

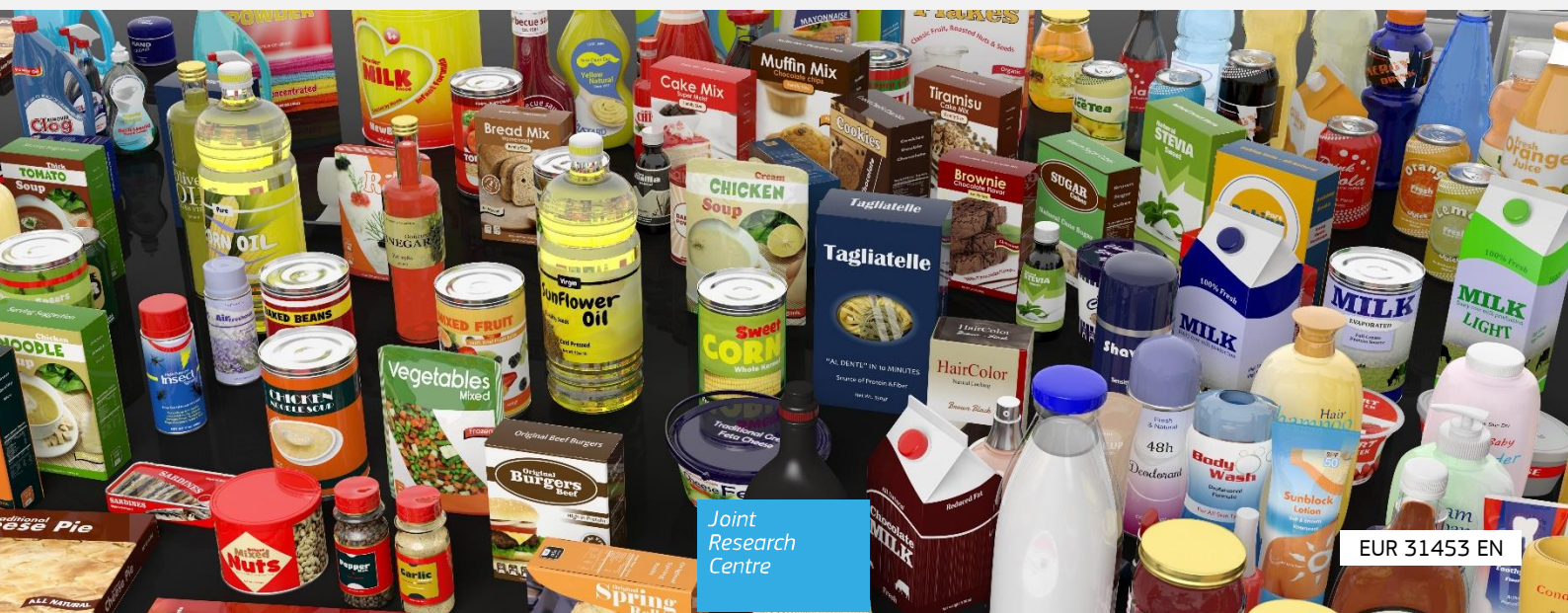


JRC TECHNICAL REPORT

EU-wide comparison of the characteristics and presentation of branded food products (2021)

Nes, K., Antonioli, F., Di Marcantonio, F., Ciaian, P.

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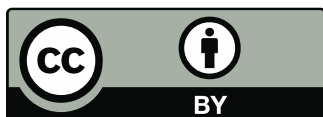
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Contents

