sugars | Bulk sweeteners | Intense sweeteners | Honey | Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness |
| **All products combined (Baseline: n=19723; Follow-up: n=34737)** | **-5.5*** ** | **-1.9*** ** | **-7.9*** ** | **-7.8*** ** | **-7.6*** ** | **+2.4*** ** | **-2.1*** ** | **-1.0*** ** | **-0.6*** ** | **-0.5*** ** | **+0.01** | **-0.1*** |
| National brands (Baseline: n=5089; Follow-up: n=11532) | **-6.4*** ** | -5.2*** | -7.9*** | -5.6*** | -9.0*** | +4.2*** | -1.2** | -1.6*** | -1.5*** | -0.1 | +0.1 | -0.1 |
| Retailer brands (Baseline: n=8507; Follow-up: n=15075) | **-4.9*** ** | +0.7 | -7.7*** | -8.5*** | -6.8*** | +1.1 | -2.8*** | -0.6** | -0.04 | -1.2*** | -0.2 | -0.04 |
| Entry-level retailer brands (Baseline: n=1117; Follow-up: n=1120) | **-4.0** ** | -1.3 | -6.6*** | -5.0** | -2.5 | +0.9 | -1.2 | -0.5 | +1.2 | +0.4 | -0.7 | -0.1 |
| Hard discount (Baseline: n=3158; Follow-up: n=4361) | **-3.7*** ** | -3.4** | -6.4*** | -3.8*** | -4.6*** | +1.4 | -1.5** | -2.0*** | -0.9* | -0.6 | -0.2 | -0.2 |
| Specialised retailer brands[1] (Baseline: n=1851; Follow-up: n=2185) | **-3.9*** ** | -1.0 | -0.6 | -6.4*** | -5.2*** | +2.7* | -1.8* | +1.1 | +0.2 | -0.03 | +1.6* | -0.3 |

Purple cells: significant decrease in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness/the class of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness/the class of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test
[1] As specialised retailer brands were present in only six product categories out of the 27 studied (5 product categories for which baseline and follow-up data were available: Ice creams and sorbets, Ready-to-eat frozen meals, Processed potato products, Frozen snacking products, Frozen pastries and desserts; 1 product category for which only follow-up data were available: Soups and broths), it is difficult to compare them to the other types of brands.
[2] Other sugars: all mono- and disaccharides, alone or in combination (excluding sucrose, mention of "sugar" and lactose)

The proportions of products at baseline and follow-up, as well as the changes by class of sweetening ingredients or ingredients conveying sweetness and by type of brand, are presented in Annex 14.

## 4.4 Change in combinations of classes of sweetening ingredients or ingredients conveying sweetness

This section looks at the changes in the use, alone or in combination, of classes of sweetening ingredients or ingredients conveying sweetness. Initially (Section *4.4.1*), the changes in the number of different classes found simultaneously in the same product are studied. This is followed by a presentation of the details of the changes in the data on the classes used alone or in combination (Section *4.4.2*).

### 4.4.1 Study of the change in the number of different classes of sweetening ingredients or ingredients conveying sweetness found in the products

#### 4.4.1.1 All products combined

In addition to the significant increase in the number of products using no sweetening ingredients or ingredients conveying sweetness observed previously, the proportion of products using only one class also increased significantly (+3.5 points). Conversely, the proportion of products combining two, three, four, five or six different classes fell significantly (declines ranging from -0.3 points to -3.7 points). Note that the use of seven different classes (maximum number of combined classes found in products) for a few products remained stable between baseline and follow-up. **This reflects a decline in the number of classes of sweetening ingredients or ingredients conveying sweetness used simultaneously in the same product (Table 10).**

**Table 10: Change in the number of different classes of sweetening ingredients or ingredients conveying sweetness found in the same product between baseline and follow-up, all products combined (27 food categories monitored for changes).**

| Number of classes of sweetening ingredients or ingredients conveying sweetness<br>*(n=number of products with the number of classes)* | **Change in the proportion of products according to the number of classes of sweetening ingredients or ingredients conveying sweetness found in the ingredient lists (27 product categories monitored for changes)** | | |
|---|---|---|---|
| | Baseline | Follow-up | ***Change in the proportions (point)*** |
| **No sweetening ingredients or ingredients conveying sweetness (Baseline: n=2655; Follow-up: n=6574)** | **13,5%** | **19%** | ***+5.5****** |
| 1 class<br>(Baseline: n=6461; Follow-up: n=12609) | 33% | 36% | ***+3.5****** |
| 2 classes<br>(Baseline: n=5591; Follow-up: n=9248) | 28% | 27% | ***-1.7***** |
| 3 classes<br>(Baseline: n=3052; Follow-up: n=4100) | 15% | 12% | ***-3.7***** |
| 4 classes<br>(Baseline: n=1386; Follow-up: n=1667) | 7% | 5% | ***-2.2***** |
| 5 classes<br>(Baseline: n=461; Follow-up: n=448) | 2% | 1% | ***-1.0***** |
| 6 classes<br>(Baseline: n=99; Follow-up: n=72) | 1% | 0,2% | ***-0.3***** |
| 7 classes<br>(Baseline: n=18; Follow-up: n=19) | 0,1% | 0,1% | ***-0.04*** |

Purple cells: significant decrease in the frequency of presence of the considered number of classes of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of the considered number of classes of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test

#### 4.4.1.2 By product category

**For 22 of the 27 categories, one or more significant changes were observed, demonstrating a reduction in the number of sweetening ingredients or ingredients conveying sweetness used simultaneously in a product** (Table 11).

**Conversely, for three categories (Margarines, Processed potato products and Cold sauces), the observed changes suggest an increase in the proportion of products using one or more classes to the detriment of the proportion of products with no sweetening ingredients or ingredients conveying sweetness (Table 11).**

Only two categories (Chocolate products, and Frozen pastries and desserts) saw no significant change.

**Table 11: Change in the number of different classes of sweetening ingredients or ingredients conveying sweetness found in the same product between baseline and follow-up, by food category (27 categories monitored for changes).**

| Product category<br>*(n=total number of products considered for trends, by product category)* | **Change in the proportion of products according to the number of classes of sweetening ingredients or ingredients conveying sweetness found in the ingredient lists (27 product categories monitored for changes)** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **No sweetening ingredients or ingredients conveying sweetness** | 1 class | 2 classes combined | 3 classes combined | 4 classes combined | 5 classes combined | 6 classes combined | 7 classes combined |
| **All products combined (Baseline: n=19723; Follow-up: n=34737)** | **+5.5*** ** | **+3.5*** ** | **-1.7*** ** | **-3.7*** ** | **-2.2*** ** | **-1.0*** ** | **-0.3*** ** | **-0.04** |
| Crackers (Baseline: n=551; Follow-up: n=1082) | **+2.5** | +0.6 | +0.01 | -3.4** | +0.3 | 0 | 0 | 0 |
| Cereal bars (Baseline: n=169; Follow-up: n=181) | **0** | -0.7 | -2.8 | +13.6*** | +16.0** | -10.1* | -12.5*** | -3,6 |
| Cakes and biscuits (Baseline: n=1723; Follow-up: n=3120) | **+0.1** | +7.7*** | +0.4 | -2.8* | -2.9** | -2.6*** | -0.01 | +0.04 |
| Soft drinks (Baseline: n=891; Follow-up: n=2343) | **+5.6*** ** | +3.7* | -6.4** | -2.1 | -0.6 | -0,3 | 0 | 0 |
| Soups and broths (Baseline: n=569; Follow-up: n=788) | **+5.7*** | +0.4 | -3.3 | -1.5 | -1.1 | -0.2 | 0 | 0 |
| Breakfast cereals (Baseline: n=332; Follow-up: n=659) | **+7.3*** ** | -6.0 | +8.7** | +0.9 | -7.8*** | -2.9** | -0.3 | 0 |
| Delicatessen meats (Baseline: n=1161; Follow-up: n=1722) | **+5.7*** ** | -4.1* | +0.7 | -2.0 | -0.5 | +0.2 | 0 | 0 |
| Chocolate products (Baseline: n=731; Follow-up: n=1013) | **+0.1** | +2.9 | -3.1 | +1.0 | -0.9 | -0.01 | -0.02 | +0.1 |
| Fruit purées, compotes and desserts (Baseline: n=480; Follow-up: n=972) | **+2.3** | +3.5 | -5.6** | -0.3 | 0 | 0 | 0 | 0 |
| Jams (Baseline: n=337; Follow-up: n=781) | **0** | +20.9*** | -17.1*** | -3.0* | -0,9 | 0 | 0 | 0 |
| Canned fruits (Baseline: n=181; Follow-up: n=245) | **0** | +20.6*** | -18.2*** | -2,4 | 0 | 0 | 0 | 0 |
| Ice-creams and sorbets (Baseline: n=1416; Follow-up: n=1953) | **0** | +0.7 | +0.7 | +4.1* | -1.6 | -2.2 | -1.7** | +0.1 |
| Fruit juices and nectars (Baseline: n=816; Follow-up: n=1637) | **+2.2*** | -1.7 | +0.6 | -1.2* | +0.1 | 0 | 0 | 0 |
| Margarines (Baseline: n=95; Follow-up: n=109) | **-9.7*** | +9.7* | 0 | 0 | 0 | 0 | 0 | 0 |
| Bread products (Baseline: n=584; Follow-up: n=1740) | **+16.9*** ** | -0.1 | -11.2*** | -4.8*** | -0.1 | -0,7 | 0 | 0 |
| Ready-to-eat canned meals (Baseline: n=794; Follow-up: n=2672) | **+23.9*** ** | -10.6*** | -10.5*** | -1.8* | -0.8* | -0.1 | 0 | 0 |
| Ready-to-eat fresh meals (Baseline: n=779; Follow-up: n=1416) | **+6.3**** | +9.1*** | -3.9* | -7.5*** | -4.2*** | +0.2 | +0.1 | 0 |
| Ready-to-eat frozen meals (Baseline: n=1861; Follow-up: n=2108) | **+12.8*** ** | -2.1 | -2.9* | -5.7*** | -1.4** | -0.6* | -0.1 | 0 |
| Dessert mixes (Baseline: n=160; Follow-up: n=329) | **+9.3**** | +4.6 | -6.2 | -4.8 | -2,8 | 0 | 0 | 0 |
| Fresh dairy products and desserts (Baseline: n=1613; Follow-up: n=3115) | **+4.4*** ** | +9.5*** | -4.0** | -7.3*** | -2.3*** | -0.1 | +0.004 | -0,2 |
| Fresh delicatessen products (Baseline: n=1141; Follow-up: n=2293) | **+15.1*** ** | +1.5 | -4.9** | -7.1*** | -3.7*** | -0.8* | -0.04 | 0 |
| Processed potato products (Baseline: n=683; Follow-up: n=791) | **-6.6*** | +10.3*** | -2.0 | -1.2 | -0,6 | 0 | 0 | 0 |
| Hot sauces (Baseline: n=295; Follow-up: n=609) | **+12.3*** ** | -12.4*** | -0.7 | +0.2 | +0.6 | 0 | 0 | 0 |
| Cold sauces (Baseline: n=544; Follow-up: n=623) | **-5.3**** | +2.0 | -0.7 | +3.3* | +0.6 | 0 | 0 | 0 |
| Syrups (Baseline: n=316; Follow-up: n=681) | **-0.4** | +4.7* | +17.2*** | -21.9*** | +0.4 | 0 | 0 | 0 |
| Frozen snacking products (Baseline: n=930; Follow-up: n=1147) | **+0.7** | +6.3** | +2.8 | -5.4*** | -3.1** | -1.5* | +0.2 | +0.1 |
| Frozen pastries and desserts (Baseline: n=571; Follow-up: n=608) | **-0.03** | +3.6 | -1.8 | -0.3 | -2.2 | +0.4 | -0.2 | +0.5 |

Purple cells: significant decrease in the frequency of presence of the considered number of classes of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of the considered number of classes of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test

The proportions of products with no sweetening ingredients or using one or several classes of sweetening ingredients at baseline and follow-up, as well as the changes by number of classes of sweetening ingredients or ingredients conveying sweetness and by product category (27 product categories monitored for changes), are presented in Annex 15.

#### 4.4.1.3 By type of brand

**For all the types of brands, there was a reduction in the cumulative use of several classes of sweetening ingredients or ingredients conveying sweetness in the same product (Table 12).** In particular, there were many significant changes observed for national brands, retailer brands and hard discount products, while fewer were seen for entry-level retailer brands and specialised retailer brands. As a reminder, the share of products with no sweetening ingredients or ingredients conveying sweetness increased for every type of brand.

**Table 12: Change in the number of different classes of sweetening ingredients or ingredients conveying sweetness found in the same product between baseline and follow-up, by type of brand (27 food categories monitored for changes).**

| Type of brand *(n=total number of products considered for changes, by type of brand)* | Change in the proportion of products according to the number of classes of sweetening ingredients or ingredients conveying sweetness found in the ingredient lists (27 product categories monitored for changes) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **No sweetening ingredients or ingredients conveying sweetness** | 1 class | 2 classes combined | 3 classes combined | 4 classes combined | 5 classes combined | 6 classes combined | 7 classes combined |
| **All products combined (Baseline: n=19723; Follow-up: n=34737)** | **+5.5***** | **+3.5***** | **-1.7***** | **-3.7***** | **-2.2***** | **-1.0***** | **-0.3***** | **-0.04** |
| National brands (Baseline: n=5089; Follow-up: n=11532) | **+6.4***** | +2.2** | -2.2** | -2.3*** | -2.3*** | -1.5*** | -0.4*** | +0.04 |
| Retailer brands (Baseline: n=8507; Follow-up: n=15075) | **+4.9***** | +4.2*** | -1.6** | -4.5*** | -1.9*** | -0.8*** | -0.3*** | -0.05 |
| Entry-level retailer brands (Baseline: n=1117; Follow-up: n=1120) | **+4.0**** | +2.3 | -3.6 | -1.9 | -0.1 | -0.3 | -0.2 | -0.3 |
| Hard discount (Baseline: n=3158; Follow-up: n=4361) | **+3.7***** | +3.3** | -1.1 | -1.9* | -2.8*** | -0.7* | -0.3** | -0,1 |
| Specialised retailer brands[1] (Baseline: n=1851; Follow-up: n=2185) | **+3.9***** | +0.5 | -2.1 | -2.7* | +0.2 | +0.1 | -0.1 | +0.2 |

Purple cells: significant decrease in the frequency of presence of the considered number of classes of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of the considered number of classes of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test
[1] As specialised retailer brands were present in only six product categories out of the 27 studied (5 product categories for which baseline and follow-up data were available: Ice creams and sorbets, Ready-to-eat frozen meals, Processed potato products, Frozen snacking products, Frozen pastries and desserts; 1 product category for which only follow-up data were available: Soups and broths), it is difficult to compare them to the other types of brands.

The proportions of products at baseline and at follow-up, as well as the changes by number of different classes of sweetening ingredients or ingredients conveying sweetness and by type of brand (27 product categories monitored for changes), are presented in Annex 16.

### 4.4.2 Study of the change in the use of combinations of classes of sweetening ingredients or ingredients conveying sweetness found in the products

This study details the changes in the use of classes of sweetening ingredients or ingredients conveying sweetness depending on whether they were used alone or in combination. A total of 346 different combinations were found for all the products studied, at baseline and/or follow-up. While 225 combinations were found over the two periods considered, 61 were only present at baseline and 60 only at follow-up. All these results, for all products combined, are available in Excel format on the OQALI website "Changes in the use of sweetening ingredients or ingredients conveying sweetness" and tab "Co_occurrence without grou_prod".

Of these 346 combinations, only 17 were used in 1% or more of the products. It was therefore decided to group together the classes that were absent from these 17 most commonly used combinations, i.e. Caramel, Other ingredients conveying sugars, Bulk sweeteners, Honey and Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness, to form the "Other classes" combination. Note that the Intense sweeteners class was

not found among the 17 most commonly used combinations, but as these substances were considered to be a particular case, they were not included in "Other classes".

#### 4.4.2.1 All products combined

After grouping the classes together as mentioned above, 109 combinations were found in at least one product, 21 of which were found in 1% or more of products at baseline. Again, combinations with frequency of presence values below 1% at baseline, all products combined, were grouped together in "Other combinations". Twenty-two combinations have therefore been detailed below. These same groupings were used to conduct analyses by product category and type of brand. Note that combinations including substances from the Intense sweeteners class, which was not included in "Other classes", were used very little and have therefore been added to "Other combinations". The results without this last grouping are available in Excel format on the OQALI website "Changes in the use of sweetening ingredients or ingredients conveying sweetness" and tab "Co_occurrence with group_prod".

**Most combinations of classes of sweetening ingredients or ingredients conveying sweetness fell significantly. Conversely, the use of three combinations increased significantly (Table 13).**

**Table 13: Change in the proportion of products by combination of sweetening ingredients or ingredients conveying sweetness considered, all products combined (27 food categories monitored for changes; sorted in descending order of the proportion of products with each of the combinations considered, at baseline).**

| Combinations of classes of sweetening ingredients or ingredients conveying sweetness found in the products<br><br>*(n=number of products with the combination considered)* | **Change in the proportion of products with the combination of classes of sweetening ingredients or ingredients conveying sweetness considered, all products combined (27 product categories monitored for changes)** | | |
|---|---|---|---|
| | Baseline | Follow-up | ***Change in the proportions (point)*** |
| **at least one sweetening ingredient or ingredient conveying sweetness<br>(Baseline: n=17068; Follow-up: n=28163)** | **86,5%** | **81%** | ***-5.5****** |
| sucrose<br>(Baseline: n=3576; Follow-up: n=7741) | 18% | 22% | ***+4.2****** |
| other combinations[1]<br>(Baseline: n=2452; Follow-up: n=3170) | 12% | 9% | ***-3.3****** |
| sucrose / syrups<br>(Baseline: n=1549; Follow-up: n=2293) | 8% | 7% | ***-1.3****** |
| other sugars<br>(Baseline: n=963; Follow-up: n=1526) | 5% | 4% | ***-0.5**** |
| fruit juices and concentrates<br>(Baseline: n=954; Follow-up: n=2130) | 5% | 6% | ***+1.3****** |
| sucrose / fruit juices and concentrates<br>(Baseline: n=923; Follow-up: n=2721) | 5% | 8% | ***+3.2****** |
| sucrose / other sugars<br>(Baseline: n=873; Follow-up: n=1167) | 4% | 3% | ***-1.1****** |
| sucrose / syrups / lactose<br>(Baseline: n=609; Follow-up: n=815) | 3% | 2% | ***-0.7****** |
| sucrose / lactose<br>(Baseline: n=547; Follow-up: n=657) | 3% | 2% | ***-0.9****** |
| sucrose / syrups / fruit juices and concentrates<br>(Baseline: n=526; Follow-up: n=714) | 3% | 2% | ***-0.6****** |
| sucrose / other classes[2]<br>(Baseline: n=469; Follow-up: n=846) | 2% | 2% | ***+0.1*** |
| sucrose / syrups / other classes[2]<br>(Baseline: n=431; Follow-up: n=789) | 2% | 2% | ***+0.1*** |
| sucrose / syrups / other sugars<br>(Baseline: n=402; Follow-up: n=487) | 2% | 1% | ***-0.6****** |
| lactose<br>(Baseline: n=393; Follow-up: n=369) | 2% | 1% | ***-0.9****** |
| sucrose / syrups / lactose / other classes[2]<br>(Baseline: n=352; Follow-up: n=472) | 2% | 1% | ***-0.4****** |
| sucrose / other sugars / lactose<br>(Baseline: n=349; Follow-up: n=312) | 2% | 1% | ***-0.9****** |
| syrups<br>(Baseline: n=342; Follow-up: n=523) | 2% | 2% | ***-0.2**** |
| sucrose / syrups / other sugars / lactose<br>(Baseline: n=313; Follow-up: n=284) | 2% | 1% | ***-0.8****** |
| syrups / other sugars<br>(Baseline: n=311; Follow-up: n=388) | 2% | 1% | ***-0.5****** |
| other sugars / lactose<br>(Baseline: n=279; Follow-up: n=305) | 1% | 1% | ***-0.5****** |
| sucrose / syrups / other sugars / other classes[2]<br>(Baseline: n=253; Follow-up: n=299) | 1% | 1% | ***-0.4****** |
| sucrose / syrups / other sugars / lactose / other classes[2]<br>(Baseline: n=202; Follow-up: n=155) | 1% | 0,4% | ***-0.6****** |

[1] "Other combinations" groups together combinations of classes whose frequency of presence was below 1% at baseline, all product categories combined

[2] "Other classes" groups together the following classes: Caramel, Other ingredients conveying sugars, Bulk sweeteners, Honey, and Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness

Purple cells: significant decrease in the frequency of presence of the combination of classes of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)

Orange cells: significant increase in the frequency of presence of the combination of classes of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)

Statistical test performed: chi-square test

Indeed, of the 22 most commonly used combinations, 17 saw a significant decline in use between baseline and follow-up (ranging from -0.2 points to -3.3 points). Thirteen of these 17 combinations simultaneously combined between two and five classes of sweetening ingredients or ingredients conveying sweetness.

**Conversely, the use of Sucrose alone, Fruit juices and concentrates alone and the combination of these two classes (Sucrose/Fruit juices and concentrates) increased significantly** (+4.2 points, +1.3 points and +3.2 points, respectively). Note that use of the Sucrose class alone was the combination most frequently found at both baseline (18%) and follow-up (22%). In addition, these three combinations only involved a single class or a combination of two classes.

These results were therefore consistent with what was observed by class of sweetening ingredients or ingredients conveying sweetness (Section *4.3.1. All products combined*) with the significant increase in the use of the Fruit juices and concentrates class and the significant decrease in the use of the other classes (except for Honey), as well as by number of combined classes (Section *4.4.1.1. All products combined*) with the significant increase in the proportion of products using no sweetening ingredients or ingredients conveying sweetness or only one class, while there was a fall in the simultaneous use of a greater number of classes.

#### 4.4.2.2 By product category

The change in the use of combinations of sweetening ingredients or ingredients conveying sweetness, by product category, is available in Excel format on the OQALI website "Changes in the use of sweetening ingredients or ingredients conveying sweetness" and tab "Co_occurren with group_category".

Among the 27 product categories studied, not all class combinations were found for each category. Only six product categories contained all 22 combinations studied: Ready-to-eat canned meals, Ready-to-eat fresh meals, Ready-to-eat frozen meals, Fresh dairy products and desserts, Fresh delicatessen products and Frozen snacking products. **For the majority of product categories, the frequency of presence for many combinations was stable between baseline and follow-up**.

**Among the combinations that changed significantly between baseline and follow-up, the vast majority saw a significant fall**: with the exception of the Margarines, Dessert mixes, Cold sauces and Frozen pastries and desserts categories, for which none of the combinations changed significantly, **all categories had at least one combination whose use fell significantly (ranging from -0.6 points to -24.6 points)**. The significant changes observed all concerned declines, for three categories, and partly explain the significant reduction in the use of at least one sweetening ingredient or ingredient conveying sweetness observed at category level: Delicatessen meats (-3.6 points for Other sugars), Hot sauces (-7.4 points for Sucrose) and Ready-to-eat canned meals (8 combinations decreased significantly ranging from -1.5 points to -3.2 points).

**For 19 of the 27 product categories studied, the use of at least one combination increased significantly between baseline and follow-up, but was each time accompanied by a significant reduction for at least one other combination**. For 10 product categories, **the significant increase in the use of one or more combinations was not sufficient to offset the significant decreases observed for other combinations:**

- **Soft drinks**, **Ready-to-eat fresh meals**, **Ready-to-eat frozen meals**, **Fresh dairy products and desserts** and **Fresh delicatessen products** (between 2 and 3 combinations increased, while 3 to 8 combinations decreased);

- **Soups and broths**, **Breakfast cereals**, **Fruit juices and nectars**, **Bread products** and **Ready-to-eat frozen meals** (only 1 combination increased significantly, while 1 to 8 combinations decreased significantly).

**For 10 categories, the significant reduction in the use of certain combinations offset the use of those that increased significantly, partly explaining why no significant change was observed at category level**. This was the case with the following 10 categories: **Cakes and biscuits**, **Frozen snacking products, Chocolate products**, **Ice creams and sorbets**, **Fruit purées, compotes and desserts**, **Syrups**, **Cereal bars**, **Jams**, **Canned fruits** and **Crackers**.

Lastly, in the **Processed potato products** category, the significant increase in the proportion of products with at least one sweetening ingredient or ingredient conveying sweetness observed at category level can be explained by the significantly increased use of three combinations, while only one combination was used significantly less.

Among the combinations whose use increased significantly, **the use of the Fruit juices and concentrates class alone and/or in combination with the Sucrose class increased significantly for 10 categories**: Cakes and biscuits, Soft drinks, Soups and broths, Fruit purées, compotes and desserts, Fruit juices and nectars, Bread products, Ready-to-eat frozen meals, Fresh dairy products and desserts, Fresh delicatessen products, as well as Syrups.

#### 4.4.2.3 By type of brand

The change in the use of combinations of sweetening ingredients or ingredients conveying sweetness, by type of brand, is available in Excel format on the OQALI website "Changes in the use of sweetening ingredients or ingredients conveying sweetness" and tab "Co_occurren with group_brands".

All the types of brands had all 22 of the combinations studied at baseline and/or follow-up. **The number of combinations with significant changes differed between types of brands, ranging from five combinations for entry-level retailer brands to 16 for retailer brands**. **Furthermore, every type of brand had combinations whose use fell significantly** (ranging from -0.2 points to -4.2 points), **while a smaller number of combinations saw a significant increase** (ranging from +0.5 points to +5.9 points).

Thus, for **national brands**, **retailer brands** and **hard discount** products, a significant increase was observed for the Sucrose class alone, the Fruit juices and concentrates class alone and the combination of these two classes (Sucrose/Fruit juices and concentrates). It should be noted that hard discount products also had a significantly higher proportion of products using the Syrups/Other sugars combination. Conversely, the use of a large number of combinations fell significantly: 12 significant decreases for national brands, 13 for retailer brands and eight for hard discount products.

As with the national brands, retailer brands and hard discount products, **entry-level retailer brands** saw a significant increase in the use of the Sucrose class alone. In addition, the use of Sucrose/Syrups/Lactose/Other classes also increased significantly for this type of brand while, conversely, three combinations were used significantly less between baseline and follow-up: Sucrose/Syrups, Sucrose/Other sugars/Lactose and the Lactose class alone.

Lastly, **specialised retailer brands** saw a significant increase for two combinations (Fruit juices and concentrates class used alone; Sucrose/Syrups/Other sugars/Other classes) while a

significant decrease was observed for six combinations. As a reminder, because this type of brand focuses on frozen foods, it is difficult to compare it with the other types of brands.

## 4.5 Study of reformulation regarding sweetening ingredients or ingredients conveying sweetness for products present at both baseline and follow-up

This section details the changes concerning the use of classes of sweetening ingredients or ingredients conveying sweetness for paired products, i.e. in products that were present at both baseline and follow-up, in a strictly identical or modified form. The aim is to determine whether the changes observed previously can be partly explained by reformulations of pre-existing products. As a reminder, the numbers and proportions of paired products studied in the part on changes in the use of sweetening ingredients or ingredients conveying sweetness are presented by category and type of brand in Annex 17.

### 4.5.1 Change in the frequency of presence by class of sweetening ingredients or ingredients conveying sweetness

Contrary to what was observed for all the products taken into account for the change study, **there was no significant change in the use of at least one sweetening ingredient or ingredient conveying sweetness for all the paired products**: a downward change was however noted (-0.5 points; Table 14). **In addition, fewer significant changes were observed for all the paired products than for all products combined** (paired and non-paired), **but they were still in the same direction** (Table 8, Table 9 and Table 14).

Of the 11 classes of sweetening ingredients or ingredients conveying sweetness, **four saw a significant decline in use** (Syrups: -3.9 points; Lactose: -3.6 points; Other sugars: -2.7 points and Caramel: -1.3 points). There was also a **significant increase in the Fruit juices and concentrates class** (+1.7 points). These five classes all therefore changed significantly in the same direction, whether it concerned just the paired products or all the products taken into account for the change study. This means that for these classes, reformulations of existing products took place between baseline and follow-up, which may partly explain the changes observed for all the products taken into account for the change study.

By product category and for all classes combined, only the Ready-to-eat canned meals category saw a significant decline in the use of at least one sweetening ingredient or ingredient conveying sweetness, for the paired products (-7.8 points). In addition, 15 product categories saw a significant change in use, most often a decline, for at least one class of sweetening ingredients or ingredients conveying sweetness, without this leading to a significant change at category level.

Lastly, as at class and category levels, the number of significant changes observed for paired products at type of brand level was small compared with that observed for all products taken into account (paired and non-paired products combined) and no significant change was observed for all classes combined. Among the five types of brands studied, only three saw significant changes for one or more classes, most often reductions (1 change for national brands, 2 for hard discount products and 5 for retailer brands).

**Table 14: Change in the frequency of presence by class of sweetening ingredients or ingredients conveying sweetness, all products combined, by food category and by type of brand, for paired products (27 categories monitored for changes)**

| Product category<br>(n=total number of products considered for the pairs, all paired products combined, by product category and by type of brand) | Change in the proportion of paired products (27 product categories monitored for changes) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **All classes combined** | Sucrose | Syrups | Other sugars[1] | Lactose | Fruit juices and concentrates | Caramel | Other ingredients conveying sugars | Bulk sweeteners | Intense sweeteners | Honey | Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness |
| **All products combined (number of paired products: n=10549)** | ***-0.5*** | ***-0.3*** | ***-3.9****** | ***-2.7****** | ***-3.6****** | ***+1.7**** | ***-1.3****** | ***-0.5*** | ***-0.3*** | ***+0.1*** | ***-0.1*** | ***-0.1*** |
| **By product category** | | | | | | | | | | | | |
| Crackers (number of paired products: n=382) | +1.0 | 0 | 0 | -2.9 | -3.7 | 0 | +0.3 | -0.3 | +0.3 | 0 | 0 | 0 |
| Cereal bars (number of paired products: n=83) | 0 | 0 | 0 | -6.0 | -10.8* | -2.4 | -20.5*** | -3.6 | +8.4 | 0 | -19.3*** | 0 |
| Cakes and biscuits (number of paired products: n=676) | 0 | +0.9 | -0.6 | -5.8** | -5.8** | +1.2 | -2.1* | 0 | -3.8* | 0 | -0.6 | -0.3 |
| Soft drinks (number of paired products: n=395) | -1.0 | +2.8 | -13.4*** | +0.5 | 0 | -2.0 | -0.8 | -0.3 | 0 | +5.3 | -0.5 | -0.3 |
| Soups and broths (number of paired products: n=298) | +1.7 | +5.7 | +3.4 | -2.0 | -5.7 | +1.3 | -2.0 | 0 | 0 | 0 | 0 | 0 |
| Breakfast cereals (number of paired products: n=151) | 0 | -0.7 | +1.3 | -12.6*** | -0.7 | +0.7 | -11.9*** | +4.0 | 0 | 0 | -6 | -2.6 |
| Delicatessen meats (number of paired products: n=746) | +0.5 | +1.1 | +2.1 | -1.7 | -2.4 | 0 | +0.4 | 0 | -0.1 | 0 | 0 | 0 |
| Chocolate products (number of paired products: n=466) | 0 | 0 | -1.3 | -1.9 | +0.4 | 0 | +0.2 | +2.4 | 0 | 0 | +0.2 | 0 |
| Fruit purées, compotes and desserts (number of paired products: n=230) | +4.3 | 0 | -12.2*** | -0.4 | 0 | +10.9*** | 0 | 0 | 0 | 0 | 0 | 0 |
| Jams (number of paired products: n=239) | 0 | +0.4 | -12.1*** | -10.5*** | 0 | -2.1 | 0 | +0.4 | 0 | 0 | 0 | 0 |
| Canned fruits (number of paired products: n=97) | 0 | +1.0 | -6.2 | 0 | 0 | -2.1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ice creams and sorbets (number of paired products: n=826) | 0 | +0.5 | -0.6 | -11.1*** | -4.1 | +0.6 | -0.1 | -3.4 | -0.2 | -0.1 | +0.7 | 0 |
| Fruit juices and nectars (number of paired products: n=534) | +0.4 | +2.1 | -2.4 | -0.2 | 0 | +0.6 | 0 | 0 | 0 | +0.7 | 0 | 0 |
| Margarines (number of paired products: n=77) | +3.9 | 0 | 0 | 0 | 0 | +3.9 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bread products (number of paired products: n=331) | +0.3 | +2.1 | -6.9* | -10.6*** | -4.5* | +6.6*** | 0 | -0.6 | -0.6 | 0 | 0 | 0 |
| Ready-to-eat canned meals (number of paired products: n=396) | -7.8* | -3.3 | 0 | -4.5 | -9.1*** | +2.3 | -2.8 | -0.3 | -0.3 | 0 | 0 | 0 |
| Ready-to-eat fresh meals (number of paired products: n=347) | -3.5 | -2.0 | -3.7 | -5.8 | -11.0*** | +2.9 | -4.6* | -0.6 | 0 | 0 | +1.7 | 0 |
| Ready-to-eat frozen meals (number of paired products: n=745) | -4.7 | -7.8** | -0.8 | -2.0 | -9.4*** | +6.3*** | -3.8** | -0.4 | 0 | 0 | +0.3 | 0 |
| Dessert mixes (number of paired products: n=82) | 0 | 0 | -8.5 | +2.4 | -2.4 | -1.2 | 0 | -2.4 | +1.2 | 0 | 0 | 0 |
| Fresh dairy products and desserts (number of paired products: n=769) | -1.2 | +0.5 | -11.4*** | -1.6 | -1.6 | +1.2 | -3.1* | -3.0** | +0.4 | -0.3 | +0.1 | -0.1 |
| Fresh delicatessen products (number of paired products: n=590) | -3.7 | -4.9 | -8.8*** | +4.1 | -6.8** | +1.7 | -2.2 | -0.8 | -0.8 | 0 | -0.2 | -0.2 |
| Processed potato products (number of paired products: n=437) | +5.7 | -0.7 | +0.2 | +4.6 | -0.5 | 0 | -1.4 | 0 | 0 | -1.8* | 0 | 0 |
| Hot sauces (number of paired products: n=183) | +2.2 | +2.2 | +6.6* | +2.7 | -9.3** | +5.5 | -1.1 | +0.5 | 0 | 0 | 0 | 0 |
| Cold sauces (number of paired products: n=368) | 0 | +3.8 | -6.0 | +0.3 | +0.8 | +4.9 | -1.6 | 0 | 0 | 0 | 0 | 0 |
| Syrups (number of paired products: n=195) | 0 | +5.1 | -33.8*** | 0 | 0 | 0 | +13.8*** | 0 | 0 | 0 | 0 | 0 |
| Frozen snacking products (number of paired products: n=531) | -0.6 | -3.2 | -4.7 | -2.3 | -2.6 | -0.8 | -0.8 | -0.2 | 0 | +0.2 | +0.2 | 0 |
| Frozen pastries and desserts (number of paired products: n=375) | 0 | +0.8 | -2.4 | -2.7 | -1.6 | +3.5 | +0.5 | +0.8 | -0.8 | 0 | 0 | +0.5 |
| **By type of brand[2]** | | | | | | | | | | | | |
| National brands (number of paired products: n=2043) | 0 | +0.2 | -1.4 | -1.6 | -3.6** | +2.2 | -1.1 | -0.8 | -0.4 | +0.9 | +0.1 | -0.2 |
| Retailer brands (number of paired products: n=5274) | -0.9 | -0.5 | -5.5*** | -3.2*** | -4.2*** | +1.6* | -1.4** | -0.4 | -0.2 | -0.1 | -0.3 | 0 |
| Entry-level retailer brands (number of paired products: n=607) | -0.7 | +0.7 | -4.0 | -1.0 | -2.5 | -0.2 | -0.7 | -0.5 | -0.5 | +1 | -0.5 | -0.2 |
| Hard discount (number of paired products: n=1583) | 0 | +0.4 | -3.9* | -3.1* | -2.6 | +1.7 | -1.3 | -0.5 | -0.3 | -0.3 | -0.4 | -0.2 |
| Specialised retailer brands[3] (number of paired products: n=1041) | -0.6 | -1.5 | -0.9 | -3.3 | -3.0 | +2.2 | -1.5 | -0.3 | -0.1 | 0 | +0.6 | -0.1 |

Purple cells: significant decrease in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness/the class of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness/the class of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test
[1] Other sugars: all mono- and disaccharides alone or in combination (excluding sucrose, mention of "sugar" and lactose)
[2] Results for specialised organic retailer brands are not included (insufficient coverage)
[3] As specialised retailer brands were present in only six product categories out of the 27 studied (5 product categories for which baseline and follow-up data were available: Ice creams and sorbets, Ready-to-eat frozen meals, Processed potato products, Frozen snacking products, Frozen pastries and desserts; 1 product category for which only follow-up data were available: Soups and broths), it is difficult to compare them to the other types of brands.

The proportions of paired products at baseline and follow-up, as well as the changes for paired products by class of sweetening ingredients or ingredients conveying sweetness and for all products combined, by product category and by type of brand, are presented in Annex 18.

### 4.5.2 Change in combinations of classes of sweetening ingredients or ingredients conveying sweetness in the paired products

#### 4.5.2.1 Change in the number of different classes of sweetening ingredients or ingredients conveying sweetness found in the paired products

**All paired products combined, almost three-quarters** (73%; n=7,735) **saw no change in the number of different classes of sweetening ingredients or ingredients conveying sweetness used between baseline and follow-up** (Figure 38). **Nineteen per cent of products** (n=1,963) **saw a decreasing number of classes, while a higher number of classes were used in only 8% of products** (n=851) (Figure 38). **Overall, these same changes were found by product category** (Figure 39) **and by type of brand** (Figure 40).

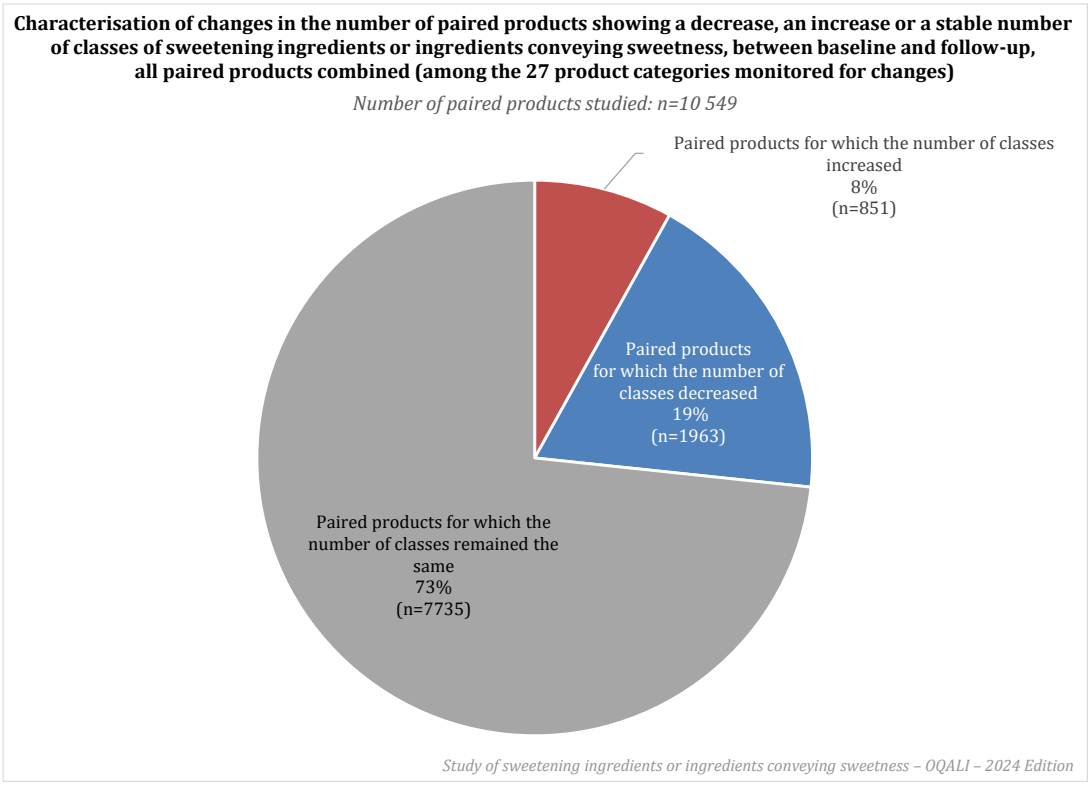



**Figure 38: Proportion of paired products for which the number of different classes of sweetening ingredients or ingredients conveying sweetness remained the same, increased or decreased, all paired products combined (among the 27 food categories monitored for changes).**

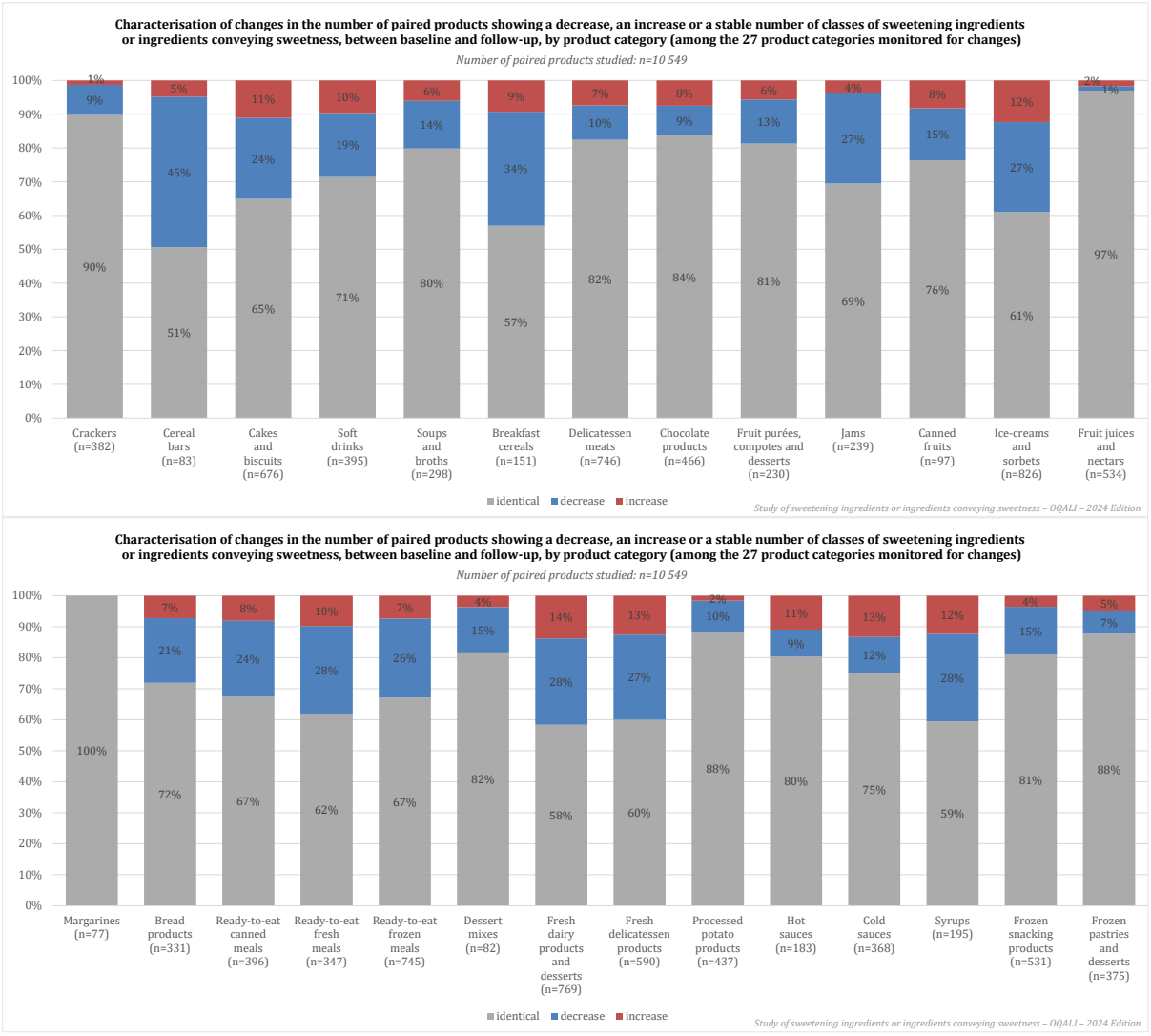



**Figure 39: Proportion of paired products for which the number of different classes of sweetening ingredients or ingredients conveying sweetness remained the same, increased or decreased, by food category (27 categories monitored for changes).**

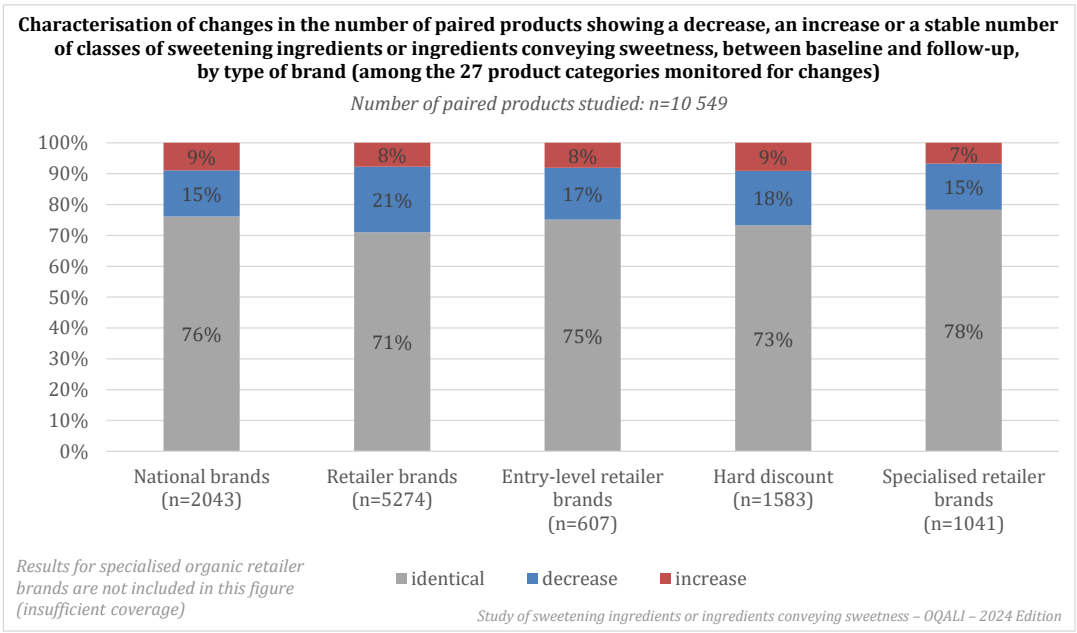



**Figure 40: Proportions of paired products for which the number of different classes of sweetening ingredients or ingredients conveying sweetness remained the same, increased or decreased, by type of brand (27 food categories monitored for changes).**

The proportion of products for which the number of classes remained stable varied from 51% (Cereal bars) to 100% (Margarines) for the product categories, and from 71% (retailer brands) to 78% (specialised retailer brands) for the types of brands. The proportion of products for which the number of classes decreased between baseline and follow-up varied from 0% (Margarines) to 45% (Cereal bars) for the product categories, and from 15% (national brands, specialised retailer brands) to 21% (retailer brands) for the types of brands. Lastly, the proportion of products for which the number of classes increased varied from 0% (Margarines) to 14% (Fresh dairy products and desserts) for the product categories, and from 7% (specialised retailer brands) to 9% (national brands, hard discount) for the types of brands. Thus, the numbers of classes found in the products both decreased and increased in all the categories except for Margarines.

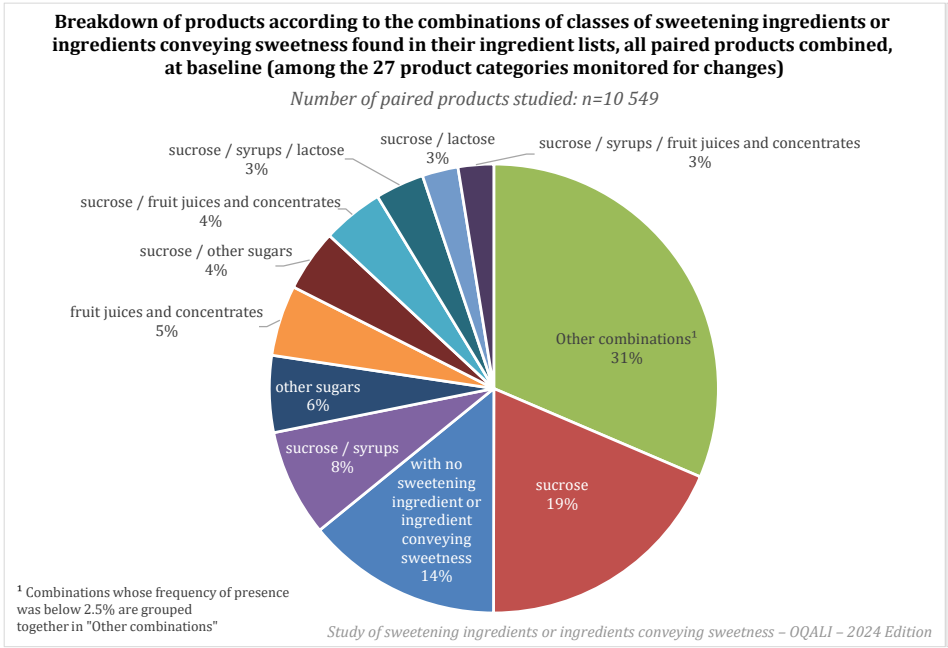
**Note that an identical number of classes does not necessarily mean that there was no change in the use of classes of sweetening ingredients or ingredients conveying sweetness: the number of classes may have remained the same, but there may have been substitutions, with one class replacing another.**

#### 4.5.2.2 Change in the most commonly used combinations of classes of sweetening ingredients or ingredients conveying sweetness

As with the previous sections on combinations of classes (Section *3.4. Combinations of classes of sweetening ingredients or ingredients conveying sweetness* and Section *4.4. Change in combinations of classes of sweetening ingredients or ingredients conveying sweetness*), a descriptive study of the combinations required groupings to be made for the least used ingredient classes. The "Other classes" combination therefore includes the following classes: Caramel, Other ingredients conveying sugars, Bulk sweeteners, Honey, and Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness (i.e. 5 of the 11 classes studied). In addition, combinations of classes with a frequency of presence below 2.5% were grouped together in "Other combinations".

**Overall, the most commonly used combinations of classes of sweetening ingredients or ingredients conveying sweetness were the same at both baseline and follow-up, and in fairly similar proportions (Figure 41). This means that, overall for all paired products combined, there were no major substitutions of one class or combination of classes by another.**

As observed for all products combined (Section *4.4.2.1*), the Sucrose class used alone was also the most commonly used combination for the paired products (found in 19% of paired products at baseline and 21% at follow-up). The second most common combination at both baseline and follow-up was Sucrose/Syrups (8% and 7% of paired products, respectively). The use of "Other sugars" alone remained stable (6% of paired products) (Figure 41).



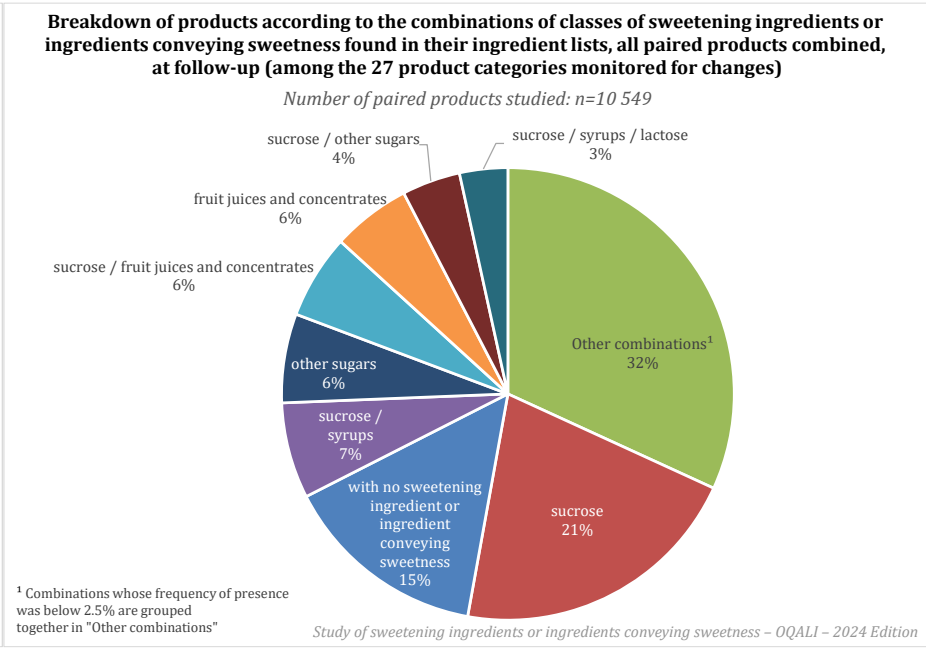




**Figure 41: Breakdown of paired products by the most commonly used combination of sweetening ingredients or ingredients conveying sweetness found in the ingredient lists, all paired products combined, at baseline and at follow-up (among the 27 food categories monitored for changes).**

## 4.6 Change in the use of intense sweeteners

This section focuses on the use of intense sweeteners and supplements the previous sections by providing more detail on the changes for each intense sweetener. In the remainder of this section, the term "sweetened" refers only to intense sweeteners and does not include bulk sweeteners.

### 4.6.1 Change in the frequency of presence by intense sweetener

#### 4.6.1.1 All products combined

As a reminder, **uses of at least one intense sweetener fell significantly between baseline and follow-up, for all products combined** (-0.5 points; 2% of products at follow-up). Of the eight intense sweeteners found at baseline and/or follow-up of the 11 studied, **four saw a significant decline in use: acesulfame K** (-0.8 points), **aspartame** (-1.4 points), **cyclamates** (-0.2 points) and **saccharins** (-0.2 points) (Table 15).

**Conversely, the use of sucralose and steviol glycosides increased significantly** (+0.5 points and +0.4 points, respectively; Table 15) between baseline and follow-up. It should be noted that steviol glycosides have only been authorised for use in the European Union since December 2011 (Commission 2011). However, because the data for the baseline were collected before their authorisation – in particular for the Soft drinks, Syrups and Fresh dairy products and desserts categories, where steviol glycosides were mainly found – this largely explains the significant increase observed for this intense sweetener.