Abstract 1

Acknowledgements 2

Executive summary 3

1 Introduction 7

 1.1 Study objectives 8

2 Methodological approach 10

 2.1 Data collection 10

 2.2 Differentiation of products 11

 2.3 Survey of companies 12

 2.4 Contacting companies 13

3 Results 14

 3.1 Results from the 2021 EU-wide testing campaign 14

 3.2 Comparing the results of the 2018/2019 and 2021 testing campaigns 15

 3.3 Company survey results: brand owners’ (potential) responses to the changes in EU law () 17

4 Conclusions 24

References 26

List of abbreviations and definitions 27

List of figures 28

List of tables 29

Abstract

Differences in composition of seemingly identical branded food products (DC-SIP) occur when a good is marketed in one Member State as being identical (same brand labelling and same or similar front-of-pack appearance) to a good marketed in another Member State while that good has a significantly different composition or significantly different characteristics. The Joint Research Centre (JRC) developed a common testing methodology to examine the occurrence of this practice in the European single market. This methodology was applied in the first EU-wide testing campaign in 2018/2019. The objective of this study is to replicate the 2018/2019 testing campaign to provide figures for 2021 on the occurrence of DC-SIP in the European single market and to compare them with the results of the 2018/2019 testing campaign. In addition to the result of this comparison, this report presents the results of a survey of brand owners about their (potential) actions regarding DC-SIP in response to recent regulatory changes, namely the amended Directive 2005/29/EC – the Unfair Commercial Practices Directive (UCPD) – where a specific provision on DC-SIP (Article 6(2)(c)) was introduced by Directive (EU) 2019/2161.

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Executive summary

Differences in composition of seemingly identical branded food products (DC-SIP) occur when a good is marketed in one Member State as being identical (same brand labelling and same or similar front-of-pack appearance) to a good marketed in another Member State while that good has a significantly different composition or significantly different characteristics (European Commission, 2017). The DC-SIP issue is commonly known as ‘dual quality’, even though this is not necessarily accurate terminology, as differences in composition do not necessarily mean differences in quality ⁽¹⁾. The Joint Research Centre (JRC) developed a common testing methodology to examine the occurrence of this practice in the European single market (European Commission, 2018). As a first step, in 2018/2019 this methodology was applied in the first EU-wide testing campaign assessing the composition and presentation of 128 branded food products across 19 EU Member States. It revealed that 9 % of the products differed in composition but without differentiating the appearance of the front-of-pack in at least one of the 19 surveyed Member States and that 22 % of the products differed in composition and indicated to a certain extent those differences by variations in the graphical design on the front-of-pack. No geographical pattern to the observed differences was identified (European Commission, 2019). As a second step, the JRC analysed the sensory properties of 20 of the products that were found to differ in composition while having an identical or similar front-of-pack appearance during the 2018/2019 testing campaign. The results of this study showed that, for 50 % of the evaluated food products, differences in sensory properties between product versions were perceived by trained expert panels (Ulberth, 2021).

The objective of this study was to replicate the 2018/2019 testing campaign to provide figures for 2021 on the occurrence of DC-SIP in the European single market and to compare them with the results of the 2018/2019 testing campaign. In addition to the result of this comparison, this report presents the results of a survey of brand owners about their (potential) actions regarding DC-SIP ⁽²⁾ in response to recent regulatory changes, namely the amended Directive 2005/29/EC – the Unfair Commercial Practices Directive (UCPD) – where a specific provision on DC-SIP (Article 6(2)(c)) was introduced by Directive (EU) 2019/2161 that Member States had to apply from 28 May 2022. Thus, the objectives of the study were threefold:

1. assess the occurrence of DC-SIP in the EU in 2021;
2. compare the occurrence of DC-SIP in 2021 with their occurrence in the 2018/2019 testing campaign;
3. examine brand owners’ (potential) actions regarding DC-SIP in response to the amended UCPD.

The most notable findings that follow from all three study objectives are the following.

- In 2021, 35 % of the evaluated food products were identical but not all of them had an identical front-of-pack appearance, 6 % had a different composition but an identical front-of-pack appearance, and 23 % of the products differed in composition and indicated to a certain extent those differences by variations in the graphical design on the front-of-pack. 31 % had a different composition and also a different front-of-pack appearance. The rest of the products (6 %) had similar compositional characteristics ⁽³⁾. The analysis did not reveal a pattern of product differentiation across geographical areas.
- Comparing the results of the 2018/2019 and 2021 testing campaigns, there was a decrease in the occurrence of DC-SIP – the share of products having different composition but an identical or similar front-of-pack appearance decreased from, respectively, 9 % and 22 % in 2018/2019 (11 and 28 products, respectively, out of 128) to 5.6 % and 18.5 % in 2021 (7 and 23 products, respectively, out of 124) ⁽⁴⁾.
- According to the company survey results, the majority of companies with DC-SIP took or planned to take action on DC-SIP, including by changing product presentation, harmonising recipes, implementing

⁽¹⁾ Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market.

⁽²⁾ This report analyses ‘potential’ responses to the amended UCPD because during the implementation of this study the directive had not been fully transposed and applied across Member States. Therefore, its implications for brand owners cannot be directly observed.

⁽³⁾ Percentages may not sum up to 100 % due to rounding.