**Table 15: Change in the frequency of presence by intense sweetener, all products combined (27 food categories monitored for changes; sorted in descending order of the proportion of products each with intense sweeteners, at baseline).**

| Intense sweetener found in the products<br>*(n=number of products with the intense sweetener considered)* | **Change in the proportion of products containing at least the intense sweetener considered, all product categories combined (27 product categories monitored for changes)** | | |
|---|---|---|---|
| | Baseline | Follow-up | ***Change in the proportions (point)*** |
| **At least one intense sweetener (Baseline: n=490; Follow-up: n=687)** | **2,5%** | **2%** | ***-0.5****** |
| Acesulfame K (Baseline: n=428; Follow-up: n=463) | 2,2% | 1,3% | ***-0.8****** |
| Aspartame (Baseline: n=360; Follow-up: n=155) | 1,8% | 0,4% | ***-1.4****** |
| Sucralose (Baseline: n=125; Follow-up: n=390) | 0,6% | 1,1% | ***+0.5****** |
| Cyclamates (Baseline: n=58; Follow-up: n=47) | 0,3% | 0,1% | ***-0.2****** |
| Saccharins (Baseline: n=53; Follow-up: n=29) | 0,3% | 0,1% | ***-0.2****** |
| Neohesperidin DC (Baseline: n=6; Follow-up: n=10) | 0,03% | 0,03% | ***-0.002*** |
| Steviol glycosides (Baseline: n=5; Follow-up: n=136) | 0,03% | 0,4% | ***+0.4****** |
| Neotame (Baseline: n=0; Follow-up: n=1) | 0% | 0,003% | ***+0.003*** |
| Advantame (Baseline: n=0; Follow-up: n=0) | 0% | 0% | - |
| Thaumatin (Baseline: n=0; Follow-up: n=0) | 0% | 0% | - |
| Salt of aspartame-acesulfame (Baseline: n=0; Follow-up: n=0) | 0% | 0% | - |

Purple cells: significant decrease in the frequency of presence of the intense sweetener considered in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of the intense sweetener considered in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test

Furthermore, even though its use fell significantly, acesulfame K remained the most commonly used intense sweetener in sweetened products, at both baseline and follow-up. Conversely, aspartame, which was initially used as much as acesulfame K, saw its use fall below that of sucralose (whose use increased significantly between baseline and follow-up). This change may be partly explained by mistrust towards aspartame in the years 2000-2010 following suspicions of a link between consumption of this intense sweetener and the occurrence of brain tumours, multiple sclerosis or epileptic seizures, even though the French and European health authorities ruled that these links had not been scientifically proven (AFFSA 2002, European Food Safety Authority 2013). In July 2023, the International Agency for Research on Cancer (IARC) classified aspartame as "Possibly carcinogenic to humans (Group 2B)" on the basis of limited evidence for cancer in humans (IARC 2023).

Note also the appearance of neotame, found in just one of the products at follow-up. Lastly, three intense sweeteners were not found at either baseline or follow-up: advantame, thaumatin and salt of aspartame-acesulfame.

#### 4.6.1.2 By relevant product category

As indicated in Section *3.3.2.9*, the use of intense sweeteners was concentrated in four categories, which constitute the relevant categories. For the change study, data were available on only three of these four categories between the two monitoring periods. For this section, therefore, only Soft drinks, Fresh dairy products and desserts and Syrups were studied.

**These three categories did not use all the intense sweeteners studied and did not use each of them in the same proportions (Table 16).** The Soft drinks and Fresh dairy products and desserts categories used seven of the eight intense sweeteners found in all products combined. The Syrups category used slightly less, with five intense sweeteners common to all three categories (acesulfame K, aspartame, sucralose, cyclamates and steviol glycosides). Note that steviol glycosides were only found in three products in the Soft drinks category at baseline. Although European regulations did not authorise the use of steviol glycosides until December 2011, France permitted the use of rebaudioside A in water-based flavoured drinks, energy-reduced or with no added sugar, from August 2009 (Gouvernement français 2009). This explains the presence of steviol glycosides in these three products.

In particular, in the **Soft drinks** category, where the use of intense sweeteners fell significantly (-12.6 points), four sweeteners were used significantly less in the products at follow-up. These were acesulfame K (-17.1 points), aspartame (-19.3 points), saccharins (-3.5 points) and cyclamates (-2.1 points). Conversely, and in line with the observed change for all products combined, the use of two intense sweeteners increased significantly: sucralose (+3.2 points; this was the third most commonly used sweetener after acesulfame K and aspartame) and steviol glycosides (+3.9 points).

The **Fresh dairy products and desserts** category also saw a significant reduction in the use of intense sweeteners (-4.4 points), which can be explained by the significant decline in the use of acesulfame K (-4.5 points) and aspartame (-6.5 points). There were no significant increases to offset these decreases.

For both **Soft drinks** and **Fresh dairy products and desserts**, acesulfame K and aspartame were the most commonly used sweeteners at baseline, and also saw large significant reductions (ranging from -4.5 points to -19.3 points).

In the **Syrups** category, a significant reduction was observed for cyclamates (-3.3 points), although this did not have a significant impact at category level. Downward changes were observed for the other intense sweeteners, with the exception of steviol glycosides (mainly only used following European authorisation in December 2011).

**Table 16: Change in the frequency of presence by intense sweetener and by relevant food category for which updated data were available (Soft drinks, Fresh dairy products and desserts, Syrups; sorted in descending order of the proportion of products each containing intense sweeteners, at baseline for each category of interest).**

| Intense sweetener found in the products, by product category of interest<br>*(n=number of products with the intense sweetener considered)* | | **Change in the proportion of products containing at least the intense sweetener considered, by product category of interest (3 out of the 27 monitored for changes)** | | |
|---|---|---|---|---|
| | | Baseline | Follow-up | ***Change in the proportions (point)*** |
| Soft drinks<br>*(Baseline: 891 products with an ingredient list; Follow-up: 2343 products with an ingredient list)* | **At least one intense sweetener (Baseline: n=267; Follow-up: n=407)** | **30%** | **17%** | ***-12.6****** |
| | Acesulfame K (Baseline: n=249; Follow-up: n=254) | 28% | 11% | ***-17.1****** |
| | Aspartame (Baseline: n=207; Follow-up: n=91) | 23% | 4% | ***-19.3****** |
| | Sucralose (Baseline: n=54; Follow-up: n=217) | 6% | 9% | ***+3.2**** |
| | Saccharins (Baseline: n=37; Follow-up: n=15) | 4% | 1% | ***-3.5****** |
| | Cyclamates (Baseline: n=24; Follow-up: n=14) | 3% | 1% | ***-2.1****** |
| | Steviol glycosides (Baseline: n=3; Follow-up: n=99) | 0,3% | 4% | ***+3.9****** |
| | Neohesperidin DC (Baseline: n=0; Follow-up: n=2) | 0% | 0,1% | ***+0.1*** |
| Fresh dairy products and desserts<br>*(Baseline: 1613 products with an ingredient list; Follow-up: 3115 products with an ingredient list)* | **At least one intense sweetener (Baseline: n=134; Follow-up: n=123)** | **8%** | **4%** | ***-4.4****** |
| | Acesulfame K (Baseline: n=133; Follow-up: n=116) | 8% | 4% | ***-4.5****** |
| | Aspartame (Baseline: n=124; Follow-up: n=38) | 8% | 1% | ***-6.5****** |
| | Sucralose (Baseline: n=27; Follow-up: n=73) | 2% | 2% | ***+0.7*** |
| | Cyclamates (Baseline: n=6; Follow-up: n=8) | 0,4% | 0,3% | ***-0.1*** |
| | Neohesperidin DC (Baseline: n=6; Follow-up: n=8) | 0,4% | 0,3% | ***-0.1*** |
| | Steviol glycosides (Baseline: n=0; Follow-up: n=7) | 0% | 0,2% | ***+0.2*** |
| | Neotame (Baseline: n=0; Follow-up: n=1) | 0% | 0,03% | ***+0.03*** |
| Syrups<br>*(Baseline: 316 products with an ingredient list; Follow-up: 681 products with an ingredient list)* | **At least one intense sweetener (Baseline: n=36; Follow-up: n=73)** | **11%** | **11%** | ***-0.7*** |
| | Acesulfame K (Baseline: n=33; Follow-up: n=63) | 10% | 9% | ***-1.2*** |
| | Sucralose (Baseline: n=33; Follow-up: n=62) | 10% | 9% | ***-1.3*** |
| | Cyclamates (Baseline: n=18; Follow-up: n=16) | 6% | 2% | ***-3.3**** |
| | Aspartame (Baseline: n=6; Follow-up: n=11) | 2% | 2% | ***-0.3*** |
| | Steviol glycosides (Baseline: n=0; Follow-up: n=17) | 0% | 2% | ***+2.5*** |

Purple cells: significant decrease in the frequency of presence of the intense sweetener considered in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of the intense sweetener considered in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test

#### 4.6.1.3 By type of brand

**Only four of the eight intense sweeteners found in all products combined were used by every type of brand: acesulfame K, aspartame, steviol glycosides and saccharins (Table 17).**

**Not including the specialised retailer brands[18], for which no significant change was observed, all the types of brands included both intense sweeteners whose use fell significantly and others whose use increased significantly (Table 17).**

Only **retailer brands** saw a significant reduction in the use of intense sweeteners at type of brand level. This was due to a significant fall in the use of four intense sweeteners: acesulfame K (-1.2 points), aspartame (-1.7 points), saccharins (-0.1 points) and cyclamates (-0.1 points). Conversely, sucralose saw a significant increase (+0.3 points). Moreover, **for the three other types of brands where significant changes were observed for certain intense sweeteners, sucralose increased significantly** (ranging from +0.4 points to +2.2 points), an increase **partly offset by the significant reduction observed for aspartame** (ranging from -1.0 point to -1.9 points). Note that for national brands and hard discount products, these changes were accompanied by a significant reduction in the use of acesulfame K (-1.0 point and -0.6 points, respectively). National brands also saw a significant increase for steviol glycosides (+0.6 points).

[18] As a reminder, because the product offering focuses on frozen foods, specialised retailer brands had no products for the three relevant categories. In addition, very few products for this type of brand were sweetened (n=4 at baseline and n=4 at follow-up), so it is difficult to compare it with the other types of brands.

**Table 17: Change in the frequency of presence by intense sweetener and by type of brand (27 food categories monitored for changes)**

| Intense sweetener found in the products, by type of brand<br>*(n=number of products with the intense sweetener considered)* | | Change in the proportion of products containing at least the intense sweetener considered, by type of brand (27 product categories monitored for changes) | | |
|---|---|---|---|---|
| | | Baseline | Follow-up | ***Change in the proportions (point)*** |
| National brands | **At least one intense sweetener (Baseline: n=175; Follow-up: n=383)** | **3%** | **3%** | ***-0.1*** |
| | Acesulfame K (Baseline: n=159; Follow-up: n=247) | 3% | 2% | ***-1.0****** |
| | Aspartame (Baseline: n=114; Follow-up: n=83) | 2% | 1% | ***-1.5****** |
| | Sucralose (Baseline: n=61; Follow-up: n=194) | 1% | 2% | ***+0.5**** |
| | Cyclamates (Baseline: n=19; Follow-up: n=25) | 0,4% | 0,2% | ***-0.2*** |
| | Saccharins (Baseline: n=8; Follow-up: n=11) | 0,2% | 0,1% | ***-0.1*** |
| | Neohesperidin DC (Baseline: n=6; Follow-up: n=10) | 0,1% | 0,1% | ***-0.03*** |
| | Steviol glycosides (Baseline: n=4; Follow-up: n=84) | 0,1% | 1% | ***+0.6****** |
| Retailer brands | **At least one intense sweetener (Baseline: n=208; Follow-up: n=193)** | **2%** | **1%** | ***-1.2****** |
| | Acesulfame K (Baseline: n=184; Follow-up: n=139) | 2% | 1% | ***-1.2****** |
| | Aspartame (Baseline: n=162; Follow-up: n=38) | 2% | 0,3% | ***-1.7****** |
| | Sucralose (Baseline: n=54; Follow-up: n=141) | 1% | 1% | ***+0.3**** |
| | Saccharins (Baseline: n=13; Follow-up: n=1) | 0,2% | 0,01% | ***-0.1****** |
| | Cyclamates (Baseline: n=11; Follow-up: n=3) | 0,1% | 0,02% | ***-0.1****** |
| | Steviol glycosides (Baseline: n=0; Follow-up: n=36) | 0% | 0,2% | ***+0.2*** |
| | Neotame (Baseline: n=0; Follow-up: n=1) | 0% | 0,01% | ***+0.01*** |
| Entry-level retailer brands | **At least one intense sweetener (Baseline: n=42; Follow-up: n=47)** | **4%** | **4%** | ***+0.4*** |
| | Acesulfame K (Baseline: n=36; Follow-up: n=37) | 3% | 3% | ***+0.1*** |
| | Aspartame (Baseline: n=36; Follow-up: n=15) | 3% | 1% | ***-1.9**** |
| | Saccharins (Baseline: n=21; Follow-up: n=11) | 2% | 1% | ***-0.9*** |
| | Cyclamates (Baseline: n=20; Follow-up: n=10) | 2% | 1% | ***-0.9*** |
| | Sucralose (Baseline: n=1; Follow-up: n=26) | 0,1% | 2% | ***+2.2****** |
| | Steviol glycosides (Baseline: n=0; Follow-up: n=1) | 0% | 0,1% | ***+0.1*** |
| Hard discount | **At least one intense sweetener (Baseline: n=61; Follow-up: n=60)** | **2%** | **1%** | ***-0,6*** |
| | Acesulfame K (Baseline: n=47; Follow-up: n=39) | 1% | 1% | ***-0.6**** |
| | Aspartame (Baseline: n=46; Follow-up: n=18) | 1% | 0,4% | ***-1.0****** |
| | Saccharins (Baseline: n=10; Follow-up: n=6) | 0,3% | 0,1% | ***-0.2*** |
| | Sucralose (Baseline: n=9; Follow-up: n=29) | 0,3% | 1% | ***+0.4**** |
| | Cyclamates (Baseline: n=8; Follow-up: n=9) | 0,3% | 0,2% | ***-0.05*** |
| | Steviol glycosides (Baseline: n=0; Follow-up: n=12) | 0% | 0,3% | ***+0.3*** |
| Specialised retailer brands[1] | **At least one intense sweetener (Baseline: n=4; Follow-up: n=4)** | **0,2%** | **0,2%** | ***-0.03*** |
| | Acesulfame K (Baseline: n=2; Follow-up: n=1) | 0,1% | 0,05% | ***-0.1*** |
| | Aspartame (Baseline: n=2; Follow-up: n=1) | 0,1% | 0,05% | ***-0.1*** |
| | Steviol glycosides (Baseline: n=1; Follow-up: n=3) | 0,1% | 0,1% | ***+0.1*** |
| | Saccharins (Baseline: n=1; Follow-up: n=0) | 0,1% | 0% | ***-0.1*** |

Purple cells: significant decrease in the frequency of presence of the intense sweetener considered in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)

Orange cells: significant increase in the frequency of presence of the intense sweetener considered in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)

Statistical test performed: chi-square test

[1] As specialised retailer brands were present in only six product categories out of the 27 studied (5 product categories for which baseline and follow-up data were available: Ice creams and sorbets, Ready-to-eat frozen meals, Processed potato products, Frozen snacking products, Frozen pastries and desserts; 1 product category for which only follow-up data were available: Soups and broths), it is difficult to compare them to the other types of brands.

### 4.6.2 Change in combinations of intense sweeteners

#### 4.6.2.1 All products combined

**With the exception of steviol glycosides, which were mainly used alone, the other intense sweeteners tended to be used in combination (Table 18).**

Not all combinations of intense sweeteners were found, since only 23 were present in at least one of the products taken into account in this change study, including combinations comprising only one sweetener. Of these 23 combinations, the vast majority combined two or three intense sweeteners and only one combined four (acesulfame K/aspartame/cyclamates/saccharins). In addition, seven combinations of intense sweeteners appeared at follow-up, in a small number of products (from 1 to 12 products), while none of the combinations disappeared between baseline and follow-up.

**The use of intense sweeteners fell significantly between baseline and follow-up** (-0.5 points), **which can be explained by the significant reduction observed for six combinations, in particular the one most commonly found in products at baseline** (the acesulfame K/aspartame combination, which fell significantly: -1.0 points). These reductions concerned combinations that were among the most commonly used at baseline (combinations found in more than 0.5% of products) and combinations combining several sweeteners (from 2 to 4). In addition, the sweeteners found in these combinations mainly corresponded to those that decreased significantly on an individual level: acesulfame K, aspartame, saccharins and cyclamates (Section *4.6.1.1*).

**Conversely, three combinations of intense sweeteners saw a significant increase in their use (ranging from +0.1 points to +0.5 points)**. Two of these related to the use of a single sweetener (steviol glycosides, sucralose), while the third involved two intense sweeteners (acesulfame K/sucralose). The sweeteners found in these combinations were therefore also those for which there was a significant increase at the individual level (Section *4.6.1.1*).

**Table 18: Change in the frequency of presence by combination of intense sweeteners, all products combined (27 food categories monitored for changes; sorted in descending order of the proportion of products with the combination considered, at baseline).**

| Intense sweetener or combination of intense sweeteners found in the products<br><br>*(n=number of products with the intense sweetener or combination of intense sweeteners considered)* | **Change in the proportion of products containing the intense sweetener or combination of intense sweeteners considered, all product categories combined (27 product categories monitored for changes)** | | |
|---|---|---|---|
| | Baseline | Follow-up | ***Change in the proportions (point)*** |
| **At least one intense sweetener (Baseline: n=490; Follow-up: n=687)** | **2,5%** | **2%** | ***-0.5****** |
| acesulfame K / aspartame (Baseline: n=272; Follow-up: n=116) | 1% | 0,3% | -1.0*** |
| acesulfame K / sucralose (Baseline: n=58; Follow-up: n=270) | 0,3% | 1% | +0.5*** |
| acesulfame K / aspartame / sucralose (Baseline: n=28; Follow-up: n=12) | 0,1% | 0,03% | -0.1*** |
| sucralose (Baseline: n=21; Follow-up: n=79) | 0,1% | 0,2% | +0.1** |
| acesulfame K / aspartame / cyclamates / saccharins (Baseline: n=21; Follow-up: n=9) | 0,1% | 0,03% | -0.1*** |
| acesulfame K / cyclamates / sucralose (Baseline: n=18; Follow-up: n=6) | 0,1% | 0,02% | -0.1*** |
| aspartame (Baseline: n=18; Follow-up: n=6) | 0,1% | 0,02% | -0.1*** |
| acesulfame K / aspartame / saccharins (Baseline: n=13; Follow-up: n=3) | 0,1% | 0,01% | -0.1*** |
| cyclamates / saccharins (Baseline: n=8; Follow-up: n=8) | 0,04% | 0,02% | -0.02 |
| acesulfame K (Baseline: n=7; Follow-up: n=8) | 0,04% | 0,02% | -0.01 |
| acesulfame K / cyclamates / neohesperidin DC (Baseline: n=6; Follow-up: n=8) | 0,03% | 0,02% | -0.01 |
| saccharins (Baseline: n=6; Follow-up: n=5) | 0,03% | 0,01% | -0.02 |
| steviol glycosides (Baseline: n=5; Follow-up: n=112) | 0,03% | 0,3% | +0.3*** |
| acesulfame K / aspartame / cyclamates (Baseline: n=4; Follow-up: n=6) | 0,02% | 0,02% | -0.003 |
| aspartame / saccharins (Baseline: n=4; Follow-up: n=1) | 0,02% | 0,003% | -0.02 |
| acesulfame K / cyclamates / saccharins (Baseline: n=1; Follow-up: n=2) | 0,01% | 0,01% | +0.001 |
| sucralose / steviol glycosides (Baseline: n=0; Follow-up: n=12) | 0% | 0,03% | +0.03 |
| acesulfame K / sucralose / steviol glycosides (Baseline: n=0; Follow-up: n=10) | 0% | 0,03% | +0.03 |
| acesulfame K / cyclamates (Baseline: n=0; Follow-up: n=8) | 0% | 0,02% | +0.02 |
| acesulfame K / aspartame / neohesperidin DC (Baseline: n=0; Follow-up: n=2) | 0% | 0,01% | +0.01 |
| acesulfame K / steviol glycosides (Baseline: n=0; Follow-up: n=2) | 0% | 0,01% | +0.01 |
| acesulfame K / saccharins (Baseline: n=0; Follow-up: n=1) | 0% | 0,003% | +0.003 |
| sucralose / neotame (Baseline: n=0; Follow-up: n=1) | 0% | 0,003% | +0.003 |

Purple cells: significant decrease in the frequency of presence of the intense sweetener or combination of intense sweeteners considered in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of the intense sweetener or combination of intense sweeteners considered in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test

#### 4.6.2.2 By relevant product category

As indicated in Section *4.6.1.2*, only the Soft drinks, Fresh dairy products and desserts and Syrups categories were considered.

**There were significant decreases in use (ranging from -1.4 points to -15.4 points), although significant increases were also observed (ranging from +1.1 points to +3.8 points) (Table 19).** In the **Soft drinks** category, for example, the decrease in the use of intense sweeteners observed at category level (-12.6 points) was driven by two of the most commonly used combinations at baseline: acesulfame K/aspartame (-15.4 points) and acesulfame K/aspartame/cyclamates/saccharins (-1.8 points). Conversely, three combinations saw a significant increase in use: steviol glycosides (+3.8 points), acesulfame K/sucralose (+2.1 points) and sucralose (+1.1 points). Regarding the **Fresh dairy products and desserts** category, the significant decrease observed at category level (-4.4 points) was due to the significantly lower use of the two most commonly used combinations at baseline (-5.0 points for acesulfame K/aspartame and -1.4 points for acesulfame K/aspartame/sucralose), while a significant increase was observed for the acesulfame K/sucralose combination (+1.8 points), which became the most commonly used combination at follow-up. Lastly, the **Syrups** category saw only one significant change, which was a decrease for the most commonly used combination at baseline (-5.0 points for acesulfame K/ cyclamates/sucralose), explaining the downward change in the use of intense sweeteners observed for this category as a whole.

**Table 19: Change in the frequency of presence by combination of intense sweeteners and by relevant food category for which updated data were available (Soft drinks, Fresh dairy products and desserts, Syrups; sorted in descending order of the proportion of products with the combination considered, at baseline for each relevant category).**

| Intense sweetener or combination of intense sweeteners found in products, by product category of interest<br>*(n=number of products with the intense sweetener or combination of intense sweeteners considered)* | | **Change in the proportion of products containing the intense sweetener or combination of intense sweeteners considered, by product category of interest (3 out of the 27 monitored for changes)** | | |
|---|---|---|---|---|
| | | Baseline | Follow-up | ***Change in the proportions (point)*** |
| Soft drinks | **At least one intense sweetener (Baseline: n=267; Follow-up: n=407)** | **30%** | **17%** | ***-12.6****** |
| | acesulfame K / aspartame (Baseline: n=164; Follow-up: n=71) | 18% | 3% | -15.4*** |
| | acesulfame K / sucralose (Baseline: n=42; Follow-up: n=159) | 5% | 7% | +2.1* |
| | acesulfame K / aspartame / cyclamates / saccharins (Baseline: n=19; Follow-up: n=8) | 2% | 0,3% | -1.8*** |
| | acesulfame K / aspartame / saccharins (Baseline: n=13; Follow-up: n=3) | 1% | 0,1% | -1.3 |
| | sucralose (Baseline: n=10; Follow-up: n=52) | 1% | 2% | +1.1* |
| | acesulfame K / aspartame / cyclamates (Baseline: n=4; Follow-up: n=3) | 0,4% | 0,1% | -0.3 |
| | acesulfame K (Baseline: n=4; Follow-up: n=2) | 0,4% | 0,1% | -0.4 |
| | aspartame / saccharins (Baseline: n=4; Follow-up: n=1) | 0,4% | 0,04% | -0.4 |
| | steviol glycosides (Baseline: n=3; Follow-up: n=97) | 0,3% | 4% | +3.8*** |
| | acesulfame K / aspartame/ sucralose (Baseline: n=2; Follow-up: n=3) | 0,2% | 0,1% | -0.1 |
| | acesulfame K / cyclamates / saccharins (Baseline: n=1; Follow-up: n=2) | 0,1% | 0,1% | -0.03 |
| | aspartame (Baseline: n=1; Follow-up: n=0) | 0,1% | 0% | -0.1 |
| | acesulfame K / aspartame / neohesperidin DC (Baseline: n=0; Follow-up: n=2) | 0% | 0,1% | +0.1 |
| | sucralose / steviol glycosides (Baseline: n=0; Follow-up: n=2) | 0% | 0,1% | +0.1 |
| | acesulfame K / cyclamates / sucralose (Baseline: n=0; Follow-up: n=1) | 0% | 0,04% | +0.04 |
| | saccharins (Baseline: n=0; Follow-up: n=1) | 0% | 0,04% | +0.04 |
| Fresh dairy products and desserts | **At least one intense sweetener (Baseline: n=134; Follow-up: n=123)** | **8%** | **4%** | ***-4.4****** |
| | acesulfame K / aspartame (Baseline: n=100; Follow-up: n=37) | 6% | 1% | -5.0*** |
| | acesulfame K / aspartame/ sucralose (Baseline: n=23; Follow-up: n=1) | 1% | 0,03% | -1.4*** |
| | acesulfame K / cyclamates / neohesperidin DC (Baseline: n=6; Follow-up: n=8) | 0,4% | 0,3% | -0.1 |
| | acesulfame K / sucralose (Baseline: n=4; Follow-up: n=64) | 0,2% | 2% | +1.8*** |
| | aspartame (Baseline: n=1; Follow-up: n=0) | 0,1% | 0% | -0.1 |
| | sucralose (Baseline: n=0; Follow-up: n=4) | 0% | 0,1% | +0.1 |
| | acesulfame K / sucralose / steviol glycosides (Baseline: n=0; Follow-up: n=3) | 0% | 0,1% | +0.1 |
| | acesulfame K / steviol glycosides (Baseline: n=0; Follow-up: n=2) | 0% | 0,1% | +0.1 |
| | steviol glycosides (Baseline: n=0; Follow-up: n=2) | 0% | 0,1% | +0.1 |
| | acesulfame K (Baseline: n=0; Follow-up: n=1) | 0% | 0,03% | +0.03 |
| | sucralose / neotame (Baseline: n=0; Follow-up: n=1) | 0% | 0,03% | +0.03 |
| Syrups | **At least one intense sweetener (Baseline: n=36; Follow-up: n=73)** | **11%** | **11%** | ***-0.7*** |
| | acesulfame K / cyclamates / sucralose (Baseline: n=18; Follow-up: n=5) | 6% | 1% | -5.0*** |
| | acesulfame K / sucralose (Baseline: n=11; Follow-up: n=32) | 3% | 5% | +1.2 |
| | acesulfame K / aspartame/ sucralose (Baseline: n=3; Follow-up: n=8) | 1% | 1% | +0.2 |
| | aspartame (Baseline: n=2; Follow-up: n=0) | 1% | 0% | -0.6 |
| | acesulfame K / aspartame (Baseline: n=1; Follow-up: n=0) | 0,3% | 0% | -0.3 |
| | sucralose (Baseline: n=1; Follow-up: n=0) | 0,3% | 0% | -0.3 |
| | sucralose / steviol glycosides (Baseline: n=0; Follow-up: n=10) | 0% | 1% | +1.5 |
| | acesulfame K / cyclamates (Baseline: n=0; Follow-up: n=8) | 0% | 1% | +1.2 |
| | acesulfame K / sucralose / steviol glycosides (Baseline: n=0; Follow-up: n=7) | 0% | 1% | +1 |
| | acesulfame K / aspartame / cyclamates (Baseline: n=0; Follow-up: n=3) | 0% | 0,4% | +0.4 |

Purple cells: significant decrease in the frequency of presence of the intense sweetener or combination of intense sweeteners considered in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of the intense sweetener or combination of intense sweeteners considered in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test

#### 4.6.2.3 By type of brand

**With the exception of specialised retailer brands[19] for which no significant change was observed, all the other types of brands saw a significant change for at least two combinations of intense sweeteners, most often a downward change (ranging from -0.1 points to -1.3 points), while significant increases were also observed (ranging from +0.3 points to +0.7 points) (Table 20).** Use of the acesulfame K/aspartame combination fell significantly in every type of brand (ranging from -0.8 points to -1.3 points; with the exception of specialised retailer brands). Similarly, use of the acesulfame K/aspartame/sucralose combination fell significantly for national brands (-0.3 points) and retailer brands (-0.1 points). Conversely, the acesulfame K/sucralose combination increased for national brands (+0.7 points), retailer brands (+0.3 points) and hard discount products (+0.3 points).

As a reminder, only **retailer brands** saw a significant reduction in the use of intense sweeteners (-1.2 points) at type of brand level. For **national brands**, five significant changes were observed, both upwards and downwards, which partly explains the absence of any significant change at type of brand level. **Hard discount** products saw two significant changes which, as for the previous types of brands, concerned the combinations most often used at baseline: a significant decrease for acesulfame K/aspartame (-0.8 points) and a significant increase for acesulfame K/sucralose (+0.3 points). Lastly, for **entry-level retailer brands**, two significant downward changes were observed (-1.0 point for acesulfame K/aspartame and -1.0 point for acesulfame K/aspartame/cyclamates/saccharins).

[19] As a reminder, because the product offering focuses on frozen foods, specialised retailer brands had no products for the three relevant categories. In addition, very few products for this type of brand were sweetened (n=4 at baseline and n=4 at follow-up), so it is difficult to compare it with the other types of brands.

**Table 20: Change in the frequency of presence by combination of intense sweeteners and by type of brand (among the 27 food categories monitored for changes; sorted in descending order of the proportion of products with the combination considered, at baseline for each type of brand).**

| Intense sweetener or combination of intense sweeteners found in the products, by type of brand<br>*(n=number of products with the intense sweetener or combination of intense sweeteners considered)* | | **Change in the proportion of products containing the intense sweetener or combination of intense sweeteners considered, by type of brand (27 product categories monitored for changes)** | | |
|---|---|---|---|---|
| | | Baseline | Follow-up | ***Change in the proportions (point)*** |
| National brands | **At least one intense sweetener (Baseline: n=175; Follow-up: n=383)** | **3%** | **3%** | ***-0.1*** |
| | acesulfame K / aspartame (Baseline: n=89; Follow-up: n=69) | 2% | 1% | ***-1**** |
| | acesulfame K / sucralose (Baseline: n=26; Follow-up: n=136) | 1% | 1% | ***+1**** |
| | acesulfame K / aspartame / sucralose (Baseline: n=16; Follow-up: n=3) | 0,3% | 0,03% | ***-0.3**** |
| | acesulfame K / cyclamates / sucralose (Baseline: n=11; Follow-up: n=3) | 0,2% | 0,03% | ***-0.2*** |
| | sucralose (Baseline: n=8; Follow-up: n=49) | 0,2% | 0,4% | ***+0.3**** |
| | acesulfame K / cyclamates / neohesperidin DC (Baseline: n=6; Follow-up: n=8) | 0,1% | 0,1% | ***-0.05*** |
| | acesulfame K / aspartame / saccharins (Baseline: n=5; Follow-up: n=3) | 0,1% | 0,03% | ***-0.1*** |
| | steviol glycosides (Baseline: n=4; Follow-up: n=81) | 0,1% | 1% | ***+1**** |
| | acesulfame K (Baseline: n=4; Follow-up: n=6) | 0,1% | 0,1% | ***-0.03*** |
| | saccharins (Baseline: n=2; Follow-up: n=5) | 0,04% | 0,04% | ***+0.004*** |
| | acesulfame K / aspartame / cyclamates (Baseline: n=2; Follow-up: n=3) | 0,04% | 0,03% | ***-0.01*** |
| | aspartame (Baseline: n=1; Follow-up: n=1) | 0,02% | 0,01% | ***-0.01*** |
| | aspartame / saccharins (Baseline: n=1; Follow-up: n=0) | 0,02% | 0% | ***-0.02*** |
| | acesulfame K / cyclamates (Baseline: n=0; Follow-up: n=8) | 0% | 0,1% | ***+0.1*** |
| | acesulfame K / sucralose / steviol glycosides (Baseline: n=0; Follow-up: n=3) | 0% | 0,03% | ***+0.03*** |
| | acesulfame K / aspartame / cyclamates / saccharins (Baseline: n=0; Follow-up: n=2) | 0% | 0,02% | ***+0.02*** |
| | acesulfame K / aspartame / neohesperidin DC (Baseline: n=0; Follow-up: n=2) | 0% | 0,02% | ***+0.02*** |
| | acesulfame K / cyclamates / saccharins (Baseline: n=0; Follow-up: n=1) | 0% | 0,01% | ***+0.01*** |
| Retailer brands | **At least one intense sweetener (Baseline: n=208; Follow-up: n=193)** | **2%** | **1%** | ***-1**** |
| | acesulfame K / aspartame (Baseline: n=127; Follow-up: n=26) | 1% | 0,2% | ***-1**** |
| | acesulfame K / sucralose (Baseline: n=27; Follow-up: n=92) | 0,3% | 1% | ***+0.3**** |
| | aspartame (Baseline: n=12; Follow-up: n=3) | 0,1% | 0,02% | ***-0.1**** |
| | acesulfame K / aspartame / sucralose (Baseline: n=11; Follow-up: n=8) | 0,1% | 0,1% | ***-0.1**** |
| | sucralose (Baseline: n=10; Follow-up: n=23) | 0,1% | 0,2% | ***+0.04*** |
| | acesulfame K / aspartame / saccharins (Baseline: n=7; Follow-up: n=0) | 0,1% | 0% | ***-0.1*** |
| | acesulfame K / cyclamates / sucralose (Baseline: n=6; Follow-up: n=2) | 0,1% | 0,01% | ***-0.1*** |
| | acesulfame K / aspartame / cyclamates / saccharins (Baseline: n=4; Follow-up: n=1) | 0,05% | 0,01% | ***-0.04*** |
| | saccharins (Baseline: n=2; Follow-up: n=0) | 0,02% | 0% | ***-0.02*** |
| | acesulfame K (Baseline: n=1; Follow-up: n=1) | 0,01% | 0,01% | ***-0.01*** |
| | acesulfame K / aspartame / cyclamates (Baseline: n=1; Follow-up: n=0) | 0,01% | 0% | ***-0.01*** |
| | steviol glycosides (Baseline: n=0; Follow-up: n=19) | 0% | 0,1% | ***+0.1*** |
| | sucralose / steviol glycosides (Baseline: n=0; Follow-up: n=8) | 0% | 0,1% | ***+0.1*** |
| | acesulfame K / sucralose / steviol glycosides (Baseline: n=0; Follow-up: n=7) | 0% | 0,05% | ***+0.05*** |
| | acesulfame K / steviol glycosides (Baseline: n=0; Follow-up: n=2) | 0% | 0,01% | ***+0.01*** |
| | sucralose / neotame (Baseline: n=0; Follow-up: n=1) | 0% | 0,01% | ***+0.01*** |

| Intense sweetener or combination of intense sweeteners found in the products, by type of brand<br><br>*(n=number of products with the intense sweetener or combination of intense sweeteners considered)* | | **Change in the proportion of products containing the intense sweetener or combination of intense sweeteners considered, by type of brand (27 product categories monitored for changes)** | | |
|---|---|---|---|---|
| | | Baseline | Follow-up | ***Change in the proportions (point)*** |
| Entry-level retailer brands | **At least one intense sweetener (Baseline: n=42; Follow-up: n=47)** | **4%** | **4%** | ***+0.4*** |
| | acesulfame K / aspartame (Baseline: n=20; Follow-up: n=9) | 2% | 1% | ***-1**** |
| | acesulfame K / aspartame / cyclamates / saccharins (Baseline: n=15; Follow-up: n=4) | 1% | 0,4% | ***-1**** |
| | cyclamates / saccharins (Baseline: n=4; Follow-up: n=5) | 0,4% | 0,4% | ***+0.1*** |
| | sucralose (Baseline: n=1; Follow-up: n=3) | 0,1% | 0,3% | ***+0.2*** |
| | acesulfame K / cyclamates / saccharins (Baseline: n=1; Follow-up: n=1) | 0,1% | 0,1% | ***-0.0002*** |
| | aspartame / saccharins (Baseline: n=1; Follow-up: n=1) | 0,1% | 0,1% | ***-0.0002*** |
| | acesulfame K / sucralose (Baseline: n=0; Follow-up: n=22) | 0% | 2% | ***+2*** |
| | acesulfame K / aspartame / sucralose (Baseline: n=0; Follow-up: n=1) | 0% | 0,1% | ***+0.1*** |
| | steviol glycosides (Baseline: n=0; Follow-up: n=1) | 0% | 0,1% | ***+0.1*** |
| Hard discount | **At least one intense sweetener (Baseline: n=61; Follow-up: n=60)** | **2%** | **1%** | ***-1*** |
| | acesulfame K / aspartame (Baseline: n=34; Follow-up: n=11) | 1% | 0,3% | ***-1****** |
| | acesulfame K / sucralose (Baseline: n=5; Follow-up: n=20) | 0,2% | 0,5% | ***+0.3**** |
| | aspartame (Baseline: n=5; Follow-up: n=2) | 0,2% | 0,05% | ***-0.1*** |
| | cyclamates / saccharins (Baseline: n=4; Follow-up: n=3) | 0,1% | 0,1% | ***-0.1*** |
| | sucralose (Baseline: n=2; Follow-up: n=4) | 0,1% | 0,1% | ***+0.03*** |
| | acesulfame K / aspartame / cyclamates / saccharins (Baseline: n=2; Follow-up: n=2) | 0,1% | 0,05% | ***-0.02*** |
| | acesulfame K (Baseline: n=2; Follow-up: n=1) | 0,1% | 0,02% | ***-0.04*** |
| | aspartame / saccharins (Baseline: n=2; Follow-up: n=0) | 0,1% | 0% | ***-0.1*** |
| | acesulfame K / aspartame / cyclamates (Baseline: n=1; Follow-up: n=3) | 0,03% | 0,1% | ***+0.04*** |
| | acesulfame K / cyclamates / sucralose (Baseline: n=1; Follow-up: n=1) | 0,03% | 0,02% | ***-0.01*** |
| | acesulfame K / aspartame / saccharins (Baseline: n=1; Follow-up: n=0) | 0,03% | 0% | ***-0.03*** |
| | acesulfame K / aspartame / sucralose (Baseline: n=1; Follow-up: n=0) | 0,03% | 0% | ***-0.03*** |
| | saccharins (Baseline: n=1; Follow-up: n=0) | 0,03% | 0% | ***-0.03*** |
| | steviol glycosides (Baseline: n=0; Follow-up: n=8) | 0% | 0,2% | ***+0.2*** |
| | sucralose / steviol glycosides (Baseline: n=0; Follow-up: n=4) | 0% | 0,1% | ***+0.1*** |
| | acesulfame K / saccharins (Baseline: n=0; Follow-up: n=1) | 0% | 0,02% | ***+0.02*** |
| Specialised retailer brands[1] | **At least one intense sweetener (Baseline: n=4; Follow-up: n=4)** | **0,2%** | **0,2%** | ***-0.03*** |
| | acesulfame K / aspartame (Baseline: n=2; Follow-up: n=1) | 0,1% | 0,05% | ***-0.1*** |
| | steviol glycosides (Baseline: n=1; Follow-up: n=3) | 0,1% | 0,1% | ***+0.1*** |
| | saccharins (Baseline: n=1; Follow-up: n=0) | 0,1% | 0% | ***-0.1*** |

Purple cells: significant decrease in the frequency of presence of the intense sweetener or combination of intense sweeteners considered in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of the intense sweetener or combination of intense sweeteners considered in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test
[1] As specialised retailer brands were present in only six product categories out of the 27 studied (5 product categories for which baseline and follow-up data were available: Ice creams and sorbets, Ready-to-eat frozen meals, Processed potato products, Frozen snacking products, Frozen pastries and desserts; 1 product category for which only follow-up data were available: Soups and broths), it is difficult to compare them to the other types of brands.

## 4.7 Conclusion on changes in the use of sweetening ingredients or ingredients conveying sweetness

Among all the products studied (27 food categories), **the proportion of those containing at least one sweetening ingredient or ingredient conveying sweetness fell significantly, by 5.5 points, between the two monitoring periods (over intervals ranging from 3 to 10 years)**. It should be noted, however, that this proportion remained very high, since 81% (n=28,163) of the products at follow-up contained at least one sweetening ingredient or ingredient conveying sweetness[20].

**With the exception of Fruit juices and concentrates and Honey, use of the other nine classes of sweetening ingredients or ingredients conveying sweetness appears to have declined significantly between baseline and follow-up.** Some classes even saw large falls, in particular Syrups (-7.9 points), Other sugars (-7.8 points) and Lactose (-7.6 points). Note that the use of ingredients in the Sucrose class also fell significantly (-1.9 points), but it was still the most commonly used class at both baseline and follow-up (found in 64% and 62% of products, respectively). **Conversely, Fruit juices and concentrates was the only ingredient class whose use increased significantly** (+2.4 points).

**This significant decline observed in all products combined was found for every type of brand** (with significant reductions ranging from -3.7 points for hard discount products to -6.4 points for national brands) and **for almost half of the product categories**, with 13 out of 27 seeing their proportions fall significantly (ranging from -2.2 points to -23.9 points). In particular, **the biggest falls were in categories with a more savoury connotation** (mainly -23.9 points for Ready-to-eat canned meals, -15.1 points for Fresh delicatessen products and -12.8 points for Ready-to-eat frozen meals).

**These downward changes can be partly explained by reformulations of pre-existing products**. Although no significant change was observed for all paired products combined, four classes of sweetening ingredients or ingredients conveying sweetness saw significant declines in use, even if this was less marked than for the offering as a whole (-3.9 points versus -7.9 points for Syrups; -3.6 points versus -7.6 points for Lactose; -2.7 points versus -7.8 points for Other sugars; -1.3 points versus -2.1 points for Caramel). In addition to the reformulations observed, a change in the offering also partly explains the decline in the use of sweetening ingredients or ingredients conveying sweetness. New products use fewer of these ingredients than older products that have been withdrawn from the market.

**Three food categories saw a significant increase in the presence of sweetening ingredients or ingredients conveying sweetness**: Margarines (+9.7 points), Processed potato products (+6.6 points driven by use of the Other sugars class) and Cold sauces (+5.3 points with increased use of the Sucrose class).

**The study of combinations of classes of sweetening ingredients or ingredients conveying sweetness showed that the simultaneous use of different classes was more limited.** There

[20] Note that the proportions of products with at least one sweetening ingredient or ingredient conveying sweetness at follow-up cannot be compared with those observed at baseline, based on the latest data available, because four product categories were taken into account in the review part but not in this part on changes: in particular Baby food and Cheeses, where the proportions of products containing at least one sweetening ingredient or ingredient conveying sweetness were among the lowest (Figure 5).

was a significant fall in the simultaneous use of two, three, four, five and six classes (ranging from -0.3 points to -3.7 points), to the benefit of the proportion of products with no ingredients studied (+5.5 points) or with a single class of sweetening ingredients or ingredients conveying sweetness (+3.5 points). In addition, **most combinations of classes of sweetening ingredients or ingredients conveying sweetness saw a significant decline in use** (ranging from -0.2 points to -3.3 points). **Only three combinations saw their use increase significantly:** Sucrose alone (+4.2 points), Fruit juices and concentrates alone (+1.3 points) and the combination Sucrose/Fruit juices and concentrates (+3.2 points).

**Regarding the change in the use of intense sweeteners, this use fell significantly between baseline and follow-up, for all products combined (-0.5 points).** Note that the use of sweeteners was low at both baseline (2.5% of products) and at follow-up (2%). Of the eight intense sweeteners found at baseline and/or follow-up of the 11 studied, **four saw a significant decline in use: acesulfame K** (-0.8 points), **aspartame** (-1.4 points), **cyclamates** (-0.2 points) and **saccharins** (-0.2 points). **Conversely, the use of sucralose and steviol glycosides increased significantly** (+0.5 points and +0.4 points, respectively). All these changes indicate a shift in the most commonly used sweeteners: while acesulfame K remains the most common intense sweetener, it is now followed by sucralose, which has overtaken aspartame, while steviol glycosides, the eighth most used intense sweetener at baseline, became the fourth most used at follow-up, relegating cyclamates and saccharins by one place (to the fifth and sixth most used intense sweeteners, respectively). Significantly lower use was observed for six combinations involving acesulfame K, aspartame, cyclamates and/or saccharins. Conversely, three combinations (acesulfame K/sucralose, sucralose alone and steviol glycosides alone) saw a significant upward change, all sweetened products combined. Note that the growing presence of steviol glycosides in products can be correlated with European regulations authorising their use in food since December 2011[21].

**While the frequency of presence of sweetening ingredients or ingredients conveying sweetness has decreased significantly, this does not necessarily mean that the total sugar content of products has decreased (this study focused solely on the presence of these ingredients without considering the quantities used, as these are only rarely provided).** It is therefore possible that the classes of ingredients still found in the products (81% of them still contained at least one sweetening ingredient or ingredient conveying sweetness) increased in quantity following the removal of other ingredients used simultaneously in the same product up until then. **When compared with recent OQALI category studies conducted, the changes in average quantities of total sugars did not always move in the same direction as changes in the frequency of presence of sweetening ingredients or ingredients conveying sweetness observed in this study.** While the study of the Breakfast Cereals category (Oqali 2020a) showed that the significant reduction in the proportion of products containing at least one sweetening ingredient or ingredient conveying sweetness (-7.3 points) was accompanied by a significant reduction in the average sugar content for 10 of the 16 sub-categories (ranging from -3.2g/100g to -9.1g/100g), for other categories this concordance was lower. Thus, the category study carried out on Ready-to-eat canned meals (Oqali 2023b) – the category with the largest reduction in the proportion of products with sweetening ingredients or ingredients conveying sweetness (-23.9 points) – showed that only six of the 39 sub-categories saw a

[21] Steviol glycosides have only been authorised for use in the European Union since December 2011. However, because the data for the baseline were collected before their authorisation – in particular for the Soft drinks, Syrups and Fresh dairy products and desserts categories, where steviol glycosides were mainly found – this largely explains the significant increase observed for this intense sweetener.

significant reduction in their average sugar content between 2010 and 2020 (ranging from -0.4g/100g to -1.1g/100g). For Ready-to-eat frozen meals (Oqali 2023c), the link between changes in sweetening ingredients or ingredients conveying sweetness and changes in average total sugar content was even weaker: there was a 12.8 point decrease in the share of products using a sweetening ingredient or ingredient conveying sweetness, while only two of the 32 sub-categories saw a significant fall in average sugar content between 2012 and 2020 (ranging from -0.3g/100g to -1.3g/100g) and one sub-category saw an increase in its average sugar content (+1.0g/100g). The Soft drinks category study (Oqali 2023a) showed that the proportion of products with no sweetening ingredients or ingredients conveying sweetness increased significantly (+5.6 points), while changes in average sugar content were fairly limited: three of the 17 sub-categories of interest saw a significant reduction in average sugar content (although two of these categories were frequently consumed) and one increased significantly between the last two monitoring periods. However, when examining the beverages available, the results are consistent, because beverages with no added sugars or intense sweeteners are growing at the expense of beverages with no added sugars but with intense sweeteners. Conversely, the Hot sauces category (Oqali 2020b) saw a decrease in the proportion of products with sweetening ingredients or ingredients conveying sweetness (-12.3 points), while the only significant change observed in average sugar content was a significant increase (+0.4g/100g) between 2010 and 2017. Moreover, in some categories, there was no change in the use of sweetening ingredients or ingredients conveying sweetness, while at the same time average sugar content increased significantly for certain sub-categories. This was the case, for example, with Ice creams and sorbets (Oqali 2017a), where five of the 19 sub-categories saw a significant increase in their average sugar content (ranging from +0.5g/100ml to +2.3g/100ml) and two others saw a significant decrease in average content (-0.9g/100ml and -1.6g/100ml) between 2010 and 2015, while no change was observed in the use of sweetening ingredients or ingredients conveying sweetness for this category as a whole. Lastly, the Cold sauces category (Oqali 2017b) saw an increase in the use of sweetening ingredients or ingredients conveying sweetness, while there was no significant change in the average sugar content between 2011 and 2016.

# DISCUSSION

**The results presented in this report correspond to the frequency of presence and therefore only reflect the presence or absence of the sweetening ingredient or ingredient conveying sweetness studied in the food, and not its quantity**. This is because ingredient lists very rarely specify the quantities used.

Moreover, the results of this study cannot be used to establish a direct link with the concepts of total sugars, added sugars and free sugars, because it is very difficult to apply their definitions to ingredient lists that are not standardised and do not systematically mention the constituents of the ingredients. Furthermore, the nutritional values of the products enable the total sugar content to be studied but without distinguishing between the different types of sugar. Nevertheless, when they were found in the ingredient lists and even if they were not part of isolated classes, ingredients regarded as free sugars or naturally containing free sugars were included in the sweetening ingredients or ingredients conveying sweetness identified for this study (for example: fruit juices and honey).

The results presented are therefore dependent on the way in which the ingredient lists are labelled, in particular for ingredients that are both sweeteners or ingredients conveying sweetness, and allergens. Depending on how the allergen was declared, it may or may not be regarded as a sweetening ingredient or ingredient conveying sweetness:

- if an ingredient list declared the allergen "*milk*", as in the example "*fromage frais: pasteurised ewe's **milk**, sea salt, animal rennet, etc.*", then no sweetening ingredients or ingredients conveying sweetness were noted;
- on the other hand, if the ingredient list declared the allergen "*lactose*", as in "*fromage frais: pasteurised ewe's milk (**lactose**), sea salt, animal rennet, etc.*", the ingredient lactose was regarded as a sweetening ingredient or ingredient conveying sweetness, and the product was identified as containing the Lactose class.

Lastly, in the section on available updated data, the dates on which data were collected differed from one category to another, and the intervals between two monitoring periods were not always the same. There may have been overlapping in data collection between product categories: the baseline year of collection for one category may correspond to the follow-up year of collection for another category. On the one hand, this implies that the longer the time interval for a category, the greater the probability of observing changes. On the other hand, certain changes and reformulations may have taken place before the period considered and are therefore not highlighted in the study.

# OUTLOOK

This study served to update the baseline partly established in the previous ingredient study (Oqali 2012) on the use of intense sweeteners, while taking into account a larger number of sweetening ingredients or ingredients conveying sweetness. Eleven new categories were therefore added and more recent data were used for all 20 categories already monitored in 2012. This study provides an initial follow-up of changes in the use of sweetening ingredients or ingredients conveying sweetness in 27 of the 31 categories currently monitored by OQALI.

These data provide a better understanding of the different forms of sweetening ingredients or ingredients conveying sweetness actually used in processed food products – particularly in categories where they are not necessarily expected – often to enhance taste and/or reduce acidity or bitterness in the product.

Although the frequency of presence remained high, a fall in the use of sweetening ingredients or ingredients conveying sweetness was observed, partly due to the use of ingredients that are either "common", such as white sugar (sucrose), or more "natural", such as fruit juices. These results therefore suggest that manufacturers have begun a process to simplify their ingredient lists through the use of ingredients that are more common (and therefore familiar to consumers), in particular by reducing the use of more processed ingredients (such as sugar syrups) or synthetic ingredients (such as intense sweeteners).

However, it is important to remember that just because a product contains fewer sweetening ingredients or ingredients conveying sweetness does not mean that the amount of sugars it contains has decreased: a sweetening ingredient or ingredient conveying sweetness, already present in the product, may have had its quantity increased to compensate for the removal of another ingredient (as the quantities used are only rarely provided on the packaging, this analysis could not be carried out). It would therefore be beneficial to supplement this study by combining the composition data available via the OQALI category studies with food consumption data, in order to identify the real impact of changes in nutritional composition on the nutrient intakes of the French population. However, this information would only enable conclusions to be drawn about intakes of total sugars rather than those of added sugars, for which data are unavailable. It would also be interesting to consider consumer choices in response to these changes. Indeed, according to the initial elements studied by OQALI with the implementation of the study on how supply and demand contribute to changes in nutritional quality, it seems that the substitutions made by consumers do not always lead to an improvement in the nutritional quality of food consumed (Oqali 2019b).

# Annex 1: OQALI definitions of food categories and types of brands

| Category | Definition |
|---|---|
| **Baby food** | All processed cereal-based foods (cereals with milk, reconstituted instant cereals, biscuits), baby foods (fruit- and/or plant-based beverages, dairy desserts, fruit- and cereal-based desserts, fruit-based desserts) and infant foods with vegetables and/or meat/fish (soups, vegetable preparations, meat preparations, dishes) covered by Regulation (EU) No 609/2013 and Directive 2006/125/EC |
| **Crackers** | Peanuts and seeds, coated or sweetened peanuts, dried fruit cocktails, fruit and seed mixtures, Asian mixtures, shrimp fritters, choux pastries, salted crackers, salted crepes dentelles, wafers, breadsticks, savoury mini cakes, sweet or salted popcorn, puffs, sticks and pretzels, tortillas, tuile biscuits |
| **Cereal bars** | Cereal bars and bites (cereal bars with fruits or nuts, with or without chocolate, with caramel, with pieces of biscuit, plain, etc.) |
| **Cakes and biscuits** | Chocolate or fruit biscuits, filled biscuits, shortbread, barquettes, sandwich biscuits, dry biscuits, etc., biscuit bars, breakfast biscuits, moist cakes, marble cakes, puff pastries, cakes with filling, genoise sponge, etc., macaroons, finger biscuits, crepes, gingerbread, madeleines, financiers, speculoos, coconut macaroons, cookies, rolled biscuits, waffles and wafers |
| **Soft drinks** | All beverages with tea, fruit beverages, energy drinks, colas, flavoured waters, lemonades, tonics and bitters, sports drinks, plant-based beverages, fruit and/or vegetable beverages that resemble juices or nectars but contain unauthorised ingredients for this type of product (e.g. fibre, colourings, etc., see Decree 2013-1049), juices containing coconut milk (coconut milk is not a juice according to the Codex Alimentarius) |
| **Soups and broths** | Products to be stored at room temperature, chilled or frozen:<br>Broths mentioning consumption as soup on their packaging, vegetable soups, meat-based soups, ethnic soups, starchy soups, cold soups, soups with pasta, fish/shellfish/mollusc soups |
| **Breakfast cereals** | All types of breakfast cereals (plain, chocolate, caramel, filled, healthy, whole wheat, etc.), cereal cakes, cereals requiring preparation such as oatflakes, muesli, puffed rice |
| **Delicatessen meats** | Cooked ham and shoulder, ham knuckle, roast poultry, ham, raw-cured ham, dry-cured ham, sausages, cooked sausages, duck mousse, country-style pâté, pâté, pork liver mousse or terrine, pâtés or terrines of game, pork, poultry or rabbit, preserved liver, rillettes, lardons, pork belly, dry sausages, dry sausage specialities, chorizo, pavé, rosette, salami, preparation of cooked ham and shoulder, preparation of poultry, preparation of raw- or dry-cured ham |
| **Chocolate products** | Chocolate assortments, chocolate bars, sweets, chocolate truffles or bites, chocolate tablets (diet/light, dark, milk, white, filled, with inclusions, etc.), spreads, chocolate powders (to mix with water or milk), capsules for making cocoa beverages |
| **Fruit purées, compotes and desserts** | All compotes, low-sugar (light) compotes, fruit desserts, fruit purées, fruit compotes with specific added ingredients, fruit compotes with specific added ingredients (without added sugar) |
| **Confectionery** | Boiled sweets, lollipops, gum/jelly sweets, liquid, powdered or gel confectionery, caramels, sugared almonds, candied fruit, fruit pastes, liquorice, calissons, nougats, lozenges, chewy sweets, chewing gum, sugar-free confectionery |
| **Jams** | All standard jams, jellies or marmalades (extra or not), low-sugar (light) jams, jellies or marmalades, fruit preparations, other jam-like products, sweetened chestnut or prune purées |
| **Canned fruits** | All fruits preserved in water, fruits in fruit juice, fruits in light syrup, fruits in syrup |
| **Cheeses** | All cheeses, including cheese bites such as Apérivrais and mixed snacks such as breadsticks/cheese |
| **Ice-creams and sorbets** | All ices, ice creams and sorbets in the various existing formats (mini stick, stick, cone, tub and mini tub, bulk), but also ice-cream bars and mini bars, water or fruit ices, sundaes and frozen desserts (mini logs, vacherin, baked Alaska, Liégeois, etc.) and frozen desserts for sharing (including ice cream logs) |
| **Fruit juices and nectars** | All fruit juices, fruit juices made from concentrate, nectars, vegetable juices that comply with the national code of good practice, and smoothies that comply with Decree 2013-1049 |
| **Infant milks** | All infant and follow-on formulae, and growing-up milks |
| **Margarines** | Margarines. |