⁽⁴⁾ For the two categories combined, there is a 7 percentage point decrease from 31 % in 2018/2019 to 24 % in 2021. The figure considered for comparison in 2021 is 24 %, not 29 % (i.e. 6 % plus 23 %), because 24 % is the value corresponding to the DC-SIP in the 2021 testing campaign for Member States also included in the 2018/2019 testing campaign (19 Member States in 2018/2019 as opposed to 26 Member States in 2021).

other measures or combining these actions. Other respondents explained the differences in products by referring to, among other things, differences in national regulations, production-related factors, substantiated consumer preferences, and differences in voluntary standards across Member States.

Data collection to assess the occurrence of DC-SIP, and compare this with their occurrence in the 2018/2019 testing campaign, took place between February and June 2021. The collected data included data on 26 Member States and 124 products. The products were the same as those in the 2018/2019 testing campaign with the exception of four products, which were not included because the collected national samples belonged to different products and/or there were not enough samples across markets. The analysis related to the first two objectives of the study was based on 1 757 product samples. Following the methodology of the 2018/2019 testing campaign, the composition and front-of-pack appearance of each product were categorised into three groups: identical, similar or different. Front-of-pack appearance was examined by five JRC researchers. Product samples were considered to be different if front-of-pack elements (e.g. motif, logo, font, layout or shape) differed in appearance. The differences in composition were determined by analysing the nutrition information, ingredients and, where available, the quantity of ingredients declaration (QUID). Product samples were considered to be identical only where the ingredient list and/or nutrition declaration was exactly the same. Where small variations in the ingredient list and/or nutrition declaration (less than 10 %) were present, the product samples were considered to be similar. Where variations in nutrition declaration was significant (more than 10 %) and when ingredients and the ingredients declaration (QUID) differed, the product samples were considered to be different.

The analysis related to the third objective was based on information collected through an online EU survey targeting companies whose products were included in the 2018/2019 and 2021 testing campaigns. The online survey was published on 7 March 2022, after the results of the current testing campaign became available, and ran until 10 October 2022. On the basis of the results of both testing campaigns, two online surveys were designed: (1) a survey targeting companies that were found to have DC-SIP in the current and/or previous testing campaign and (2) a survey targeting companies without DC-SIP in both testing campaigns. Overall, the response rate to online surveys was 75 %: 33 out of 44 companies included in the testing campaign responded to the survey.

According to the results related to the first objective of the study, 6 % of the evaluated food products had differences in composition but an identical front-of-pack appearance, and 23 % of the products differed in composition and indicated to a certain extent those differences by variations in the graphical design on the front-of-pack. The rest of the food products evaluated were identical or similar in composition (40 %) or had a different composition and different packaging (31 %). Overall, the results show that there were no DC-SIP identified in 71 % of tested products ⁽⁵⁾. Differences in the composition of products were examined using cluster analysis to identify any patterns related to geographical area. No pattern of product differentiation across geographical areas was found.

Regarding the second objective of the study, it should be noted that the 2021 sample included 26 Member States – resulting in relatively representative results on DC-SIP occurrence across the European single market in 2021 – whereas only 19 Member States were included in the 2018/2019 testing campaign ⁽⁶⁾. To undertake a meaningful comparison, the additional seven Member States included in the 2021 sample ⁽⁷⁾ were therefore excluded from this comparison. Comparing the 2018/2019 and 2021 results reveals a decrease in the occurrence of DC-SIP with the proportion of evaluated products having different composition but an identical or similar front-of-pack appearance decreasing respectively from 9 % and 22 % (11 and 28 products, respectively, out of 128) to 6 % and 18 % (7 and 23 products, respectively, out of 124), in the respective campaigns.

According to the company survey results (related to the third objective of the study), the majority (60 %) of surveyed companies with DC-SIP took or planned to take action on that matter, including changing product presentation (i.e. front-of-pack appearance), harmonising recipes, implementing other measures (e.g. informing consumers about the differences in recipes through websites or advertising, providing information on the

⁽⁵⁾ That is, 40 % (products identical or similar in composition) plus 31 % (products different in both composition and packaging).

⁽⁶⁾ The number of Member States differs between the two testing campaigns because the 2018/19 testing campaign relied on the voluntary participation of competent authorities that – due to workload/other priorities – may not have been able to participate, whereas the 2021 testing campaign was carried out with the assistance of an independent service provider.