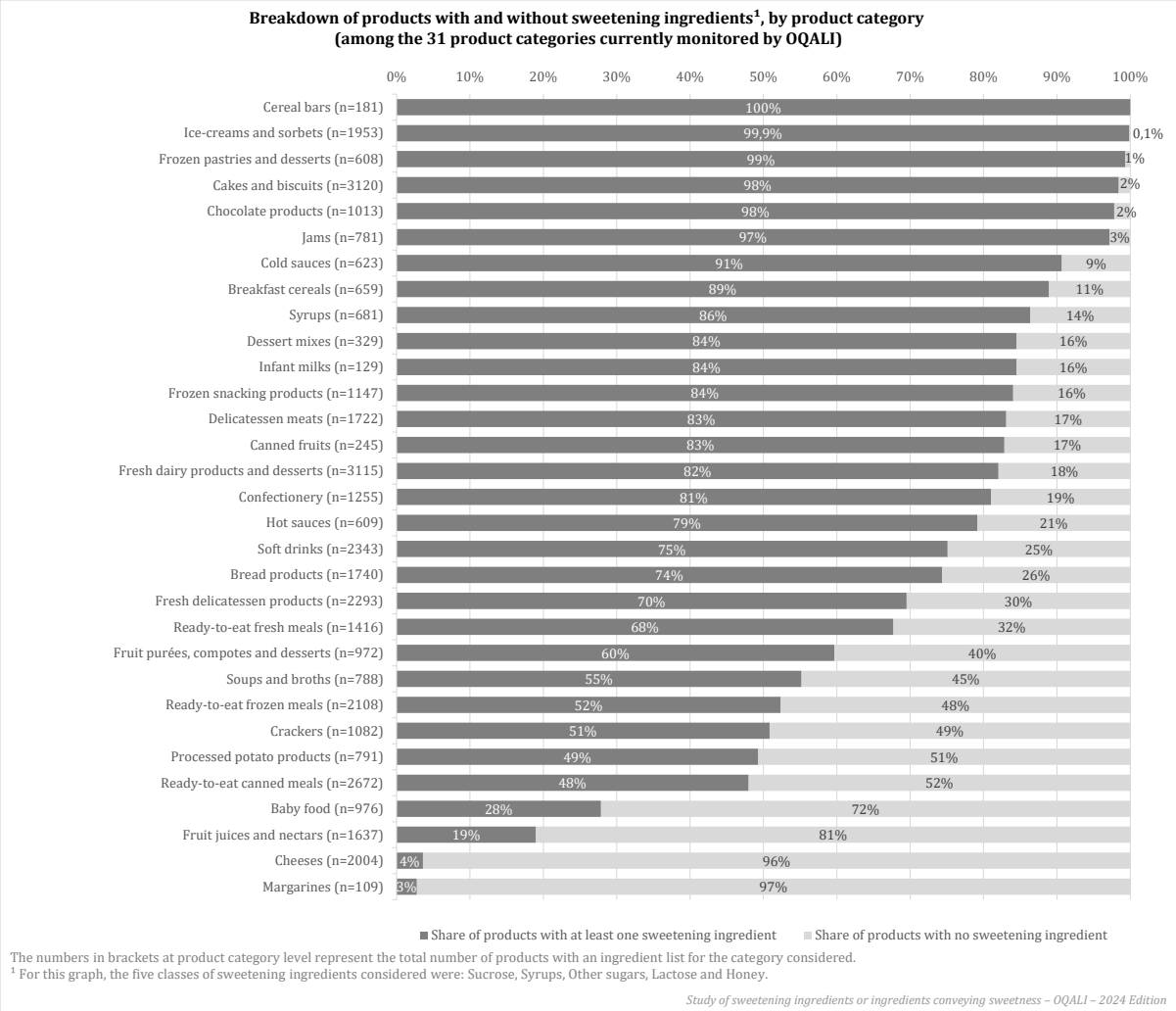
| Category | Definition |
|---|---|
| **Bread products** | Rusks, brioches, crackers, croutons, unleavened bread, puffed cakes, savoury muffins, panettone, pancakes, sandwich breads, toasted bread, hamburger buns, hot-dog buns, sandwich buns, pita bread, pre-baked bread, pre-packaged bread, tortilla wraps, cereal specialities (wheat crackers, etc.), filled cereal specialities (filled crackers, filled cereal sticks, etc.), crispbreads (including sweet or savoury cocktail crackers), fine bakery wares (croissants, chocolate croissants, apple turnovers, etc.). |
| **Ready-to-eat canned meals** | Canned complete meals (such as cassoulet, blanquette, boeuf Bourguignon, chili con carne, sauerkraut, couscous, cottage or shepherd's pies, paella, meat with vegetables or starchy foods, fish with vegetables or starchy foods, gratins), cooked (microwaveable or not) vegetable and/or starchy food dishes, quenelle dumplings, cooked meats without a side dish (duck confit, pork sauté, etc.), cooked pasta, tabbouleh, canned salads, canned cooked fish, alternative meat-free products, dehydrated prepared meals, self-assembly dishes. |
| **Ready-to-eat fresh meals** | Fresh complete meals (such as sauerkraut, paella, couscous, cottage or shepherd's pies, stuffed vegetables and rice, meat with vegetables or starchy foods, fish with vegetables or starchy foods, gratins, risottos), cooked vegetables or starchy foods, plain fresh pasta, cooked pasta (lasagne, stuffed fresh pasta, etc.), breaded meats, battered or breaded fish, quenelle dumplings, cooked meats, cooked fish, fish burgers, prepared shrimps, cooked scallops, tripe, cereal cakes/soy steaks, snails, exotic products (fajitas, enchiladas, pastillas, samosas, fried spring rolls, shrimp fritters, salt cod fritters, etc.) |
| **Ready-to-eat frozen meals** | Frozen complete meals (such as couscous, lasagne, moussaka, cottage or shepherd's pies, meat/fish + various side dishes), cooked meats or fish without a side dish (e.g. fish à la Bordelaise), cooked vegetables or starchy foods (side dishes "alone" such as Chinese fried rice, gnocchi, mashed potatoes and mushrooms, etc.), vegetable patties, gratins and flans, delicatessen seafood starters (fish baked in scallop shell, cassolette, etc.), breaded and/or fried products (battered or breaded fish, squid fritters, nuggets, cordon bleu, etc.), ethnic fried products (salt cod fritters, etc.), snails, savoury soufflés, **as well as all the mini versions of these dishes.** Protein steaks (including unflavoured), steaks flavoured with tomato or onion, for example (including non-protein steaks). Minced meatballs. Breaded cheeses. |
| **Dessert mixes** | Powdered dessert preparations to which ingredients have to be added (mixes for clafoutis, custard tarts, cookies, custard sauces, pastry cream, crème brûlée, panna cotta, crepes, waffles, pancakes, rice desserts, dairy-based desserts, cakes, etc.), ready-to-cook doughs or batters (for cookies, crème brûlée, cakes) |
| **Fresh dairy products and desserts** | All yoghurts and fermented milks (sugar-sweetened, artificially-sweetened or unsweetened, classic or gourmet), fresh cheeses (sugar-sweetened, artificially-sweetened or unsweetened, classic or gourmet), fresh desserts (dessert creams, curdled milks, jellied milks, Liégeois desserts, fresh desserts with cereals such as rice pudding, fresh mousse desserts, fresh desserts with eggs such as crème caramel, crème brûlée, custards and flans, floating islands, panna cotta and other dairy-based desserts, desserts such as chocolate fondant, profiteroles, tiramisu, clafoutis, rum babas and cakes, whether sugar-sweetened, light or artificially-sweetened) and fresh plant-based desserts (soy desserts and other plant-based desserts) |
| **Fresh delicatessen products** | Products to be stored chilled:<br>Pizzas, ready-rolled pastry (brick, filo, shortcrust, flaky, rich shortcrust, pizza dough), smoked fish, starchy salads (pasta salads, potato salads, tabbouleh, etc.), raw vegetable salads (crudités), mixed salads, brawn or saveloy salads, sandwiches, burgers, toasted sandwiches and breaded escalopes, other snacks, surimi (crab sticks), savoury tarts, flammekueches, quiches Lorraines, spreads (seafood rillettes, taramasalata, seafood terrines, tzatziki, ktipiti, etc.), blinis, savoury filled crepes, fresh plain or sweetened crepes, shrimps, puff pastries or brioches, pâté in pastry, mussels, fish roe, sauces for pasta or fish, seafood tapas, set lunches such as mixed salad sold with a starter and/or dessert, other fresh delicatessen products such as savoury cakes, pizza kits, crustless tarts, etc. |
| **Processed potato products** | All crisps and similar products (old-fashioned, classic, wavy, low-fat, including oven-baked potato products), French fries (for microwave, deep-fryer or oven), other potato-based side dishes (dauphiné, croquettes, duchess and noisette potatoes, röstis – including onion röstis, potatoes sautéed in duck fat, potato wedges, sautéed or fried potatoes), steamed potatoes and mashed potatoes (ready-to-eat (stored at room temperature/chilled/frozen), in flakes, may contain mushrooms). Sweet potato fries. |
| **Hot sauces** | Products to be stored at room temperature:<br>Sauces for meat or fish (Armorican, Bearnaise, beurre blanc, Hollandaise, etc.), sauces for pasta (Bolognese, with cooked vegetables, pesto, etc.), sauces to accompany dishes (sweet and sour, Basque, curry, Mexican, etc.), tomato coulis, bechamel sauces |

| Category | Definition |
|---|---|
| **Cold sauces** | Seasoning sauces (such as French dressing, vinaigrette, salad dressings, crudité sauces, Caesar sauce, etc.; low-fat/light or not), cold emulsified sauces (such as mayonnaise, aioli, tartare, Béarnaise, pepper, Bourguignon, burger, American, rouille, curry, for chips, etc.; low-fat/light or not), cold non-emulsified sauces (such as ketchups, barbecue sauce, Mexican sauce, etc.; light or not) |
| **Syrups** | All syrups, concentrated beverages to dilute (squashes and cordials), concentrated beverages to dilute without added sugar |
| **Frozen snacking products** | Pizzas, quiches, tarts, pies, savoury cakes, crepes, pancakes, pastillas, puff pastries, pastry friands, buns, hamburgers, wraps, filled/topped baguettes, cocktail or aperitif products (aumonière bundles, puff pastries, choux pastries, gougères, party loaves, canapés, verrines), salads, tabbouleh, sandwiches, toasted sandwiches (croque monsieur), hot dogs, kebabs, meats in pastry (pâté, roast meat, ham) |
| **Frozen pastries and desserts** | All frozen pastries and cakes, as well as products found in the frozen dessert section, i.e. products such as: croissants, chocolate croissants, raisin buns, brioches, milk breads, apple turnovers; plain or flavoured brioche, with chocolate chips or candied fruit, Tropézienne, French-toast style brioche; doughnuts, sweet fritters, churros, crepes, waffles, pancakes; macaroons; tarts, crumbles, gâteaux, cakes, genoises (sponges), financiers, madeleines; choux pastries (éclairs, profiteroles, Paris-Brest, Saint-Honoré, etc.); desserts such as bavarois, tiramisu, opéra, cheesecake, Black Forest gâteau, charlotte, dessert logs (the "Ice creams and sorbets" category already includes ice-cream logs), etc.; custard tarts, clafoutis, Breton far cake, Basque cake, kouign-amann, kings' cakes, mille-feuilles, cookies; products such as panna cotta, crème brûlée and mousses found in the frozen dessert section. |

| Types of brands | Definition |
|---|---|
| **National brands** | Products whose brand belongs to a manufacturer and can be found in most supermarkets and hypermarkets in France (e.g. Danone, Nestlé, Lu, etc.). |
| **Retailer brands** | Retail chains' branded products, whose characteristics have been defined by the chains that retail them (e.g. own brands of chains such as Carrefour, Auchan, Système U, Leclerc, Intermarché, etc.) |
| **Entry-level retailer brands** | Retail chains' branded products, often characterised by a lower than average price for the category. They generally have a name that reflects them being the cheapest products in the category (e.g. retailer brands' "budget price" products: Simpl from Carrefour, Bien Vu from Système U, Eco+ from Leclerc, etc.). |
| **Hard discount** | Products sold only in hard discount shops (e.g. brands such as Lidl, Aldi, Netto, etc.). |
| **Specialised retailer brands** | Products defined as frozen foods sold in freezer centres and by doorstep sales companies (e.g. brands such as Picard, Thiriet, etc.). |
| **Specialised organic retailer brands** | Defined as branded products from specialised organic retailers (e.g. own brands from chains such as Naturalia, La Vie Claire, Biocoop, etc.). |

# Annex 2: Breakdown of products with and without sweetening ingredients by food category (among the 31 categories currently considered by OQALI; sorted in descending order of the proportion of products with sweetening ingredients)

For this graph and in order to compare our results with those of other studies, only five classes of sweetening ingredients were considered: Sucrose, Syrups, Other sugars, Lactose and Honey.




The numbers in brackets at product category level represent the total number of products with an ingredient list for the category considered.
[1] For this graph, the five classes of sweetening ingredients considered were: Sucrose, Syrups, Other sugars, Lactose and Honey.

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# Annex 3: Numbers and proportions of products by food category and type of brand, for the products studied in the part on the review of the use of sweetening ingredients or ingredients conveying sweetness (among the 31 categories studied based on the latest data available)

| Type of brand / Product categories | National brands | | Retailer brands | | Entry-level retailer brands | | Hard discount | | Specialised retailer brands | | Specialised organic retailer brands | | ***All types of brands combined*** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Numbers of products | *Proportions of products* | Numbers of products | *Proportions of products* | Numbers of products | *Proportions of products* | Numbers of products | *Proportions of products* | Numbers of products | *Proportions of products* | Numbers of products | *Proportions of products* | ***Numbers of products*** | ***Proportions of products*** |
| Baby food | 724 | *74%* | 187 | *19%* | 0 | *0%* | 48 | *5%* | 17 | *2%* | 0 | *0%* | ***976*** | ***2%*** |
| Crackers | 250 | *23%* | 563 | *52%* | 59 | *5%* | 210 | *19%* | 0 | *0%* | 0 | *0%* | ***1082*** | ***3%*** |
| Cereal bars | 47 | *26%* | 88 | *49%* | 13 | *7%* | 31 | *17%* | 0 | *0%* | 2 | *1%* | ***181*** | ***0,5%*** |
| Cakes and biscuits | 943 | *30%* | 1493 | *48%* | 126 | *4%* | 470 | *15%* | 0 | *0%* | 88 | *3%* | ***3120*** | ***8%*** |
| Soft drinks | 1276 | *54%* | 845 | *36%* | 34 | *1%* | 166 | *7%* | 0 | *0%* | 22 | *1%* | ***2343*** | ***6%*** |
| Soups and broths | 370 | *47%* | 234 | *30%* | 21 | *3%* | 79 | *10%* | 69 | *9%* | 15 | *2%* | ***788*** | ***2%*** |
| Breakfast cereals | 256 | *39%* | 267 | *41%* | 20 | *3%* | 90 | *14%* | 0 | *0%* | 26 | *4%* | ***659*** | ***2%*** |
| Delicatessen meats | 355 | *21%* | 881 | *51%* | 141 | *8%* | 345 | *20%* | 0 | *0%* | 0 | *0%* | ***1722*** | ***4%*** |
| Chocolate products | 405 | *40%* | 379 | *37%* | 54 | *5%* | 175 | *17%* | 0 | *0%* | 0 | *0%* | ***1013*** | ***3%*** |
| Fruit purées, compotes and desserts | 357 | *37%* | 462 | *48%* | 23 | *2%* | 86 | *9%* | 0 | *0%* | 44 | *5%* | ***972*** | ***2%*** |
| Confectionery | 748 | *60%* | 323 | *26%* | 28 | *2%* | 134 | *11%* | 0 | *0%* | 22 | *2%* | ***1255*** | ***3%*** |
| Jams | 295 | *38%* | 359 | *46%* | 14 | *2%* | 78 | *10%* | 0 | *0%* | 35 | *4%* | ***781*** | ***2%*** |
| Canned fruits | 59 | *24%* | 125 | *51%* | 22 | *9%* | 39 | *16%* | 0 | *0%* | 0 | *0%* | ***245*** | ***1%*** |
| Cheeses | 520 | *26%* | 1043 | *52%* | 100 | *5%* | 328 | *16%* | 0 | *0%* | 13 | *1%* | ***2004*** | ***5%*** |
| Ice-creams and sorbets | 434 | *22%* | 659 | *34%* | 39 | *2%* | 179 | *9%* | 642 | *33%* | 0 | *0%* | ***1953*** | ***5%*** |
| Fruit juices and nectars | 513 | *31%* | 766 | *47%* | 95 | *6%* | 237 | *14%* | 0 | *0%* | 26 | *2%* | ***1637*** | ***4%*** |
| Infant milks | 110 | *85%* | 14 | *11%* | 0 | *0%* | 5 | *4%* | 0 | *0%* | 0 | *0%* | ***129*** | ***0%*** |
| Margarines | 44 | *40%* | 41 | *38%* | 7 | *6%* | 16 | *15%* | 0 | *0%* | 1 | *1%* | ***109*** | ***0,3%*** |
| Bread products | 714 | *41%* | 719 | *41%* | 39 | *2%* | 209 | *12%* | 0 | *0%* | 59 | *3%* | ***1740*** | ***4%*** |
| Ready-to-eat canned meals | 1295 | *48%* | 1045 | *39%* | 57 | *2%* | 247 | *9%* | 0 | *0%* | 28 | *1%* | ***2672*** | ***7%*** |
| Ready-to-eat fresh meals | 444 | *31%* | 771 | *54%* | 31 | *2%* | 170 | *12%* | 0 | *0%* | 0 | *0%* | ***1416*** | ***4%*** |
| Ready-to-eat frozen meals | 462 | *22%* | 719 | *34%* | 38 | *2%* | 255 | *12%* | 634 | *30%* | 0 | *0%* | ***2108*** | ***5%*** |
| Dessert mixes | 234 | *71%* | 66 | *20%* | 0 | *0%* | 29 | *9%* | 0 | *0%* | 0 | *0%* | ***329*** | ***1%*** |
| Fresh dairy products and desserts | 1069 | *34%* | 1467 | *47%* | 86 | *3%* | 426 | *14%* | 0 | *0%* | 67 | *2%* | ***3115*** | ***8%*** |
| Fresh delicatessen products | 443 | *19%* | 1378 | *60%* | 91 | *4%* | 357 | *16%* | 0 | *0%* | 24 | *1%* | ***2293*** | ***6%*** |
| Processed potato products | 221 | *28%* | 362 | *46%* | 35 | *4%* | 91 | *12%* | 78 | *10%* | 4 | *1%* | ***791*** | ***2%*** |
| Hot sauces | 196 | *32%* | 297 | *49%* | 17 | *3%* | 83 | *14%* | 0 | *0%* | 16 | *3%* | ***609*** | ***2%*** |
| Cold sauces | 215 | *35%* | 313 | *50%* | 25 | *4%* | 70 | *11%* | 0 | *0%* | 0 | *0%* | ***623*** | ***2%*** |
| Syrups | 310 | *46%* | 290 | *43%* | 14 | *2%* | 60 | *9%* | 0 | *0%* | 7 | *1%* | ***681*** | ***2%*** |
| Frozen snacking products | 258 | *22%* | 352 | *31%* | 18 | *2%* | 116 | *10%* | 403 | *35%* | 0 | *0%* | ***1147*** | ***3%*** |
| Frozen pastries and desserts | 67 | *11%* | 134 | *22%* | 1 | *0,2%* | 47 | *8%* | 359 | *59%* | 0 | *0%* | ***608*** | ***2%*** |
| ***All categories combined*** | ***13634*** | ***35%*** | ***16642*** | ***43%*** | ***1248*** | ***3%*** | ***4876*** | ***12%*** | ***2202*** | ***6%*** | ***499*** | ***1%*** | ***39101*** | ***100%*** |

# Annex 4: Numbers and proportions of products by the number of different classes of sweetening ingredients or ingredients conveying sweetness found in the same product, by food category (31 categories currently considered by OQALI) and among the 39,101 products studied

| Product category | Breakdown of products according to the number of classes of sweetening ingredients or ingredients conveying sweetness found in their ingredient lists, by product category (in the 31 product categories currently considered by OQALI) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **No sweetening ingredients or ingredients conveying sweetness** | | **1 class** | | **2 classes** | | **3 classes** | | **4 classes** | | **5 classes** | | **6 classes** | | **7 classes** | |
| | Number | Proportion | Number | Proportion | Number | Proportion | Number | Proportion | Number | Proportion | Number | Proportion | Number | Proportion | Number | Proportion |
| ***All product categories combined (n=39101)*** | ***9067*** | ***23%*** | ***13117*** | ***34%*** | ***9953*** | ***25%*** | ***4562*** | ***12%*** | ***1833*** | ***5%*** | ***471*** | ***1%*** | ***79*** | ***0,2%*** | ***19*** | ***0,05%*** |
| Baby food (n=976) | 576 | 59% | 281 | 29% | 95 | 10% | 20 | 2% | 4 | 0,4% | 0 | 0% | 0 | 0% | 0 | 0% |
| Crackers (n=1082) | 510 | 47% | 285 | 26% | 222 | 21% | 50 | 5% | 15 | 1% | 0 | 0% | 0 | 0% | 0 | 0% |
| Cereal bars (n=181) | 0 | 0% | 2 | 1% | 10 | 6% | 45 | 25% | 90 | 50% | 30 | 17% | 3 | 2% | 1 | 1% |
| Cakes and biscuits (n=3120) | 3 | 0,1% | 841 | 27% | 1178 | 38% | 750 | 24% | 301 | 10% | 37 | 1% | 7 | 0,2% | 3 | 0,1% |
| Soft drinks (n=2343) | 211 | 9% | 640 | 27% | 1221 | 52% | 237 | 10% | 33 | 1% | 1 | 0,04% | 0 | 0% | 0 | 0% |
| Soups and broths (n=788) | 323 | 41% | 298 | 38% | 135 | 17% | 27 | 3% | 5 | 1% | 0 | 0% | 0 | 0% | 0 | 0% |
| Breakfast cereals (n=659) | 60 | 9% | 193 | 29% | 258 | 39% | 125 | 19% | 18 | 3% | 5 | 1% | 0 | 0% | 0 | 0% |
| Delicatessen meats (n=1722) | 279 | 16% | 630 | 37% | 526 | 31% | 261 | 15% | 23 | 1% | 3 | 0,2% | 0 | 0% | 0 | 0% |
| Chocolate products (n=1013) | 8 | 1% | 553 | 55% | 286 | 28% | 118 | 12% | 31 | 3% | 11 | 1% | 4 | 0,4% | 2 | 0,2% |
| Fruit purées, compotes and desserts (n=972) | 296 | 30% | 567 | 58% | 106 | 11% | 3 | 0,3% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| Confectionery (n=1255) | 1 | 0,1% | 44 | 4% | 577 | 46% | 441 | 35% | 162 | 13% | 23 | 2% | 7 | 1% | 0 | 0% |
| Jams (n=781) | 0 | 0% | 430 | 55% | 321 | 41% | 30 | 4% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| Canned fruits (n=245) | 0 | 0% | 175 | 71% | 69 | 28% | 1 | 0,4% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| Cheeses (n=2004) | 1899 | 95% | 97 | 5% | 8 | 0,4% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| Ice-creams and sorbets (n=1953) | 0 | 0% | 31 | 2% | 241 | 12% | 766 | 39% | 619 | 32% | 246 | 13% | 44 | 2% | 6 | 0,3% |
| Fruit juices and nectars (n=1637) | 80 | 5% | 1282 | 78% | 244 | 15% | 25 | 2% | 6 | 0,4% | 0 | 0% | 0 | 0% | 0 | 0% |
| Infant milks (n=129) | 17 | 13% | 86 | 67% | 25 | 19% | 1 | 1% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| Margarines (n=109) | 95 | 87% | 14 | 13% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| Bread products (n=1740) | 425 | 24% | 925 | 53% | 335 | 19% | 45 | 3% | 10 | 1% | 0 | 0% | 0 | 0% | 0 | 0% |
| Ready-to-eat canned meals (n=2672) | 1240 | 46% | 931 | 35% | 390 | 15% | 89 | 3% | 22 | 1% | 0 | 0% | 0 | 0% | 0 | 0% |
| Ready-to-eat fresh meals (n=1416) | 406 | 29% | 534 | 38% | 303 | 21% | 128 | 9% | 38 | 3% | 6 | 0,4% | 1 | 0,1% | 0 | 0% |
| Ready-to-eat frozen meals (n=2108) | 868 | 41% | 751 | 36% | 347 | 16% | 101 | 5% | 36 | 2% | 5 | 0,2% | 0 | 0% | 0 | 0% |
| Dessert mixes (n=329) | 43 | 13% | 196 | 60% | 70 | 21% | 19 | 6% | 1 | 0,3% | 0 | 0% | 0 | 0% | 0 | 0% |
| Fresh dairy products and desserts (n=3115) | 489 | 16% | 1159 | 37% | 939 | 30% | 364 | 12% | 120 | 4% | 40 | 1% | 4 | 0,1% | 0 | 0% |
| Fresh delicatessen products (n=2293) | 529 | 23% | 592 | 26% | 661 | 29% | 375 | 16% | 123 | 5% | 12 | 1% | 1 | 0,04% | 0 | 0% |
| Processed potato products (n=791) | 401 | 51% | 334 | 42% | 49 | 6% | 7 | 1% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| Hot sauces (n=609) | 114 | 19% | 358 | 59% | 97 | 16% | 32 | 5% | 8 | 1% | 0 | 0% | 0 | 0% | 0 | 0% |
| Cold sauces (n=623) | 38 | 6% | 244 | 39% | 273 | 44% | 55 | 9% | 13 | 2% | 0 | 0% | 0 | 0% | 0 | 0% |
| Syrups (n=681) | 6 | 1% | 101 | 15% | 382 | 56% | 170 | 25% | 22 | 3% | 0 | 0% | 0 | 0% | 0 | 0% |
| Frozen snacking products (n=1147) | 147 | 13% | 374 | 33% | 400 | 35% | 137 | 12% | 62 | 5% | 23 | 2% | 3 | 0,3% | 1 | 0,1% |
| Frozen pastries and desserts (n=608) | 3 | 0,5% | 169 | 28% | 185 | 30% | 140 | 23% | 71 | 12% | 29 | 5% | 5 | 1% | 6 | 1% |

n: total numbers all product categories combined or by product category
In green: frequency of presence greater than or equal to 10%

# Annex 5: Numbers and proportions of products by the number of different classes of sweetening ingredients or ingredients conveying sweetness found in the same product, by type of brand (among the 31 food categories currently considered by OQALI) and among the 39,101 products studied

| Type of brand | Proportion of products according to the number of classes of sweetening ingredients or ingredients conveying sweetness found in their ingredient lists, by type of brand (in the 31 product categories currently considered by OQALI) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **No sweetening ingredients or ingredients conveying sweetness** | | **1 class** | | **2 classes** | | **3 classes** | | **4 classes** | | **5 classes** | | **6 classes** | | **7 classes** | |
| | Number | Proportion | Number | Proportion | Number | Proportion | Number | Proportion | Number | Proportion | Number | Proportion | Number | Proportion | Number | Proportion |
| ***All types of brands combined (n=39101)*** | ***9067*** | ***23%*** | ***13117*** | ***34%*** | ***9953*** | ***25%*** | ***4562*** | ***12%*** | ***1833*** | ***5%*** | ***471*** | ***1%*** | ***79*** | ***0,2%*** | ***19*** | ***0,05%*** |
| National brands (n=13634) | 3270 | 24% | 4573 | 34% | 3544 | 26% | 1531 | 11% | 576 | 4% | 108 | 1% | 25 | 0,2% | 7 | 0,1% |
| Retailer brands (n=16642) | 3862 | 23% | 5821 | 35% | 4243 | 25% | 1811 | 11% | 699 | 4% | 175 | 1% | 26 | 0,2% | 5 | 0,03% |
| Entry-level retailer brands (n=1248) | 281 | 23% | 409 | 33% | 315 | 25% | 176 | 14% | 60 | 5% | 6 | 0,5% | 0 | 0% | 1 | 0,1% |
| Hard discount (n=4876) | 1041 | 21% | 1612 | 33% | 1327 | 27% | 620 | 13% | 224 | 5% | 45 | 1% | 7 | 0,1% | 0 | 0% |
| Specialised retailer brands[1] (n=2202) | 426 | 19% | 530 | 24% | 420 | 19% | 391 | 18% | 271 | 12% | 137 | 6% | 21 | 1% | 6 | 0,3% |

n: total number of products with an ingredient list, all types of brands combined or by type of brands
In green: frequency of presence greater than or equal to 10%
[1] As specialised retailer brands were present in only seven product categories out of the 31 studied (Baby food, Soups and broths, Ice creams and sorbets, Ready-to-eat frozen meals, Processed potato products, Frozen snacking products, Frozen pastries and desserts), it is difficult to compare them to the other types of brands