⁽⁷⁾ The additional seven Member States included in the 2021 sample were Belgium, Ireland, Luxembourg, Portugal, Romania, Finland and Sweden.

packaging, establishing internal company guidance and/or raising awareness about DC-SIP⁽⁸⁾) or combining these actions. EU consumer legislation was the reason most frequently mentioned by companies for taking action on DC-SIP (47 % of respondents that provided an answer). Reasons such as change in the business strategy (20 %), intervention by national public authorities (7 %) and negative publicity (7 %) were also given as reasons for addressing DC-SIP. A significant share of respondents (40 %) referred to other reasons, which included the creation of a harmonised methodology by the JRC, an internal review of product labelling for compliance with the company's transparency principles, and continuous improvement of technology and manufacturing processes between production facilities.

The companies with DC-SIP that did not plan to take any action (40 % of respondents) reported that the lack of action was due to differences in national regulations (80 %), production-related factors (40 %), consumer preferences (30 %), differences in voluntary standards across Member States (20 %) and other reasons, such as rounding rules or products compared not being from the same production period (50 %) ⁽⁹⁾.

Considering the issue of providing information to consumers about DC-SIP, 40 % of surveyed companies with DC-SIP reported that they would inform consumers about the differences using online tools such as websites or mobile applications (28 %), product-related advertisement (4 %) and other means (e.g. on product packaging via different layouts, labelling and/or ingredient lists) (24 %). Some respondents (12 %) indicated that they intended to use a combination of online tools, product-related advertisement and other means. Informing consumers about differences between product versions was not relevant for 36 % of respondents with DC-SIP because they changed the product's presentation, harmonised product recipes and/or took other action on DC-SIP. The rest of the respondents (24 %) indicated that they did not plan to inform consumers about the differences or take any action on DC-SIP because they did not consider themselves to have DC-SIP, differences between product versions were already mentioned on labels and/or the differences were only minor and due to differences in production and packaging processes.

Overall, interpretation of these results needs to take into consideration the context, conditions and caveats relevant to the approach and the research problems underpinning the study.

- The results presented in this study concern the set of 124 food products included in the analysis and relate to the specific time period during which data were collected. The results cannot be extrapolated to other periods and to the whole population of the food products available in the European single market.
- A significant portion of the products that were included in the 2018/2019 testing campaign (and also in the 2021 testing campaign) where products for which national consumer protection authorities or consumer associations had received complaints regarding differences between domestic versions and versions available in other Member States. For this reason, the share of products identified as DC-SIP in this analysis is not representative (i.e. could be an overestimate) of the overall share of DC-SIP among all food products in the EU single market.
- This report presents an analysis of the differences in the composition of food products available in multiple Member States. These compositional differences should not be interpreted as differences in the quality of the product versions, because differences in composition do not necessarily affect quality ⁽¹⁰⁾.
- This study does not investigate whether the differences in composition and appearance of the included food products constitute a misleading practice within the meaning of the UCPD. This type of legal analysis is outside the scope of this study and would require case-by-case assessment by the competent national authorities.
- The collection of information to assess the occurrence of DC-SIP took place between February and June 2021. Because some companies may have updated the recipes of the tested products after this period in some Member States, it is possible that the occurrence of DC-SIP has changed in the meantime.

⁽⁸⁾ For example, a greater knowledge and awareness within the company of DC-SIP may incentivise company employees to adjust production and marketing process to avoid or reduce the emergence of DC-SIP.

⁽⁹⁾ Note that some respondents provided more than one answer; for this reason the percentages do not add up to 100 %.

⁽¹⁰⁾ Indeed, food quality is a complex and often subjective concept determined by multiple factors (e.g. safety, nutrition, origin, convenience, authenticity, ethics) and how consumers perceive product characteristics that are measurable (e.g. composition, physico-chemical characteristics) and non-measurable (e.g. brand image, advertising, geographical origin, packaging, production processes) (European Commission, 2018).