# Annex 6: Numbers and proportions of products by combination of most commonly used classes of sweetening ingredients or ingredients conveying sweetness, all products combined (among the 31 food categories currently considered by OQALI) and among the 39,101 products studied

| Class of sweetening ingredients or ingredients conveying sweetness / combinations of classes of sweetening ingredient or ingredient conveying sweetness | Products containing at least the class/combination of classes of sweetening ingredients or ingredients conveying sweetness considered, all categories combined (among the 31 categories currently monitored by OQALI) | |
|---|---|---|
| | Number | Proportion |
| ***No sweetening ingredients or ingredients conveying sweetness*** | ***9067*** | ***23%*** |
| Sucrose | 7927 | 20% |
| Other combinations[1] | 5030 | 13% |
| Fruit juices and concentrates / sucrose | 2753 | 7% |
| Syrups / sucrose | 2652 | 7% |
| Fruit juices and concentrates | 2254 | 6% |
| Other sugars[2] | 1533 | 4% |
| Sucrose / other sugars[2] | 1182 | 3% |
| Syrups / sucrose / other classes[3] | 974 | 2% |
| Sucrose / other classes[2] | 867 | 2% |
| Fruit juices and concentrates / syrups / sucrose | 846 | 2% |
| Syrups / sucrose / lactose | 817 | 2% |
| Sucrose / lactose | 714 | 2% |
| Syrups / sucrose / other sugars[2] | 566 | 1% |
| Syrups | 534 | 1% |
| Lactose | 506 | 1% |
| Syrups / sucrose / lactose / other classes[3] | 474 | 1% |
| Syrups / other sugars[2] | 405 | 1% |

[1] Other combinations: groups together combinations whose frequency of presence was < 1%
[2] Other sugars: all mono- and disaccharides, alone or in combination (excluding sucrose, mention of "sugar" and lactose)
[3] Other classes: groups together the following classes: Caramel, Other ingredients conveying sugars, Bulk sweeteners, Honey, and Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness

# Annex 7: Numbers and proportions of products containing at least the intense sweetener considered in sweetened products and in all products, for each of the four relevant food categories

| Product category<br><br>*(n=total number of products for the category considered)* | Intense sweetener | Number of products containing at least the intense sweetener studied* | Proportion in relation to products containing at least one intense sweetener in the product category considered | Proportion in relation to all products taken into account for the product category considered |
|---|---|---|---|---|
| Soft drinks (n=2343) | At least one intense sweetener | 407 | 100% | 17% |
| | Acesulfame K | 254 | 62% | 11% |
| | Sucralose | 217 | 53% | 9% |
| | Steviol glycosides | 99 | 24% | 4% |
| | Aspartame | 91 | 22% | 4% |
| | Saccharins | 15 | 4% | 1% |
| | Cyclamates | 14 | 3% | 1% |
| | Neohesperidin DC | 2 | 0,5% | 0,1% |
| Confectionery (n=1255) | At least one intense sweetener | 239 | 100% | 19% |
| | Acesulfame K | 173 | 72% | 14% |
| | Aspartame | 135 | 56% | 11% |
| | Sucralose | 116 | 49% | 9% |
| | Steviol glycosides | 23 | 24% | 2% |
| | Salt of aspartame-acesulfame | 3 | 1% | 0,2% |
| Fresh dairy products and desserts (n=3115) | At least one intense sweetener | 123 | 100% | 4% |
| | Acesulfame K | 119 | 97% | 4% |
| | Sucralose | 73 | 59% | 2% |
| | Aspartame | 41 | 33% | 1% |
| | Cyclamates | 8 | 7% | 0,3% |
| | Neohesperidin DC | 8 | 7% | 0,3% |
| | Steviol glycosides | 7 | 6% | 0,2% |
| | Neotame | 1 | 1% | 0,03% |
| Syrups (n=681) | At least one intense sweetener | 73 | 100% | 11% |
| | Acesulfame K | 63 | 86% | 9% |
| | Sucralose | 62 | 85% | 9% |
| | Steviol glycosides | 17 | 23% | 2% |
| | Cyclamates | 16 | 22% | 2% |
| | Aspartame | 11 | 15% | 2% |

* the same product may contain several intense sweeteners

## Annex 8: Numbers and proportions of products containing at least the intense sweetener considered in sweetened products and in all products, by type of brand, based on the latest data available (among the 31 food categories currently monitored by OQALI)

| Type of brand<br><br>*(n=total number of products for the type of brand considered)* | Intense sweetener | Number of products containing at least the intense sweetener studied* | Proportion in relation to products containing at least one intense sweetener (n=926) | Proportion in relation to all products taken into account in the study (n=39 101) |
|---|---|---|---|---|
| National brands (n=13634) | At least one intense sweetener | 532 | 100% | 4% |
| | Acesulfame K | 378 | 71% | 3% |
| | Sucralose | 268 | 50% | 2% |
| | Aspartame | 190 | 36% | 1% |
| | Steviol glycosides | 95 | 18% | 1% |
| | Cyclamates | 25 | 5% | 0,2% |
| | Saccharins | 11 | 2% | 0,1% |
| | Neohesperidin DC | 10 | 2% | 0,1% |
| | Salt of aspartame-acesulfame | 3 | 1% | 0,02% |
| Retailer brands (n=16642) | At least one intense sweetener | 234 | 100% | 1% |
| | Sucralose | 164 | 70% | 1% |
| | Acesulfame K | 148 | 63% | 1% |
| | Steviol glycosides | 45 | 19% | 0,3% |
| | Aspartame | 38 | 16% | 0,2% |
| | Cyclamates | 3 | 1% | 0,02% |
| | Neotame | 1 | 0% | 0,01% |
| | Saccharins | 1 | 0% | 0,01% |
| Entry-level retailer brands (n=1248) | At least one intense sweetener | 47 | 100% | 4% |
| | Acesulfame K | 37 | 79% | 3% |
| | Sucralose | 26 | 55% | 2% |
| | Aspartame | 15 | 32% | 1% |
| | Saccharins | 11 | 23% | 1% |
| | Cyclamates | 10 | 21% | 1% |
| | Steviol glycosides | 1 | 2% | 0,1% |
| Hard discount (n=4876) | At least one intense sweetener | 109 | 100% | 2% |
| | Acesulfame K | 72 | 66% | 1% |
| | Sucralose | 48 | 44% | 1% |
| | Aspartame | 46 | 42% | 1% |
| | Steviol glycosides | 15 | 14% | 0,3% |
| | Cyclamates | 9 | 8% | 0,2% |
| | Saccharins | 6 | 6% | 0,1% |
| Specialised retailer brands[1] (n=2202) | At least one intense sweetener | 4 | 100% | 0,2% |
| | Steviol glycosides | 3 | 75% | 0,1% |
| | Acesulfame K | 1 | 25% | 0,05% |
| | Aspartame | 1 | 25% | 0,05% |

* the same product may contain several intense sweeteners

[1] As specialised retailer brands were present in only seven product categories out of the 31 studied (Baby food, Soups and broths, Ice creams and sorbets, Ready-to-eat frozen meals, Processed potato products, Frozen snacking products, Frozen pastries and desserts), it is difficult to compare them to the other types of brands

# Annex 9: Numbers and proportions of products by combination of intense sweeteners, in sweetened products and in all products (among the 31 food categories currently monitored by OQALI)

| Intense sweetener / combination of intense sweeteners | Number of intense sweeteners found | Number of products with the intense sweetener / combination of intense sweeteners | Proportion in relation to products containing at least one intense sweetener for all the product categories | Proportion in relation to all the product categories |
|---|---|---|---|---|
| acesulfame K / sucralose | 2 | 296 | 32% | 1% |
| acesulfame K / aspartame | 2 | 190 | 21% | 0,5% |
| steviol glycosides | 1 | 135 | 15% | 0,3% |
| sucralose | 1 | 116 | 13% | 0,3% |
| acesulfame K / aspartame/ sucralose | 3 | 64 | 7% | 0,2% |
| acesulfame K | 1 | 26 | 3% | 0,1% |
| aspartame | 1 | 12 | 1% | 0,03% |
| sucralose / steviol glycosides | 2 | 12 | 1% | 0,03% |
| acesulfame K / sucralose / steviol glycosides | 3 | 10 | 1% | 0,03% |
| acesulfame K / aspartame / cyclamates / saccharins | 4 | 9 | 0,97% | 0,02% |
| acesulfame K / cyclamates | 2 | 8 | 0,86% | 0,02% |
| acesulfame K / cyclamates / neohesperidin DC | 3 | 8 | 0,86% | 0,02% |
| cyclamates / saccharins | 2 | 8 | 0,86% | 0,02% |
| acesulfame K / aspartame / cyclamates | 3 | 6 | 0,65% | 0,02% |
| acesulfame K / cyclamates / sucralose | 3 | 6 | 0,65% | 0,02% |
| saccharins | 1 | 5 | 0,54% | 0,01% |
| acesulfame K / aspartame / saccharins | 3 | 3 | 0,32% | 0,01% |
| acesulfame K / aspartame / neohesperidin DC | 3 | 2 | 0,22% | 0,01% |
| acesulfame K / aspartame / salt of aspartame-acesulfame | 3 | 2 | 0,22% | 0,01% |
| acesulfame K / cyclamates / saccharins | 3 | 2 | 0,22% | 0,01% |
| acesulfame K / steviol glycosides | 2 | 2 | 0,22% | 0,01% |
| acesulfame K / aspartame / sucralose / salt of aspartame-acesulfame | 4 | 1 | 0,11% | 0,003% |
| acesulfame K / saccharins | 2 | 1 | 0,11% | 0,003% |
| aspartame / saccharins | 2 | 1 | 0,11% | 0,003% |
| sucralose / neotame | 2 | 1 | 0,11% | 0,003% |

# Annex 10: Numbers and proportions of products by combination of intense sweeteners, in sweetened products and in all products, for the four relevant food categories

| Product category | Intense sweetener / combination of intense sweeteners | Number of intense sweeteners found | Number of products with the intense sweetener / combination of intense sweeteners | Proportion in relation to products containing at least one intense sweetener in the product category considered | Proportion in relation to all the product categories combined |
|---|---|---|---|---|---|
| Soft drinks (n=2343 including 407 with at least one intense sweetener) | acesulfame K / sucralose | 2 | 159 | 39% | 7% |
| | steviol glycosides | 1 | 97 | 24% | 4% |
| | acesulfame K / aspartame | 2 | 71 | 17% | 3% |
| | sucralose | 1 | 52 | 13% | 2% |
| | acesulfame K / aspartame / cyclamates / saccharins | 4 | 8 | 2% | 0,3% |
| | acesulfame K / aspartame / cyclamates | 3 | 3 | 0,7% | 0,1% |
| | acesulfame K / aspartame / saccharins | 3 | 3 | 0,7% | 0,1% |
| | acesulfame K / aspartame/ sucralose | 3 | 3 | 0,7% | 0,1% |
| | acesulfame K | 1 | 2 | 0,5% | 0,1% |
| | acesulfame K / aspartame / neohesperidin DC | 3 | 2 | 0,5% | 0,1% |
| | acesulfame K / cyclamates / saccharins | 3 | 2 | 0,5% | 0,1% |
| | sucralose / steviol glycosides | 2 | 2 | 0,5% | 0,1% |
| | acesulfame K / cyclamates / sucralose | 3 | 1 | 0,2% | 0,04% |
| | aspartame / saccharins | 2 | 1 | 0,2% | 0,04% |
| | saccharins | 1 | 1 | 0,2% | 0,04% |
| Confectionery (n=1255 including 239 with at least one intense sweetener) | acesulfame K / aspartame | 2 | 74 | 31% | 6% |
| | acesulfame K / aspartame/ sucralose | 3 | 52 | 22% | 4% |
| | sucralose | 1 | 37 | 15% | 3% |
| | acesulfame K / sucralose | 2 | 26 | 11% | 2% |
| | steviol glycosides | 1 | 23 | 10% | 2% |
| | acesulfame K | 1 | 18 | 8% | 1% |
| | aspartame | 1 | 6 | 3% | 0,5% |
| | acesulfame K / aspartame / salt of aspartame-acesulfame | 3 | 2 | 0,8% | 0,2% |
| | acesulfame K / aspartame / sucralose / salt of aspartame-acesulfame | 4 | 1 | 0,4% | 0,1% |
| Dairy products and fresh desserts (n=3115 including 123 with at least one intense sweetener) | acesulfame K / sucralose | 2 | 64 | 52% | 2% |
| | acesulfame K / aspartame | 2 | 37 | 30% | 1% |
| | acesulfame K / cyclamates / neohesperidin DC | 3 | 8 | 7% | 0,3% |
| | sucralose | 1 | 4 | 3% | 0,1% |
| | acesulfame K / sucralose / steviol glycosides | 3 | 3 | 2% | 0,1% |
| | acesulfame K / steviol glycosides | 2 | 2 | 2% | 0,1% |
| | steviol glycosides | 1 | 2 | 2% | 0,1% |
| | acesulfame K | 1 | 1 | 0,8% | 0,0% |
| | acesulfame K / aspartame/ sucralose | 3 | 1 | 0,8% | 0,0% |
| | sucralose / neotame | 2 | 1 | 0,8% | 0,0% |
| Syrups (n=681 including 73 with at least one intense sweetener) | acesulfame K / sucralose | 2 | 32 | 44% | 5% |
| | sucralose / steviol glycosides | 2 | 10 | 14% | 1% |
| | acesulfame K / aspartame/ sucralose | 3 | 8 | 11% | 1% |
| | acesulfame K / cyclamates | 2 | 8 | 11% | 1% |
| | acesulfame K / sucralose / steviol glycosides | 3 | 7 | 10% | 1% |
| | acesulfame K / cyclamates / sucralose | 3 | 5 | 7% | 1% |
| | acesulfame K / aspartame / cyclamates | 3 | 3 | 4% | 0,4% |

# Annex 11: Numbers and proportions of products by combination of intense sweeteners, in sweetened products and in all products, by type of brand (among the 31 food categories currently monitored by OQALI)

| Type of brand | Intense sweetener / combination of intense sweeteners | Number of intense sweeteners found | Number of products with the intense sweetener / combination of intense sweeteners | Proportion in relation to products containing at least one intense sweetener for the type of brands considered | Proportion in relation to all the product categories combined |
|---|---|---|---|---|---|
| National brands | acesulfame K / sucralose | 2 | 162 | 30% | 1% |
| | acesulfame K / aspartame | 2 | 121 | 23% | 1% |
| | steviol glycosides | 1 | 92 | 17% | 1% |
| | sucralose | 1 | 50 | 9% | 0,4% |
| | acesulfame K / aspartame/ sucralose | 3 | 49 | 9% | 0,4% |
| | acesulfame K | 1 | 10 | 2% | 0,1% |
| | acesulfame K / cyclamates | 2 | 8 | 2% | 0,1% |
| | acesulfame K / cyclamates / neohesperidin DC | 3 | 8 | 2% | 0,1% |
| | aspartame | 1 | 7 | 1% | 0,1% |
| | saccharins | 1 | 5 | 0,9% | 0,04% |
| | acesulfame K / aspartame / cyclamates | 3 | 3 | 0,6% | 0,02% |
| | acesulfame K / aspartame / saccharins | 3 | 3 | 0,6% | 0,02% |
| | acesulfame K / cyclamates / sucralose | 3 | 3 | 0,6% | 0,02% |
| | acesulfame K / sucralose / steviol glycosides | 3 | 3 | 0,6% | 0,02% |
| | acesulfame K / aspartame / cyclamates / saccharins | 4 | 2 | 0,4% | 0,01% |
| | acesulfame K / aspartame / neohesperidin DC | 3 | 2 | 0,4% | 0,01% |
| | acesulfame K / aspartame / salt of aspartame-acesulfame | 3 | 2 | 0,4% | 0,01% |
| | acesulfame K / aspartame / sucralose / salt of aspartame-acesulfame | 4 | 1 | 0,2% | 0,01% |
| | acesulfame K / cyclamates / saccharins | 3 | 1 | 0,2% | 0,01% |
| Retailer brands | acesulfame K / sucralose | 2 | 92 | 39% | 1% |
| | sucralose | 1 | 46 | 20% | 0,3% |
| | steviol glycosides | 1 | 28 | 12% | 0,2% |
| | acesulfame K / aspartame | 2 | 26 | 11% | 0,2% |
| | acesulfame K | 1 | 10 | 4% | 0,1% |
| | acesulfame K / aspartame/ sucralose | 3 | 8 | 3% | 0,05% |
| | sucralose / steviol glycosides | 2 | 8 | 3% | 0,05% |
| | acesulfame K / sucralose / steviol glycosides | 3 | 7 | 3% | 0,04% |
| | aspartame | 1 | 3 | 1% | 0,02% |
| | acesulfame K / cyclamates / sucralose | 3 | 2 | 0,9% | 0,01% |
| | acesulfame K / steviol glycosides | 2 | 2 | 0,9% | 0,01% |
| | acesulfame K / aspartame / cyclamates / saccharins | 4 | 1 | 0,4% | 0,01% |
| | sucralose / neotame | 2 | 1 | 0,4% | 0,01% |
| Entry-level retailer brands | acesulfame K / sucralose | 2 | 22 | 47% | 2% |
| | acesulfame K / aspartame | 2 | 9 | 19% | 1% |
| | cyclamates / saccharins | 2 | 5 | 11% | 0,4% |
| | acesulfame K / aspartame / cyclamates / saccharins | 4 | 4 | 9% | 0,3% |
| | sucralose | 1 | 3 | 6% | 0,2% |
| | acesulfame K / aspartame/ sucralose | 3 | 1 | 2% | 0,1% |
| | acesulfame K / cyclamates / saccharins | 3 | 1 | 2% | 0,1% |
| | aspartame / saccharins | 2 | 1 | 2% | 0,1% |
| | steviol glycosides | 1 | 1 | 2% | 0,1% |
| Hard discount | acesulfame K / aspartame | 2 | 33 | 30% | 1% |
| | acesulfame K / sucralose | 2 | 20 | 18% | 0,4% |
| | sucralose | 1 | 17 | 16% | 0,3% |
| | steviol glycosides | 1 | 11 | 10% | 0,2% |
| | acesulfame K | 1 | 6 | 6% | 0,1% |
| | acesulfame K / aspartame/ sucralose | 3 | 6 | 6% | 0,1% |
| | sucralose / steviol glycosides | 2 | 4 | 4% | 0,1% |
| | acesulfame K / aspartame / cyclamates | 3 | 3 | 3% | 0,1% |
| | cyclamates / saccharins | 2 | 3 | 3% | 0,1% |
| | acesulfame K / aspartame / cyclamates / saccharins | 4 | 2 | 2% | 0,04% |
| | aspartame | 1 | 2 | 2% | 0,04% |
| | acesulfame K / cyclamates / sucralose | 3 | 1 | 0,9% | 0,02% |
| | acesulfame K / saccharins | 2 | 1 | 0,9% | 0,02% |
| Specialised retailer brands[1] | steviol glycosides | 1 | 3 | 75% | 0,1% |
| | acesulfame K / aspartame | 2 | 1 | 25% | 0,05% |

[1] As specialised retailer brands were present in only seven product categories out of the 31 studied (Baby food, Soups and broths, Ice creams and sorbets, Ready-to-eat frozen meals, Processed potato products, Frozen snacking products, Frozen pastries and desserts), it is difficult to compare them to the other types of brands

# Annex 12: Numbers and proportions of products by food category and type of brand, for the products studied in the part on changes in the use of sweetening ingredients or ingredients conveying sweetness (27 categories studied)

| Type of brand / Product categories | National brands | | Retailer brands | | Entry-level retailer brands | | Hard discount | | Specialised retailer brands | | Specialised organic retailer brands | | ***All types of brands combined*** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Baseline | Follow-up | Baseline | Follow-up | Baseline | Follow-up | Baseline | Follow-up | Baseline | Follow-up | Baseline | Follow-up | ***Baseline*** | ***Follow-up*** |
| Crackers | 18% | 23% | 47% | 52% | 10% | 5% | 25% | 19% | 0% | 0% | 0% | 0% | ***3%*** | ***3%*** |
| Cereal bars | 25% | 26% | 44% | 49% | 11% | 7% | 20% | 17% | 0% | 0% | 0% | 1% | ***1%*** | ***1%*** |
| Cakes and biscuits | 33% | 30% | 34% | 48% | 7% | 4% | 25% | 15% | 0% | 0% | 0% | 3% | ***9%*** | ***9%*** |
| Soft drinks | 31% | 54% | 50% | 36% | 5% | 1% | 13% | 7% | 0% | 0% | 0,1% | 1% | ***5%*** | ***7%*** |
| Soups and broths | 52% | 47% | 31% | 30% | 3% | 3% | 14% | 10% | 0% | 9% | 0% | 2% | ***3%*** | ***2%*** |
| Breakfast cereals | 35% | 39% | 39% | 41% | 4% | 3% | 22% | 14% | 0% | 0% | 0% | 4% | ***2%*** | ***2%*** |
| Delicatessen meats | 13% | 21% | 56% | 51% | 14% | 8% | 18% | 20% | 0% | 0% | 0% | 0% | ***6%*** | ***5%*** |
| Chocolate products | 39% | 40% | 30% | 37% | 8% | 5% | 24% | 17% | 0% | 0% | 0% | 0% | ***4%*** | ***3%*** |
| Fruit purées, compotes and desserts | 51% | 37% | 35% | 48% | 3% | 2% | 11% | 9% | 0% | 0% | 0% | 5% | ***2%*** | ***3%*** |
| Jams | 29% | 38% | 54% | 46% | 4% | 2% | 13% | 10% | 0% | 0% | 0% | 4% | ***2%*** | ***2%*** |
| Canned fruits | 36% | 24% | 35% | 51% | 18% | 9% | 12% | 16% | 0% | 0% | 0% | 0% | ***1%*** | ***1%*** |
| Ice-creams and sorbets | 15% | 22% | 37% | 34% | 3% | 2% | 12% | 9% | 34% | 33% | 0% | 0% | ***7%*** | ***6%*** |
| Fruit juices and nectars | 23% | 31% | 54% | 47% | 9% | 6% | 14% | 14% | 0% | 0% | 0% | 2% | ***4%*** | ***5%*** |
| Margarines | 42% | 40% | 32% | 38% | 9% | 6% | 17% | 15% | 0% | 0% | 0% | 1% | ***0,5%*** | ***0,3%*** |
| Bread products | 29% | 41% | 38% | 41% | 9% | 2% | 25% | 12% | 0% | 0% | 0% | 3% | ***3%*** | ***5%*** |
| Ready-to-eat canned meals | 27% | 48% | 46% | 39% | 9% | 2% | 18% | 9% | 0% | 0% | 0% | 1% | ***4%*** | ***8%*** |
| Ready-to-eat fresh meals | 28% | 31% | 61% | 54% | 3% | 2% | 7% | 12% | 0% | 0% | 0% | 0% | ***4%*** | ***4%*** |
| Ready-to-eat frozen meals | 15% | 22% | 35% | 34% | 2% | 2% | 14% | 12% | 34% | 30% | 0% | 0% | ***9%*** | ***6%*** |
| Dessert mixes | 42% | 71% | 24% | 20% | 0% | 0% | 34% | 9% | 0% | 0% | 0% | 0% | ***1%*** | ***1%*** |
| Fresh dairy products and desserts | 30% | 34% | 48% | 47% | 4% | 3% | 18% | 14% | 0% | 0% | 0% | 2% | ***8%*** | ***9%*** |
| Fresh delicatessen products | 23% | 19% | 59% | 60% | 7% | 4% | 12% | 16% | 0% | 0% | 0% | 1% | ***6%*** | ***7%*** |
| Processed potato products | 24% | 28% | 47% | 46% | 6% | 4% | 14% | 12% | 10% | 10% | 0% | 1% | ***3%*** | ***2%*** |
| Hot sauces | 28% | 32% | 53% | 49% | 3% | 3% | 16% | 14% | 0% | 0% | 0% | 3% | ***1%*** | ***2%*** |
| Cold sauces | 38% | 35% | 44% | 50% | 3% | 4% | 14% | 11% | 0% | 0% | 0% | 0% | ***3%*** | ***2%*** |
| Syrups | 26% | 46% | 54% | 43% | 6% | 2% | 13% | 9% | 0% | 0% | 0% | 1% | ***2%*** | ***2%*** |
| Frozen snacking products | 13% | 22% | 34% | 31% | 2% | 2% | 11% | 10% | 39% | 35% | 0% | 0% | ***5%*** | ***3%*** |
| Frozen pastries and desserts | 8% | 11% | 27% | 22% | 1% | 0,2% | 10% | 8% | 54% | 59% | 0% | 0% | ***3%*** | ***2%*** |
| ***All categories combined*** | ***26%*** | ***33%*** | ***43%*** | ***43%*** | ***6%*** | ***3%*** | ***16%*** | ***13%*** | ***9%*** | ***6%*** | ***0,01%*** | ***1%*** | ***100%*** | ***100%*** |

# Annex 13: Change in the proportions of products by class of sweetening ingredients or ingredients conveying sweetness and by food category (27 categories monitored for changes)

| Product category *(n=total number of products considered in the study, all product categories combined or by product category)* | Change in the proportion of products, all classes combined or by class of sweetening ingredients or ingredients conveying sweetness (27 product categories monitored for changes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | All classes combined | | | Sucrose | | | Syrups | | | Other sugars[1] | | | Lactose | | | Fruit juices and concentrates | | | Caramel | | | Other ingredients conveying sugars | | | Bulk sweeteners | | | Intense sweeteners | | | Honey | | | Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness | | | | | |
| | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | | | |
| **All product categories combined (Baseline: n=19723; Follow-up: n=34737)** | ***86,5%*** | ***81%*** | ***-5.5****** | **64%** | **62%** | ***-1.9****** | **32%** | **24%** | ***-7.9****** | **26%** | **18%** | ***-7.8****** | **20%** | **12%** | ***-7.6****** | **19%** | **21%** | ***+2.4****** | **7%** | **5%** | ***-2.1****** | **4%** | **3%** | ***-1.0****** | **3%** | **2%** | ***-0.6****** | **2,5%** | **2%** | ***-0.5****** | **2%** | **2%** | ***+0.01*** | **0,3%** | **0,2%** | ***-0.1**** |
| Crackers (Baseline: n=551; Follow-up: n=1082) | **55%** | **53%** | ***-2.5*** | 32% | 36% | ***+4.3*** | 18% | 20% | ***+2.0*** | 21% | 14% | ***-6.3**** | 16% | 8% | ***-7.7****** | 1% | 1% | ***+0.2*** | 2% | 3% | ***+0.7*** | 1% | 0,5% | ***-0.8*** | 3% | 2% | ***-1.1*** | 0% | 0,1% | ***+0.1*** | 1% | 1% | ***+0.5*** | 0,2% | 0% | ***-0,2*** |
| Cereal bars (Baseline: n=169; Follow-up: n=181) | **100%** | **100%** | ***0*** | 99% | 100% | ***+1.2*** | 97% | 99% | ***+1.9*** | 69% | 65% | ***-4.0*** | 17% | 6% | ***-11.6****** | 16% | 9% | ***-7.1**** | 27% | 3% | ***-23.9****** | 20% | 15% | ***-4.6*** | 66% | 76% | ***+10.0**** | 0% | 0% | ***0*** | 24% | 8% | ***-15.9****** | 0% | 2% | ***+2.2*** |
| Cakes and biscuits (Baseline: n=1723; Follow-up: n=3120) | **100%** | **99,9%** | ***-0.1*** | 99% | 97% | ***-1.4**** | 56% | 55% | ***-1.9*** | 22% | 15% | ***-6.9****** | 25% | 17% | ***-8.0****** | 9% | 8% | ***-0.6*** | 5% | 4% | ***-1.0*** | 11% | 8% | ***-2.2**** | 15% | 12% | ***-3.4****** | 0,1% | 0,3% | ***+0.3*** | 3% | 4% | ***+1.1*** | 0,46% | 0,2% | ***-0.2*** |
| Soft drinks (Baseline: n=891; Follow-up: n=2343) | **97%** | **91%** | ***-5.6****** | 62% | 69% | ***+7.1****** | 16% | 8% | ***-7.7****** | 4% | 4% | ***+0.1*** | 0,2% | 0% | ***-0,2*** | 54% | 54% | ***-0.2*** | 19% | 12% | ***-6.6****** | 1% | 1% | ***+0.4*** | 0% | 0,1% | ***+0.1*** | 30% | 17% | ***-12.6****** | 1% | 1% | ***+0.4*** | 0,3% | 0,3% | ***+0.005*** |
| Soups and broths (Baseline: n=569; Follow-up: n=788) | **65%** | **59%** | ***-5.7**** | 47% | 45% | ***-2.2*** | 17% | 16% | ***-0.4*** | 6% | 3% | ***-2.5**** | 19% | 8% | ***-11.4****** | 7% | 9% | ***+2.5*** | 4% | 1% | ***-2.1**** | 1% | 1% | ***-0.1*** | 0% | 0% | ***0*** | 0% | 0,3% | ***+0.3*** | 1% | 1% | ***-0.1*** | 0% | 0% | ***0*** |
| Breakfast cereals (Baseline: n=332; Follow-up: n=659) | **98%** | **91%** | ***-7.3****** | 95% | 86% | ***-8.2****** | 46% | 47% | ***+1.4*** | 20% | 5% | ***-14.4****** | 4% | 3% | ***-1.0*** | 2% | 3% | ***+1.1*** | 14% | 3% | ***-10.1****** | 5% | 9% | ***+4.0**** | 0% | 1% | ***+0.6*** | 0% | 0,2% | ***+0.2*** | 26% | 21% | ***-5.1*** | 2% | 0,3% | ***-1,5*** |
| Delicatessen meats (Baseline: n=1161; Follow-up: n=1722) | **89%** | **84%** | ***-5.7****** | 30% | 30% | ***-0.3*** | 21% | 18% | ***-2.9*** | 71% | 65% | ***-6.1****** | 29% | 30% | ***+0.6*** | 0,1% | 0,1% | ***-0.03*** | 8% | 7% | ***-1.2*** | 0,1% | 0,1% | ***+0.03*** | 0,1% | 0% | ***-0.1*** | 0% | 0% | ***0*** | 0,4% | 1% | ***+0.2*** | 0% | 0% | ***0*** |
| Chocolate products (Baseline: n=731; Follow-up: n=1013) | **99%** | **99%** | ***-0.1*** | 98% | 98% | ***-0.8*** | 18% | 16% | ***-2.0*** | 15% | 11% | ***-4.1**** | 22% | 20% | ***-2.4*** | 1% | 1% | ***-0.1*** | 0,3% | 1% | ***+0.5*** | 8% | 13% | ***+5.3****** | 5% | 4% | ***-1.0*** | 1% | 1% | ***+0.1*** | 2% | 3% | ***+0.9*** | 1% | 0,4% | ***-0.2*** |
| Fruit purées, compotes and desserts (Baseline: n=480; Follow-up: n=972) | **72%** | **70%** | ***-2.3*** | 63% | 59% | ***-4.7*** | 13% | 3% | ***-9.9****** | 0,4% | 0% | ***-0,4*** | 0% | 0,1% | ***+0.1*** | 13% | 19% | ***+6.4**** | 0% | 0% | ***0*** | 0% | 0,2% | ***+0.2*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0,2% | 0% | ***-0.2*** | 0% | 0% | ***0*** |
| Jams (Baseline: n=337; Follow-up: n=781) | **100%** | **100%** | ***0*** | 99% | 92% | ***-6.3****** | 27% | 15% | ***-11.9****** | 13% | 3% | ***-10.5****** | 0% | 0% | ***0*** | 35% | 38% | ***+2.5*** | 1% | 0,1% | ***-0.5*** | 0% | 1% | ***+0.5*** | 0,3% | 0,4% | ***+0.1*** | 0% | 0% | ***0*** | 0% | 0,4% | ***+0.4*** | 0% | 0% | ***0*** |
| Canned fruits (Baseline: n=181; Follow-up: n=245) | **100%** | **100%** | ***0*** | 89% | 83% | ***-6.1*** | 41% | 26% | ***-15.2****** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 22% | 20% | ***-1.7*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Ice-creams and sorbets (Baseline: n=1416; Follow-up: n=1953) | **100%** | **100%** | ***0*** | 98% | 99% | ***+0.9**** | 95% | 95% | ***+0.02*** | 36% | 24% | ***-11.8****** | 64% | 61% | ***-2.8*** | 28% | 29% | ***+0.6*** | 17% | 19% | ***+1.7*** | 19% | 17% | ***-2.1*** | 1% | 2% | ***+0.7*** | 0,4% | 0,3% | ***-0.1*** | 3% | 3% | ***+0.4*** | 1% | 1% | ***-0.1*** |
| Fruit juices and nectars (Baseline: n=816; Follow-up: n=1637) | **97%** | **95%** | ***-2.2**** | 17% | 19% | ***+2.3*** | 6% | 3% | ***-3.6****** | 0,5% | 0,1% | ***-0,4*** | 0% | 0% | ***0*** | 92% | 90% | ***-2.1*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 2% | 2% | ***+0.3*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Margarines (Baseline: n=95; Follow-up: n=109) | **3%** | **13%** | ***+9.7**** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 3% | ***+2.8*** | 3% | 10% | ***+6.9*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Bread products (Baseline: n=584; Follow-up: n=1740) | **92%** | **76%** | ***-16.9****** | 80% | 68% | ***-12.0****** | 27% | 14% | ***-13.0****** | 22% | 9% | ***-12.9****** | 8% | 3% | ***-5.4****** | 1% | 6% | ***+4.5****** | 0,2% | 1% | ***+0.3*** | 2% | 0,5% | ***-1,4*** | 1% | 0,4% | ***-0,8*** | 0% | 0,1% | ***+0.1*** | 1% | 1% | ***-0.3*** | 0% | 0,2% | ***+0.2*** |
| Ready-to-eat canned meals (Baseline: n=794; Follow-up: n=2672) | **77%** | **54%** | ***-23.9****** | 49% | 39% | ***-9.9****** | 14% | 7% | ***-6.9****** | 20% | 9% | ***-10.9****** | 14% | 3% | ***-10.4****** | 15% | 15% | ***-0.6*** | 6% | 4% | ***-2.0**** | 1% | 0,04% | ***-0,5*** | 0,1% | 0,04% | ***-0.1*** | 0% | 0,04% | ***+0.04*** | 1% | 1% | ***+0.3*** | 0% | 0% | ***0*** |
| Ready-to-eat fresh meals (Baseline: n=779; Follow-up: n=1416) | **78%** | **71%** | ***-6.3**** | 47% | 38% | ***-8.8****** | 16% | 16% | ***-0.2*** | 39% | 36% | ***-2.6*** | 25% | 12% | ***-13.2****** | 15% | 11% | ***-4.4**** | 12% | 5% | ***-7.7****** | 1% | 1% | ***-0.03*** | 1% | 0,1% | ***-0,4*** | 0% | 0,1% | ***+0.1*** | 2% | 2% | ***+0.3*** | 0% | 0% | ***0*** |
| Ready-to-eat frozen meals (Baseline: n=1861; Follow-up: n=2108) | **72%** | **59%** | ***-12.8****** | 37% | 28% | ***-9.2****** | 13% | 9% | ***-3.6****** | 32% | 25% | ***-7.1****** | 20% | 8% | ***-11.2****** | 13% | 15% | ***+1.3*** | 7% | 3% | ***-4.4****** | 1% | 1% | ***-0.3*** | 0,2% | 0,1% | ***-0.1*** | 0,1% | 0% | ***-0.1*** | 2% | 2% | ***+0.6*** | 0% | 0% | ***0*** |
| Dessert mixes (Baseline: n=160; Follow-up: n=329) | **96%** | **87%** | ***-9.3**** | 95% | 83% | ***-11.7****** | 20% | 14% | ***-6.3*** | 8% | 5% | ***-2.3*** | 11% | 5% | ***-5.2**** | 3% | 4% | ***+1.1*** | 9% | 3% | ***-5.4**** | 3% | 2% | ***-0.7*** | 4% | 2% | ***-2.6*** | 0% | 0% | ***0*** | 0% | 0,3% | ***+0.3*** | 3% | 2% | ***-1.0*** |
| Fresh dairy products and desserts (Baseline: n=1613; Follow-up: n=3115) | **89%** | **84%** | ***-4.4****** | 78% | 79% | ***+1.0*** | 40% | 23% | ***-17.4****** | 10% | 6% | ***-4.0****** | 23% | 16% | ***-6.9****** | 9% | 15% | ***+6.5****** | 8% | 5% | ***-3.1****** | 8% | 3% | ***-4.4****** | 1% | 2% | ***+0.9**** | 8% | 4% | ***-4.4****** | 0,3% | 1% | ***+0.4*** | 0,5% | 0,4% | ***-0.1*** |
| Fresh delicatessen products (Baseline: n=1141; Follow-up: n=2293) | **92%** | **77%** | ***-15.1****** | 61% | 52% | ***-8.9****** | 35% | 21% | ***-13.7****** | 53% | 40% | ***-13.2****** | 24% | 11% | ***-12.9****** | 18% | 22% | ***+3.9**** | 7% | 5% | ***-2.9****** | 1% | 0,4% | ***-0.3*** | 5% | 5% | ***-0.2*** | 0,1% | 0% | ***-0.1*** | 1% | 1% | ***-0.1*** | 0,4% | 0% | ***-0,4*** |
| Processed potato products (Baseline: n=683; Follow-up: n=791) | **43%** | **49%** | ***+6.6**** | 13% | 14% | ***+0.1*** | 2% | 2% | ***+0.4*** | 30% | 35% | ***+5.0**** | 8% | 5% | ***-3.4**** | 0% | 1% | ***+0.5*** | 2% | 1% | ***-0.7*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 2% | 1% | ***-1.4**** | 0,1% | 0,1% | ***-0.02*** | 0% | 0% | ***0*** |
| Hot sauces (Baseline: n=295; Follow-up: n=609) | **94%** | **81%** | ***-12.3****** | 79% | 70% | ***-9.0**** | 7% | 12% | ***+5.4**** | 5% | 4% | ***-0.7*** | 11% | 4% | ***-6.2****** | 12% | 12% | ***+0.5*** | 8% | 7% | ***-0.7*** | 1% | 0,5% | ***-0.2*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0,3% | ***+0.3*** | 0% | 0% | ***0*** |
| Cold sauces (Baseline: n=544; Follow-up: n=623) | **89%** | **94%** | ***+5.3**** | 62% | 71% | ***+8.7**** | 26% | 23% | ***-2.5*** | 10% | 10% | ***+0.3*** | 1% | 1% | ***+0.5*** | 36% | 42% | ***+5.4*** | 11% | 11% | ***+0.2*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 2% | 2% | ***+0.1*** | 1% | 1% | ***+0.4*** | 0% | 0% | ***0*** |
| Syrups (Baseline: n=316; Follow-up: n=681) | **99%** | **99%** | ***+0.4*** | 75% | 79% | ***+4.6*** | 70% | 33% | ***-36.8****** | 0% | 0,3% | ***+0.3*** | 0% | 0% | ***0*** | 78% | 76% | ***-2.1*** | 6% | 15% | ***+9.4****** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 11% | 11% | ***-0.7*** | 0% | 0% | ***0*** | 0% | 0,1% | ***+0.1*** |
| Frozen snacking products (Baseline: n=930; Follow-up: n=1147) | **88%** | **87%** | ***-0.7*** | 54% | 56% | ***+2.3*** | 32% | 22% | ***-9.8****** | 54% | 50% | ***-3.8*** | 28% | 19% | ***-8.8****** | 17% | 14% | ***-2.5*** | 5% | 4% | ***-0.6*** | 1% | 1% | ***-0.2*** | 0,3% | 0,4% | ***+0.1*** | 0,2% | 0,1% | ***-0.1*** | 4% | 4% | ***+0.7*** | 0% | 0% | ***0*** |
| Frozen pastries and desserts (Baseline: n=571; Follow-up: n=608) | **99%** | **99,5%** | ***+0.03*** | 99% | 99% | ***+0.4*** | 60% | 54% | ***-5.1*** | 17% | 16% | ***-1.2*** | 18% | 12% | ***-6.0**** | 20% | 26% | ***+6.0**** | 8% | 8% | ***-0.5*** | 14% | 16% | ***+2.4*** | 7% | 4% | ***-2.5*** | 0% | 0,2% | ***+0.2*** | 2% | 3% | ***+0.9*** | 2% | 2% | ***-0.1*** |

Purple cells: significant decrease in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness/the class of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness/the class of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test
[1] Other sugars: all mono- and disaccharides, alone or in combination (excluding sucrose, mention of "sugar" and lactose)

# Annex 14: Change in the proportions of products by class of sweetening ingredients or ingredients conveying sweetness and by type of brand (27 food categories monitored for changes)

| Type of brand<br>*(n=total number of products considered in the study, all products combined or by type of brand)* | **Change in the proportion of products, all classes combined or by class of sweetening ingredients or ingredients conveying sweetness (27 product categories monitored for changes)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **All classes combined** | | | Sucrose | | | Syrups | | | Other sugars[2] | | | Lactose | | | Fruit juices and concentrates | | | Caramel | | | Other ingredients conveying sugars | | | Bulk sweeteners | | | Intense sweeteners | | | Honey | | | Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness | | |
| | **Baseline** | **Follow-up** | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** |
| **All products combined (Baseline: n=19723; Follow-up: n=34737)** | **87%** | **81%** | ***-5****** | **64%** | **62%** | ***-1.9****** | **32%** | **24%** | ***-7.9****** | **26%** | **18%** | ***-7.8****** | **20%** | **12%** | ***-7.6****** | **19%** | **21%** | ***+2.4****** | **7%** | **5%** | ***-2.1****** | **4%** | **3%** | ***-1.0****** | **3%** | **2%** | ***-0.6****** | **2%** | **2%** | ***-0.5****** | **2%** | **2%** | ***+0.01*** | **0,3%** | **0,2%** | ***-0.1**** |
| National brands (Baseline: n=5089; Follow-up: n=11532) | **86%** | **80%** | ***-6****** | 67% | 61% | ***-5.2****** | 30% | 22% | ***-7.9****** | 19% | 13% | ***-5.6****** | 17% | 8% | ***-9.0****** | 20% | 24% | ***+4.2****** | 6% | 5% | ***-1.2***** | 5% | 3% | ***-1.6****** | 4% | 2% | ***-1.5****** | 3% | 3% | ***-0.1*** | 2% | 2% | ***+0.1*** | 0,4% | 0,3% | ***-0.1*** |
| Retailer brands (Baseline: n=8507; Follow-up: n=15075) | **87%** | **82%** | ***-5****** | 61% | 62% | ***+0.7*** | 30% | 23% | ***-7.7****** | 27% | 18% | ***-8.5****** | 20% | 13% | ***-6.8****** | 19% | 20% | ***+1.1*** | 8% | 5% | ***-2.8****** | 3% | 3% | ***-0.6***** | 3% | 3% | ***-0.04*** | 2% | 1% | ***-1.2****** | 2% | 2% | ***-0.2*** | 0,2% | 0,2% | ***-0.04*** |
| Entry-level retailer brands (Baseline: n=1117; Follow-up: n=1120) | **87%** | **83%** | ***-4**** | 60% | 58% | ***-1.3*** | 36% | 29% | ***-6.6****** | 28% | 23% | ***-5.0**** | 19% | 17% | ***-2.5*** | 15% | 16% | ***+0.9*** | 5% | 3% | ***-1.2*** | 2% | 1% | ***-0.5*** | 3% | 4% | ***+1.2*** | 4% | 4% | ***+0.4*** | 1% | 1% | ***-0.7*** | 0,1% | 0% | ***-0.1*** |
| Hard discount (Baseline: n=3158; Follow-up: n=4361) | **88%** | **84%** | ***-4**** | 67% | 63% | ***-3.4**** | 34% | 27% | ***-6.4**** | 25% | 22% | ***-3.8**** | 21% | 16% | ***-4.6**** | 15% | 16% | ***+1.4*** | 7% | 5% | ***-1.5**** | 5% | 3% | ***-2.0**** | 4% | 3% | ***-0.9**** | 2% | 1% | ***-0.6*** | 2% | 1% | ***-0.2*** | 0,3% | 0,1% | ***-0.2*** |
| Specialised retailer brands[1] (Baseline: n=1851; Follow-up: n=2185) | **85%** | **81%** | ***-4**** | 63% | 62% | ***-1.0*** | 44% | 43% | ***-0.6*** | 38% | 31% | ***-6.4**** | 27% | 22% | ***-5.2**** | 22% | 24% | ***+2.7**** | 8% | 6% | ***-1.8**** | 8% | 9% | ***+1.1*** | 1% | 1% | ***+0.2*** | 0,2% | 0,2% | ***-0.03*** | 3% | 5% | ***+1.6**** | 0,7% | 0,4% | ***-0.3*** |

Purple cells: significant decrease in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness/the class of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness/the class of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test
[1] As specialised retailer brands were present in only six product categories out of the 27 studied (5 product categories for which baseline and follow-up data were available: Ice creams and sorbets, Ready-to-eat frozen meals, Processed potato products, Frozen snacking products, Frozen pastries and desserts; 1 product category for which only follow-up data were available: Soups and broths), it is difficult to compare them to the other types of brands.
[2] Other sugars: all mono- and disaccharides, alone or in combination (excluding sucrose, mention of "sugar" and lactose)

# Annex 15: Change in the proportions of products by the number of classes of sweetening ingredients or ingredients conveying sweetness and by food category (27 categories monitored for changes)

| Product category *(n=total number of products considered for changes, by product category)* | Change in the proportion of products according to the number of classes of sweetening ingredients or ingredients conveying sweetness found in the ingredient lists (27 product categories monitored for changes) | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No sweetening ingredients or ingredients conveying sweetness | | | 1 class | | | 2 classes combined | | | 3 classes combined | | | 4 classes combined | | | 5 classes combined | | | 6 classes combined | | | 7 classes combined | | |
| | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* |
| **All products combined (Baseline: n=19723; Follow-up: n=34737)** | **13%** | **19%** | ***+5.5****** | **33%** | **36%** | ***+3.5****** | **28%** | **27%** | ***-1.7****** | **15%** | **12%** | ***-3.7****** | **7%** | **5%** | ***-2.2****** | **2%** | **1%** | ***-1.0****** | **1%** | **0,2%** | ***-0.3****** | **0,1%** | **0,1%** | ***-0.04*** |
| Crackers (Baseline: n=551; Follow-up: n=1082) | **45%** | **47%** | ***+2.5*** | 26% | 26% | ***+0.6*** | 21% | 21% | ***+0.01*** | 8% | 5% | ***-3.4**** | 1% | 1% | ***+0.3*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Cereal bars (Baseline: n=169; Follow-up: n=181) | **0%** | **0%** | ***0*** | 2% | 1% | ***-0.7*** | 8% | 6% | ***-2.8*** | 11% | 25% | ***+13.6***** | 34% | 50% | ***+16.0**** | 27% | 17% | ***-10.1**** | 14% | 2% | ***-12.5***** | 4% | 0,6% | ***-3,6*** |
| Cakes and biscuits (Baseline: n=1723; Follow-up: n=3120) | **0%** | **0,1%** | ***+0.1*** | 19% | 27% | ***+7.7***** | 37% | 38% | ***+0.4*** | 27% | 24% | ***-2.8**** | 13% | 10% | ***-2.9**** | 4% | 1% | ***-2.6***** | 0,2% | 0,2% | ***-0.01*** | 0,1% | 0,1% | ***+0.04*** |
| Soft drinks (Baseline: n=891; Follow-up: n=2343) | **3%** | **9%** | ***+5.6***** | 24% | 27% | ***+3.7**** | 58% | 52% | ***-6.4**** | 12% | 10% | ***-2.1*** | 2% | 1% | ***-0.6*** | 0,3% | 0,04% | ***-0.3*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Soups and broths (Baseline: n=569; Follow-up: n=788) | **35%** | **41%** | ***+5.7**** | 37% | 38% | ***+0.4*** | 20% | 17% | ***-3.3*** | 5% | 3% | ***-1.5*** | 2% | 1% | ***-1.1*** | 0,2% | 0% | ***-0.2*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Breakfast cereals (Baseline: n=332; Follow-up: n=659) | **2%** | **9%** | ***+7.3***** | 35% | 29% | ***-6.0*** | 30% | 39% | ***+8.7**** | 18% | 19% | ***+0.9*** | 11% | 3% | ***-7.8***** | 4% | 1% | ***-2.9**** | 0,3% | 0% | ***-0.3*** | 0% | 0% | ***0*** |
| Delicatessen meats (Baseline: n=1161; Follow-up: n=1722) | **11%** | **16%** | ***+5.7***** | 41% | 37% | ***-4.1**** | 30% | 31% | ***+0.7*** | 17% | 15% | ***-2.0*** | 2% | 1% | ***-0.5*** | 0% | 0,2% | ***+0.2*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Chocolate products (Baseline: n=731; Follow-up: n=1013) | **1%** | **1%** | ***+0.1*** | 52% | 55% | ***+2.9*** | 31% | 28% | ***-3.1*** | 11% | 12% | ***+1.0*** | 4% | 3% | ***-0.9*** | 1% | 1% | ***-0.01*** | 0,4% | 0,4% | ***-0.02*** | 0,1% | 0,2% | ***+0.1*** |
| Fruit purées, compotes and desserts (Baseline: n=480; Follow-up: n=972) | **28%** | **30%** | ***+2.3*** | 55% | 58% | ***+3.5*** | 16% | 11% | ***-5.6**** | 1% | 0,3% | ***-0.3*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Jams (Baseline: n=337; Follow-up: n=781) | **0%** | **0%** | ***0*** | 34% | 55% | ***+20.9***** | 58% | 41% | ***-17.1***** | 7% | 4% | ***-3.0**** | 1% | 0% | ***-0,9*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Canned fruits (Baseline: n=181; Follow-up: n=245) | **0%** | **0%** | ***0*** | 51% | 71% | ***+20.6***** | 46% | 28% | ***-18.2***** | 3% | 0,4% | ***-2,4*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Ice-creams and sorbets (Baseline: n=1416; Follow-up: n=1953) | **0%** | **0%** | ***0*** | 1% | 2% | ***+0.7*** | 12% | 12% | ***+0.7*** | 35% | 39% | ***+4.1**** | 33% | 32% | ***-1.6*** | 15% | 13% | ***-2.2*** | 4% | 2% | ***-1.7**** | 0,2% | 0,3% | ***+0.1*** |
| Fruit juices and nectars (Baseline: n=816; Follow-up: n=1637) | **3%** | **5%** | ***+2.2**** | 80% | 78% | ***-1.7*** | 14% | 15% | ***+0.6*** | 3% | 2% | ***-1.2**** | 0,2% | 0,4% | ***+0.1*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Margarines (Baseline: n=95; Follow-up: n=109) | **97%** | **87%** | ***-9.7**** | 3% | 13% | ***+9.7**** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Bread products (Baseline: n=584; Follow-up: n=1740) | **8%** | **24%** | ***+16.9***** | 53% | 53% | ***-0.1*** | 30% | 19% | ***-11.2***** | 7% | 3% | ***-4.8***** | 1% | 1% | ***-0.1*** | 1% | 0% | ***-0,7*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Ready-to-eat canned meals (Baseline: n=794; Follow-up: n=2672) | **23%** | **46%** | ***+23.9***** | 45% | 35% | ***-10.6***** | 25% | 15% | ***-10.5***** | 5% | 3% | ***-1.8**** | 2% | 1% | ***-0.8**** | 0,1% | 0% | ***-0.1*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Ready-to-eat fresh meals (Baseline: n=779; Follow-up: n=1416) | **22%** | **29%** | ***+6.3**** | 29% | 38% | ***+9.1***** | 25% | 21% | ***-3.9**** | 17% | 9% | ***-7.5***** | 7% | 3% | ***-4.2***** | 0,3% | 0,4% | ***+0.2*** | 0% | 0,1% | ***+0.1*** | 0% | 0% | ***0*** |
| Ready-to-eat frozen meals (Baseline: n=1861; Follow-up: n=2108) | **28%** | **41%** | ***+12.8***** | 38% | 36% | ***-2.1*** | 19% | 16% | ***-2.9**** | 11% | 5% | ***-5.7***** | 3% | 2% | ***-1.4***** | 1% | 0,2% | ***-0.6**** | 0,1% | 0% | ***-0.1*** | 0% | 0% | ***0*** |
| Dessert mixes (Baseline: n=160; Follow-up: n=329) | **4%** | **13%** | ***+9.3***** | 55% | 60% | ***+4.6*** | 28% | 21% | ***-6.2*** | 11% | 6% | ***-4.8*** | 3% | 0,3% | ***-2,8*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Fresh dairy products and desserts (Baseline: n=1613; Follow-up: n=3115) | **11%** | **16%** | ***+4.4***** | 28% | 37% | ***+9.5***** | 34% | 30% | ***-4.0***** | 19% | 12% | ***-7.3***** | 6% | 4% | ***-2.3***** | 1% | 1% | ***-0.1*** | 0,1% | 0,1% | ***+0.004*** | 0,2% | 0% | ***-0,2*** |
| Fresh delicatessen products (Baseline: n=1141; Follow-up: n=2293) | **8%** | **23%** | ***+15.1***** | 24% | 26% | ***+1.5*** | 34% | 29% | ***-4.9***** | 23% | 16% | ***-7.1***** | 9% | 5% | ***-3.7***** | 1% | 1% | ***-0.8**** | 0,1% | 0,04% | ***-0.04*** | 0% | 0% | ***0*** |
| Processed potato products (Baseline: n=683; Follow-up: n=791) | **57%** | **51%** | ***-6.6**** | 32% | 42% | ***+10.3***** | 8% | 6% | ***-2.0*** | 2% | 1% | ***-1.2*** | 1% | 0% | ***-0,6*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Hot sauces (Baseline: n=295; Follow-up: n=609) | **6%** | **19%** | ***+12.3***** | 71% | 59% | ***-12.4***** | 17% | 16% | ***-0.7*** | 5% | 5% | ***+0.2*** | 1% | 1% | ***+0.6*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Cold sauces (Baseline: n=544; Follow-up: n=623) | **11%** | **6%** | ***-5.3***** | 37% | 39% | ***+2.0*** | 44% | 44% | ***-0.7*** | 6% | 9% | ***+3.3**** | 1% | 2% | ***+0.6*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Syrups (Baseline: n=316; Follow-up: n=681) | **1%** | **1%** | ***-0.4*** | 10% | 15% | ***+4.7**** | 39% | 56% | ***+17.2***** | 47% | 25% | ***-21.9***** | 3% | 3% | ***+0.4*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** |
| Frozen snacking products (Baseline: n=930; Follow-up: n=1147) | **12%** | **13%** | ***+0.7*** | 26% | 33% | ***+6.3***** | 32% | 35% | ***+2.8*** | 17% | 12% | ***-5.4***** | 8% | 5% | ***-3.1***** | 4% | 2% | ***-1.5**** | 0,1% | 0,3% | ***+0.2*** | 0% | 0,1% | ***+0.1*** |
| Frozen pastries and desserts (Baseline: n=571; Follow-up: n=608) | **1%** | **0,5%** | ***-0.03*** | 24% | 28% | ***+3.6*** | 32% | 30% | ***-1.8*** | 23% | 23% | ***-0.3*** | 14% | 12% | ***-2.2*** | 4% | 5% | ***+0.4*** | 1% | 1% | ***-0.2*** | 0,5% | 1% | ***+0.5*** |