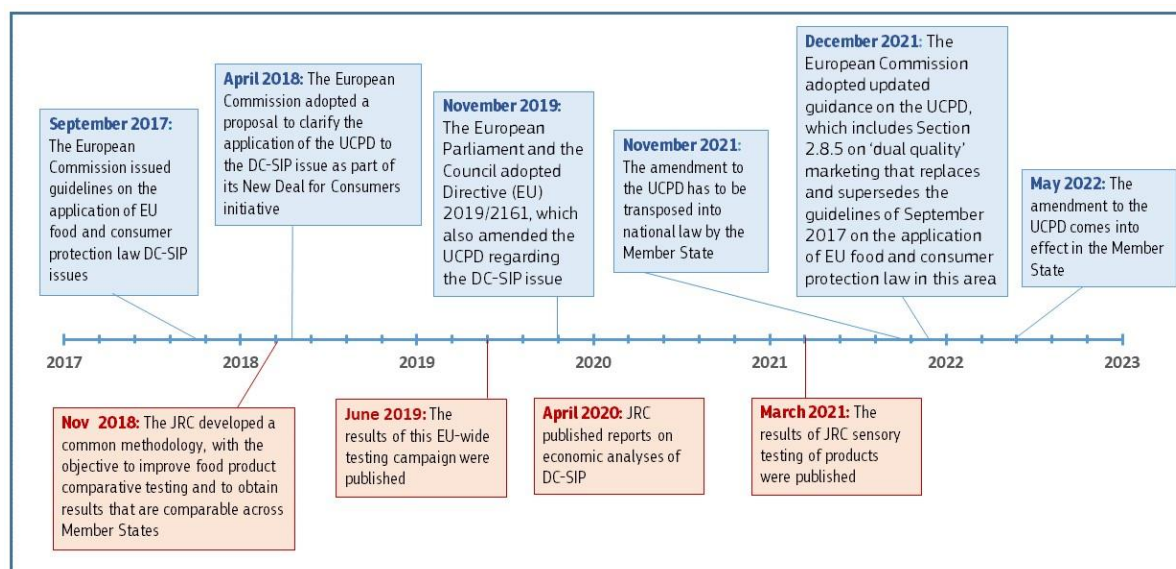
- Although extensive checks of translations of ingredient names from national languages into English were conducted, some terminological discrepancies may have remained. However, the implications for the results are minimal, since the identified compositional differences of the included products are primarily based on quantitative information (e.g. nutrition information and, where available, QUID).
- This study should be understood in the context of the Farm to Fork Strategy. Some differences in composition show that some companies are increasingly following the Farm to Fork Strategy recommendation of reformulating food products in line with guidelines for healthy, sustainable diets.
- Moreover, differences in composition can be linked to the availability of specific supplies across the EU. Diversification of supplies can support food security and limit food inflation in the future, which is particularly relevant in the context of the current Russian war of aggression against Ukraine.

1 Introduction

Differences in composition of seemingly identical branded food products (DC-SIP) occur when a good is marketed in one Member State as being identical (same brand labelling and same or similar front-of-pack appearance) to a good marketed in another Member State while that good has a significantly different composition or significantly different characteristics (European Commission, 2017). The DC-SIP issue – also known as ‘dual quality’ – was raised in 2017, in particular by tests conducted in several Central and Eastern European Member States, which suggested that some brand owners sell goods across the European single market with a different composition or different characteristics with the same brand labelling and the same or similar packaging. Interventions from the European Parliament and the European Council stressed the importance of tackling the DC-SIP issue at the European level (Council of the European Union, 2016; European Parliament, 2017; Vítová, 2018). On 13 September 2017, in the State of the Union Address, the President of the European Commission explicitly referred to the issue and stressed the need to address it.

Subsequently, the European Commission has acted on various fronts, as depicted in the timeline in Figure 1. The legislative action is shown in the top half of the timeline (in blue) and the previous studies conducted by the European Commission’s Joint Research Centre (JRC) are shown in the bottom half of the timeline (in red). As seen in the timeline, in November 2019 the European Parliament and the Council adopted the Better Enforcement and Modernisation Directive (EU) 2019/2161 as part of the Commission’s 2018 New Deal for Consumers initiative. Directive (EU) 2019/2161 amends Directive 2005/29/EC – the Unfair Commercial Practices Directive (UCPD) – to include a specific provision on the DC-SIP issue (Article 6(2)(c)). Member States had to transpose the directive into national law by 28 November 2021 and apply it from 28 May 2022. Under the new Article 6(2)(c) of Directive 2005/29/EC, the marketing of a good with a significantly different composition and significantly different characteristics as identical (i.e. with the same brand labelling and the same or similar packaging) to a good marketed in another Member State can amount to a misleading practice. The competent authorities of the Member States need to assess, on a case-by-case basis, whether such DC-SIP occurrences are misleading, taking into account the impact of the practice on consumers’ transactional (purchase) decisions and also possible legitimate and objective factors that may justify the compositional differences. That is, brand owners are allowed to adapt the composition of their goods to different markets when it is justified by objective factors such as requirements under national law, availability or seasonality of raw materials or voluntary strategies to improve access to healthy and nutritious food. In such cases, companies still need to inform consumers about the different composition of goods across markets through other means, such as advertising and product websites (European Parliament and Council, 2019).