Purple cells: significant decrease in the frequency of presence of the considered number of classes of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of the considered number of classes of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test

# Annex 16: Change in the proportions of products by the number of classes of sweetening ingredients or ingredients conveying sweetness and by type of brand (27 food categories monitored for changes)

| Type of brand<br>*(n=total number of products considered for changes, by type of brand)* | **Change in the proportion of products according to the number of classes of sweetening ingredients or ingredients conveying sweetness found in the ingredient lists (27 product categories monitored for changes)** | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **No sweetening ingredients or ingredients conveying sweetness** | | | 1 class | | | 2 classes combined | | | 3 classes combined | | | 4 classes combined | | | 5 classes combined | | | 6 classes combined | | | 7 classes combined | | |
| | **Baseline** | **Follow-up** | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** | Baseline | Follow-up | ***Change in the proportions (point)*** |
| **All products combined (Baseline: n=19723; Follow-up: n=34737)** | **13%** | **19%** | ***+5.5****** | **33%** | **36%** | ***+3.5***** | **28%** | **27%** | ***-1.7***** | **15%** | **12%** | ***-3.7***** | **7%** | **5%** | ***-2.2***** | **2%** | **1%** | ***-1.0***** | **1%** | **0,2%** | ***-0.3***** | **0,1%** | **0,1%** | ***-0.04*** |
| National brands (Baseline: n=5089; Follow-up: n=11532) | **14%** | **20%** | ***+6.4***** | 35% | 37% | ***+2.2**** | 29% | 27% | ***-2.2**** | 13% | 11% | ***-2.3***** | 6% | 4% | ***-2.3***** | 2% | 1% | ***-1.5***** | 1% | 0,2% | ***-0.4***** | 0,02% | 0,1% | ***+0.04*** |
| Retailer brands (Baseline: n=8507; Follow-up: n=15075) | **13%** | **18%** | ***+4.9***** | 33% | 38% | ***+4.2***** | 29% | 27% | ***-1.6**** | 16% | 11% | ***-4.5***** | 6% | 4% | ***-1.9***** | 2% | 1% | ***-0.8***** | 0,4% | 0,2% | ***-0.3***** | 0,1% | 0,03% | ***-0.05*** |
| Entry-level retailer brands (Baseline: n=1117; Follow-up: n=1120) | **13%** | **17%** | ***+4.0**** | 33% | 36% | ***+2.3*** | 31% | 27% | ***-3.6*** | 16% | 14% | ***-1.9*** | 5% | 5% | ***-0.1*** | 1% | 1% | ***-0.3*** | 0,2% | 0% | ***-0.2*** | 0,4% | 0,1% | ***-0.3*** |
| Hard discount (Baseline: n=3158; Follow-up: n=4361) | **12%** | **16%** | ***+3.7***** | 33% | 36% | ***+3.3**** | 30% | 29% | ***-1.1*** | 15% | 13% | ***-1.9**** | 8% | 5% | ***-2.8***** | 2% | 1% | ***-0.7**** | 1% | 0,2% | ***-0.3**** | 0,1% | 0% | ***-0,1*** |
| Specialised retailer brands[1] (Baseline: n=1851; Follow-up: n=2185) | **15%** | **19%** | ***+3.9***** | 24% | 24% | ***+0.5*** | 21% | 19% | ***-2.1*** | 21% | 18% | ***-2.7**** | 12% | 12% | ***+0.2*** | 6% | 6% | ***+0.1*** | 1% | 1% | ***-0.1*** | 0,1% | 0,3% | ***+0.2*** |

Purple cells: significant decrease in the frequency of presence of the considered number of classes of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of the considered number of classes of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test
[1] As specialised retailer brands were present in only six product categories out of the 27 studied (5 product categories for which baseline and follow-up data were available: Ice creams and sorbets, Ready-to-eat frozen meals, Processed potato products, Frozen snacking products, Frozen pastries and desserts; 1 product category for which only follow-up data were available: Soups and broths), it is difficult to compare them to the other types of brands.

# Annex 17: Numbers and proportions of paired products by food category and type of brand (among the 27 categories studied in the part on changes)

| Type of brand / Product categories | National brands | | Retailer brands | | Entry-level retailer brands | | Hard discount | | Specialised retailer brands | | Specialised organic retailer brands | | ***All types of brands combined*** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Numbers of products | *Proportions of products* | Numbers of products | *Proportions of products* | Numbers of products | *Proportions of products* | Numbers of products | *Proportions of products* | Numbers of products | *Proportions of products* | Numbers of products | *Proportions of products* | ***Numbers of products*** | ***Proportions of products*** |
| Crackers | 47 | *12%* | 197 | *52%* | 38 | *10%* | 100 | *26%* | 0 | *0%* | 0 | *0%* | ***382*** | ***4%*** |
| Cereal bars | 22 | *27%* | 39 | *47%* | 12 | *14%* | 10 | *12%* | 0 | *0%* | 0 | *0%* | ***83*** | ***1%*** |
| Cakes and biscuits | 143 | *21%* | 325 | *48%* | 56 | *8%* | 152 | *22%* | 0 | *0%* | 0 | *0%* | ***676*** | ***6%*** |
| Soft drinks | 118 | *30%* | 220 | *56%* | 23 | *6%* | 33 | *8%* | 0 | *0%* | 1 | *0,3%* | ***395*** | ***4%*** |
| Soups and broths | 123 | *41%* | 113 | *38%* | 15 | *5%* | 47 | *16%* | 0 | *0%* | 0 | *0%* | ***298*** | ***3%*** |
| Breakfast cereals | 47 | *31%* | 72 | *48%* | 3 | *2%* | 29 | *19%* | 0 | *0%* | 0 | *0%* | ***151*** | ***1%*** |
| Delicatessen meats | 65 | *9%* | 433 | *58%* | 98 | *13%* | 150 | *20%* | 0 | *0%* | 0 | *0%* | ***746*** | ***7%*** |
| Chocolate products | 168 | *36%* | 142 | *30%* | 34 | *7%* | 122 | *26%* | 0 | *0%* | 0 | *0%* | ***466*** | ***4%*** |
| Fruit purées, compotes and desserts | 82 | *36%* | 118 | *51%* | 12 | *5%* | 18 | *8%* | 0 | *0%* | 0 | *0%* | ***230*** | ***2%*** |
| Jams | 61 | *26%* | 146 | *61%* | 6 | *3%* | 26 | *11%* | 0 | *0%* | 0 | *0%* | ***239*** | ***2%*** |
| Canned fruits | 22 | *23%* | 44 | *45%* | 17 | *18%* | 14 | *14%* | 0 | *0%* | 0 | *0%* | ***97*** | ***1%*** |
| Ice-creams and sorbets | 105 | *13%* | 313 | *38%* | 21 | *3%* | 93 | *11%* | 294 | *36%* | 0 | *0%* | ***826*** | ***8%*** |
| Fruit juices and nectars | 88 | *16%* | 313 | *59%* | 50 | *9%* | 83 | *16%* | 0 | *0%* | 0 | *0%* | ***534*** | ***5%*** |
| Margarines | 29 | *38%* | 29 | *38%* | 5 | *6%* | 14 | *18%* | 0 | *0%* | 0 | *0%* | ***77*** | ***1%*** |
| Bread products | 72 | *22%* | 160 | *48%* | 24 | *7%* | 75 | *23%* | 0 | *0%* | 0 | *0%* | ***331*** | ***3%*** |
| Ready-to-eat canned meals | 81 | *20%* | 235 | *59%* | 20 | *5%* | 60 | *15%* | 0 | *0%* | 0 | *0%* | ***396*** | ***4%*** |
| Ready-to-eat fresh meals | 77 | *22%* | 242 | *70%* | 9 | *3%* | 19 | *5%* | 0 | *0%* | 0 | *0%* | ***347*** | ***3%*** |
| Ready-to-eat frozen meals | 42 | *6%* | 354 | *48%* | 20 | *3%* | 96 | *13%* | 233 | *31%* | 0 | *0%* | ***745*** | ***7%*** |
| Dessert mixes | 39 | *48%* | 26 | *32%* | | *0%* | 17 | *21%* | 0 | *0%* | 0 | *0%* | ***82*** | ***1%*** |
| Fresh dairy products and desserts | 170 | *22%* | 447 | *58%* | 30 | *4%* | 122 | *16%* | 0 | *0%* | 0 | *0%* | ***769*** | ***7%*** |
| Fresh delicatessen products | 94 | *16%* | 359 | *61%* | 46 | *8%* | 91 | *15%* | 0 | *0%* | 0 | *0%* | ***590*** | ***6%*** |
| Processed potato products | 70 | *16%* | 245 | *56%* | 23 | *5%* | 48 | *11%* | 51 | *12%* | 0 | *0%* | ***437*** | ***4%*** |
| Hot sauces | 46 | *25%* | 104 | *57%* | 7 | *4%* | 26 | *14%* | 0 | *0%* | 0 | *0%* | ***183*** | ***2%*** |
| Cold sauces | 102 | *28%* | 203 | *55%* | 14 | *4%* | 49 | *13%* | 0 | *0%* | 0 | *0%* | ***368*** | ***3%*** |
| Syrups | 43 | *22%* | 118 | *61%* | 11 | *6%* | 23 | *12%* | 0 | *0%* | 0 | *0%* | ***195*** | ***2%*** |
| Frozen snacking products | 69 | *13%* | 175 | *33%* | 12 | *2%* | 45 | *8%* | 230 | *43%* | 0 | *0%* | ***531*** | ***5%*** |
| Frozen pastries and desserts | 18 | *5%* | 102 | *27%* | 1 | *0,3%* | 21 | *6%* | 233 | *62%* | 0 | *0%* | ***375*** | ***4%*** |
| ***All categories combined*** | **2043** | *19%* | **5274** | *50%* | **607** | *6%* | **1583** | *15%* | **1041** | *10%* | **1** | *0%* | ***10549*** | ***100%*** |

# Annex 18: Change in the proportions of paired products according to the class of sweetening ingredients or ingredients conveying sweetness, by food category and type of brand (27 categories monitored for changes)

| Product category (n=total number of products considered for the pairs, all paired products combined, by product category and by type of brand) | Change in the proportion of paired products (27 product categories monitored for changes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | All classes combined | | | Sucrose | | | Syrups | | | Other sugars[1] | | | Lactose | | | Fruit juices and concentrates | | | Caramel | | | Other ingredients conveying sugars | | | Bulk sweeteners | | | Intense sweeteners | | | Honey | | | Flavourings whose flavour is evocative of a sweetening ingredient or ingredient conveying sweetness | | | | | | | | |
| | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | Baseline | Follow-up | *Change in the proportions (point)* | | | | | | |
| **All products combined (number of paired products: n=10549)** | **86%** | **85%** | ***-0.5*** | **62%** | **62%** | ***-0.3*** | **32%** | **28%** | ***-3.9****** | **25%** | **23%** | ***-2.7****** | **20%** | **17%** | ***-3.6****** | **18%** | **20%** | ***+1.7***** | **7%** | **6%** | ***-1.3****** | **4%** | **3%** | ***-0.5*** | **3%** | **2%** | ***-0.3*** | **2%** | **2%** | ***+0.1*** | **2%** | **2%** | ***-0.1*** | **0,3%** | **0,2%** | ***-0.1*** | | | | | | |
| **By product category** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Crackers (number of paired products: n=382) | 51% | 52% | ***+1.0*** | 31% | 31% | ***0*** | 19% | 19% | ***0*** | 20% | 17% | ***-2.9*** | 14% | 10% | ***-3.7*** | 1% | 1% | ***0*** | 1% | 2% | ***+0.3*** | 1% | 0,3% | ***-0.3*** | 3% | 3% | ***+0.3*** | 0% | 0% | ***0*** | 1% | 1% | ***0*** | 0% | 0% | ***0*** | | | | | | |
| Cereal bars (number of paired products: n=83) | 100% | 100% | ***0*** | 100% | 100% | ***0*** | 98% | 98% | ***0*** | 78% | 72% | ***-6.0*** | 16% | 5% | ***-10.8**** | 13% | 11% | ***-2.4*** | 27% | 6% | ***-20.5****** | 14% | 11% | ***-3.6*** | 73% | 82% | ***+8.4*** | 0% | 0% | ***0*** | 25% | 6% | ***-19.3****** | 0% | 0% | ***0*** | | | | | | |
| Cakes and biscuits (number of paired products: n=676) | 100% | 100% | ***0*** | 98% | 99% | ***+0.9*** | 56% | 56% | ***-0.6*** | 22% | 16% | ***-5.8***** | 24% | 18% | ***-5.8***** | 9% | 10% | ***+1.2*** | 4% | 2% | ***-2.1**** | 8% | 8% | ***0*** | 17% | 13% | ***-3.8**** | 0,1% | 0,1% | ***0*** | 4% | 3% | ***-0.6*** | 0,3% | 0% | ***-0.3*** | | | | | | |
| Soft drinks (number of paired products: n=395) | 97% | 96% | ***-1.0*** | 68% | 71% | ***+2.8*** | 19% | 6% | ***-13.4****** | 3% | 3% | ***+0.5*** | 0% | 0% | ***0*** | 52% | 50% | ***-2.0*** | 22% | 21% | ***-0.8*** | 0,3% | 0% | ***-0.3*** | 0% | 0% | ***0*** | 28% | 34% | ***+5.3*** | 1% | 1% | ***-0.5*** | 0,3% | 0% | ***-0.3*** | | | | | | |
| Soups and broths (number of paired products: n=298) | 67% | 69% | ***+1.7*** | 45% | 50% | ***+5.7*** | 20% | 23% | ***+3.4*** | 6% | 4% | ***-2.0*** | 19% | 13% | ***-5.7*** | 7% | 8% | ***+1.3*** | 4% | 2% | ***-2.0*** | 1% | 1% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | | | | | | |
| Breakfast cereals (number of paired products: n=151) | 99% | 99% | ***0*** | 99% | 99% | ***-0.7*** | 40% | 42% | ***+1.3*** | 19% | 6% | ***-12.6****** | 3% | 2% | ***-0.7*** | 0% | 1% | ***+0.7*** | 13% | 1% | ***-11.9****** | 3% | 7% | ***+4.0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 24% | 18% | ***-6*** | 3% | 0% | ***-2.6*** | | | | | | |
| Delicatessen meats (number of paired products: n=746) | 90% | 90% | ***+0.5*** | 28% | 29% | ***+1.1*** | 20% | 22% | ***+2.1*** | 71% | 70% | ***-1.7*** | 30% | 27% | ***-2.4*** | 0% | 0% | ***0*** | 8% | 8% | ***+0.4*** | 0% | 0% | ***0*** | 0,1% | 0% | ***-0.1*** | 0% | 0% | ***0*** | 0,4% | 0,4% | ***0*** | 0% | 0% | ***0*** | | | | | | |
| Chocolate products (number of paired products: n=466) | 99,6% | 99,6% | ***0*** | 98% | 98% | ***0*** | 16% | 15% | ***-1.3*** | 14% | 12% | ***-1.9*** | 21% | 21% | ***+0.4*** | 1% | 1% | ***0*** | 0,2% | 0,4% | ***+0.2*** | 8% | 10% | ***+2.4*** | 3% | 3% | ***0*** | 1% | 1% | ***0*** | 2% | 3% | ***+0.2*** | 0,2% | 0,2% | ***0*** | | | | | | |
| Fruit purées, compotes and desserts (number of paired products: n=230) | 73% | 77% | ***+4.3*** | 70% | 70% | ***0*** | 14% | 2% | ***-12.2****** | 0,4% | 0% | ***-0.4*** | 0% | 0% | ***0*** | 5% | 16% | ***+10.9****** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | | | | | | |
| Jams (number of paired products: n=239) | 100% | 100% | ***0*** | 98% | 98% | ***+0.4*** | 25% | 13% | ***-12.1****** | 13% | 2% | ***-10.5****** | 0% | 0% | ***0*** | 31% | 28% | ***-2.1*** | 0,4% | 0,4% | ***0*** | 0% | 0,4% | ***+0.4*** | 0,4% | 0,4% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | | | | | | |
| Canned fruits (number of paired products: n=97) | 100% | 100% | ***0*** | 87% | 88% | ***+1.0*** | 41% | 35% | ***-6.2*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 18% | 15% | ***-2.1*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | | | | | | |
| Ice creams and sorbets (number of paired products: n=826) | 100% | 100% | ***0*** | 98% | 99% | ***+0.5*** | 95% | 94% | ***-0.6*** | 34% | 23% | ***-11.1****** | 72% | 67% | ***-4.1*** | 26% | 27% | ***+0.6*** | 18% | 18% | ***-0.1*** | 16% | 13% | ***-3.4*** | 2% | 1% | ***-0.2*** | 0,5% | 0,4% | ***-0.1*** | 3% | 3% | ***+0.7*** | 1% | 1% | ***0*** | | | | | | |
| Fruit juices and nectars (number of paired products: n=534) | 97% | 97% | ***+0.4*** | 17% | 19% | ***+2.1*** | 8% | 5% | ***-2.4*** | 0,2% | 0% | ***-0.2*** | 0% | 0% | ***0*** | 91% | 91% | ***+0.6*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 2% | 3% | ***+0.7*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | | | | | | |
| Margarines (number of paired products: n=77) | 4% | 8% | ***+3.9*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 4% | 8% | ***+3.9*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | | | | | | |
| Bread products (number of paired products: n=331) | 96% | 96% | ***+0.3*** | 85% | 87% | ***+2.1*** | 26% | 19% | ***-6.9**** | 21% | 11% | ***-10.6****** | 8% | 4% | ***-4.5**** | 1% | 8% | ***+6.6****** | 0,3% | 0,3% | ***0*** | 1% | 1% | ***-0.6*** | 1% | 0,3% | ***-0.6*** | 0% | 0% | ***0*** | 1% | 1% | ***0*** | 0% | 0% | ***0*** | | | | | | |
| Ready-to-eat canned meals (number of paired products: n=396) | 79% | 71% | ***-7.8**** | 50% | 46% | ***-3.3*** | 14% | 14% | ***0*** | 19% | 14% | ***-4.5*** | 16% | 7% | ***-9.1****** | 14% | 16% | ***+2.3*** | 6% | 3% | ***-2.8*** | 1% | 0,3% | ***-0.3*** | 0,3% | 0% | ***-0.3*** | 0% | 0% | ***0*** | 0,3% | 0,3% | ***0*** | 0% | 0% | ***0*** | | | | | | |
| Ready-to-eat fresh meals (number of paired products: n=347) | 74% | 71% | ***-3.5*** | 44% | 42% | ***-2.0*** | 17% | 14% | ***-3.7*** | 39% | 33% | ***-5.8*** | 27% | 16% | ***-11.0****** | 10% | 12% | ***+2.9*** | 12% | 7% | ***-4.6**** | 2% | 1% | ***-0.6*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 1% | 3% | ***+1.7*** | 0% | 0% | ***0*** | | | | | | |
| Ready-to-eat frozen meals (number of paired products: n=745) | 69% | 64% | ***-4.7*** | 34% | 27% | ***-7.8***** | 10% | 10% | ***-0.8*** | 31% | 29% | ***-2.0*** | 20% | 10% | ***-9.4****** | 10% | 17% | ***+6.3****** | 7% | 4% | ***-3.8***** | 1% | 1% | ***-0.4*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 2% | 2% | ***+0.3*** | 0% | 0% | ***0*** | | | | | | |
| Dessert mixes (number of paired products: n=82) | 94% | 94% | ***0*** | 93% | 93% | ***0*** | 17% | 9% | ***-8.5*** | 6% | 9% | ***+2.4*** | 10% | 7% | ***-2.4*** | 4% | 2% | ***-1.2*** | 7% | 7% | ***0*** | 4% | 1% | ***-2.4*** | 1% | 2% | ***+1.2*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 4% | 4% | ***0*** | | | | | | |
| Fresh dairy products and desserts (number of paired products: n=769) | 84% | 83% | ***-1.2*** | 75% | 76% | ***+0.5*** | 37% | 25% | ***-11.4****** | 7% | 6% | ***-1.6*** | 25% | 24% | ***-1.6*** | 7% | 8% | ***+1.2*** | 8% | 5% | ***-3.1**** | 6% | 3% | ***-3.0***** | 1% | 1% | ***+0.4*** | 6% | 5% | ***-0.3*** | 0,1% | 0,3% | ***+0.1*** | 0,4% | 0,3% | ***-0.1*** | | | | | | |
| Fresh delicatessen products (number of paired products: n=590) | 90% | 86% | ***-3.7*** | 57% | 52% | ***-4.9*** | 33% | 25% | ***-8.8****** | 51% | 55% | ***+4.1*** | 27% | 20% | ***-6.8***** | 17% | 19% | ***+1.7*** | 7% | 5% | ***-2.2*** | 1% | 0% | ***-0.8*** | 5% | 4% | ***-0.8*** | 0% | 0% | ***0*** | 1% | 1% | ***-0.2*** | 0,2% | 0% | ***-0.2*** | | | | | | |
| Processed potato products (number of paired products: n=437) | 44% | 50% | ***+5.7*** | 11% | 10% | ***-0.7*** | 2% | 2% | ***+0.2*** | 34% | 39% | ***+4.6*** | 5% | 4% | ***-0.5*** | 0% | 0% | ***0*** | 2% | 1% | ***-1.4*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 3% | 1% | ***-1.8**** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | | | | | | |
| Hot sauces (number of paired products: n=183) | 94% | 96% | ***+2.2*** | 85% | 87% | ***+2.2*** | 7% | 14% | ***+6.6**** | 3% | 6% | ***+2.7*** | 13% | 3% | ***-9.3***** | 10% | 15% | ***+5.5*** | 6% | 5% | ***-1.1*** | 0% | 1% | ***+0.5*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | | | | | | |
| Cold sauces (number of paired products: n=368) | 93% | 93% | ***0*** | 67% | 70% | ***+3.8*** | 28% | 22% | ***-6.0*** | 12% | 12% | ***+0.3*** | 1% | 2% | ***+0.8*** | 39% | 44% | ***+4.9*** | 12% | 10% | ***-1.6*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 2% | 2% | ***0*** | 1% | 1% | ***0*** | 0% | 0% | ***0*** | | | | | | |
| Syrups (number of paired products: n=195) | 98% | 98% | ***0*** | 72% | 77% | ***+5.1*** | 75% | 42% | ***-33.8****** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 74% | 74% | ***0*** | 5% | 18% | ***+13.8****** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | 10% | 10% | ***0*** | 0% | 0% | ***0*** | 0% | 0% | ***0*** | | | | | | |
| Frozen snacking products (number of paired products: n=531) | 88% | 87% | ***-0.6*** | 50% | 47% | ***-3.2*** | 33% | 28% | ***-4.7*** | 54% | 52% | ***-2.3*** | 27% | 25% | ***-2.6*** | 15% | 14% | ***-0.8*** | 5% | 4% | ***-0.8*** | 1% | 1% | ***-0.2*** | 1% | 1% | ***0*** | 0% | 0,2% | ***+0.2*** | 3% | 3% | ***+0.2*** | 0% | 0% | ***0*** | | | | | | |
| Frozen pastries and desserts (number of paired products: n=375) | 99% | 99% | ***0*** | 98% | 99% | ***+0.8*** | 56% | 54% | ***-2.4*** | 15% | 12% | ***-2.7*** | 15% | 14% | ***-1.6*** | 20% | 23% | ***+3.5*** | 7% | 8% | ***+0.5*** | 13% | 14% | ***+0.8*** | 4% | 3% | ***-0.8*** | 0% | 0% | ***0*** | 2% | 2% | ***0*** | 2% | 2% | ***+0.5*** | | | | | | |
| **By type of brand[2]** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| National brands (number of paired products: n=2043) | 86% | 86% | ***0*** | 68% | 68% | ***+0.2*** | 28% | 26% | ***-1.4*** | 16% | 15% | ***-1.6*** | 17% | 14% | ***-3.6***** | 20% | 22% | ***+2.2*** | 7% | 6% | ***-1.1*** | 5% | 4% | ***-0.8*** | 3% | 2% | ***-0.4*** | 3% | 4% | ***+0.9*** | 2% | 2% | ***+0.1*** | 0,3% | 0,1% | ***-0.2*** | | | | | | |
| Retailer brands (number of paired products: n=5274) | 85% | 84% | ***-0.9*** | 60% | 60% | ***-0.5*** | 30% | 24% | ***-5.5****** | 26% | 22% | ***-3.2****** | 19% | 15% | ***-4.2****** | 19% | 20% | ***+1.6**** | 7% | 6% | ***-1.4***** | 3% | 2% | ***-0.4*** | 3% | 2% | ***-0.2*** | 2% | 2% | ***-0.1*** | 1% | 1% | ***-0.3*** | 0,2% | 0,3% | ***0*** | | | | | | |
| Entry-level retailer brands (number of paired products: n=607) | 86% | 86% | ***-0.7*** | 56% | 57% | ***+0.7*** | 33% | 29% | ***-4.0*** | 29% | 28% | ***-1.0*** | 19% | 17% | ***-2.5*** | 15% | 15% | ***-0.2*** | 5% | 5% | ***-0.7*** | 1% | 0,5% | ***-0.5*** | 4% | 3% | ***-0.5*** | 4% | 5% | ***+1*** | 1% | 1% | ***-0.5*** | 0,2% | 0% | ***-0.2*** | | | | | | |
| Hard discount (number of paired products: n=1583) | 86% | 86% | ***0*** | 63% | 64% | ***+0.4*** | 33% | 29% | ***-3.9**** | 27% | 24% | ***-3.1**** | 22% | 20% | ***-2.6*** | 13% | 15% | ***+1.7*** | 6% | 5% | ***-1.3*** | 4% | 3% | ***-0.5*** | 3% | 3% | ***-0.3*** | 1% | 1% | ***-0.3*** | 1% | 1% | ***-0.4*** | 0,3% | 0,1% | ***-0.2*** | | | | | | |
| Specialised retailer brands[3] (number of paired products: n=1041) | 87% | 87% | ***-0.6*** | 66% | 64% | ***-1.5*** | 47% | 46% | ***-0.9*** | 39% | 35% | ***-3.3*** | 27% | 24% | ***-3.0*** | 20% | 22% | ***+2.2*** | 7% | 6% | ***-1.5*** | 8% | 7% | ***-0.3*** | 1% | 1% | ***-0.1*** | 0,3% | 0,3% | ***0*** | 3% | 3% | ***+0.6*** | 1% | 0,5% | ***-0.1*** | | | | | | |

Purple cells: significant decrease in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness/the class of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Orange cells: significant increase in the frequency of presence of at least one sweetening ingredient or ingredient conveying sweetness/the class of sweetening ingredients or ingredients conveying sweetness as defined by OQALI in the products between baseline and follow-up (* if p<0.05; ** if p<0.01; *** if p<0.001)
Statistical test performed: chi-square test
[1] Other sugars: all mono- and disaccharides alone or in combination (excluding sucrose, mention of "sugar" and lactose)
[2] Results for specialised organic retailer brands are not included (insufficient coverage)
[3] As specialised retailer brands were present in only six product categories out of the 27 studied (5 product categories for which baseline and follow-up data were available: Ice creams and sorbets, Ready-to-eat frozen meals, Processed potato products, Frozen snacking products, Frozen pastries and desserts; 1 product category for which only follow-up data were available: Soups and broths), it is difficult to compare them to the other types of brands.

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