Figure 1. Timeline of UCPD legislation and DC-SIP studies



The various studies provided by the JRC regarding DC-SIP are outlined in the bottom half of the timeline in Figure 1. Generally, the contribution of the JRC to DC-SIP issues can be divided into the following themes.

- **Determine the level of occurrence of DC-SIP in the EU.** The JRC – in close collaboration with the other Commission services, experts from Member States’ competent authorities, and stakeholders in the food supply chain – developed a harmonised methodology to obtain information and assess characteristics of branded food products that are comparable across Member States (European Commission, 2018). Under the coordination of the JRC, this methodology was subsequently applied in an EU-wide testing campaign in 2018/2019, to bring further evidence on whether the composition of various food products differs across Member States. The results of this EU-wide testing campaign were published in June 2019. Overall, 19 Member States⁽¹¹⁾ and 128 food products were included in this campaign. According to the results, 9 % of the products differed in composition but without differentiating the appearance of the front-of-pack in at least one of the 19 surveyed Member States and that 22 % of the products differed in composition and indicated to a certain extent those differences by variations in the graphical design on the front-of-pack. Therefore, combined, 31 % of the evaluated food products had significant differences in composition but an identical or similar front-of-pack appearance, also referred to as DC-SIP. Analysis suggested that there was no geographical pattern to the observed differences. The rest of the food products evaluated were either identical in composition and packaging (33 %), had a similar composition (9 %) or had a different composition and a different front-of-pack appearance (27 %) (European Commission, 2019).
- **Sensory differences in food products.** In the second part of the testing campaign, which was carried out in 2020, the JRC analysed the sensory properties of 20 products – a subset of the products that were included in the EU-wide testing campaign in 2018/2019. The aim of this second part of the testing campaign was to investigate, by using trained expert panels, whether the compositional differences can be perceived by human senses. Overall, differences in the sensory properties between product versions were perceived in 10 out of the 20 tested products. Larger differences in composition resulted in more significant differences in the sensory characteristics. Similar to those of the 2018/2019 testing campaign, the observed differences did not show a geographical pattern. It should also be noted that the mere fact that trained expert panels were not able to sense compositional differences does not necessarily mean that they do not matter to consumers. Consumers might also base their choices on, for example, sustainability considerations regarding the presence or absence of certain raw ingredients the use of which cannot always be detected by the human senses. Whether compositional differences amount to an unfair commercial practice that is illegal under EU law needs to be established on a case-by-case basis, taking into due account all relevant circumstances of the case at hand (Ulberth, 2021).
- **Economic analysis of the DC-SIP issue.** The JRC carried out economic analyses of DC-SIP in the period between July 2018 and December 2019 to (1) explain the rationale for brand owners having different versions of identically or similarly packaged food products across markets (Russo, Menapace, & Sansone, 2020), (2) analyse the impact of DC-SIP on consumers’ choices and welfare (Colen, Chrysochoidis, Ciaian, & Di Marcantonio, 2020; Di Marcantonio, et al., 2020) and (3) identify the main determinants of the occurrence of DC-SIP between Member States (Nes, Ciaian, & Di Marcantonio, 2021). Overall, these analyses suggest that the rationale for DC-SIP is expected to be a result of the optimal strategy of a firm to maximise profits. A firm would adapt (or not) the composition of the product and produce (or not) national versions depending on market conditions (supply and demand) and on the ability of a firm to exploit differences and separation in national markets. Regarding implications for consumers, the impact of DC-SIP on consumer choices could be zero or unnoticed, positive or negative and heterogeneous across consumers within a Member State depending on consumer perception of compositional differences. Furthermore, the empirical estimations show that the occurrence of DC-SIP across Member States is driven by demand- and production-related factors.

1.1 Study objectives

Building on the previous JRC studies, particularly the 2018/2019 testing campaign, this report seeks to outline the occurrence of DC-SIP in the EU. To this end, the JRC collected data on the front-of-pack appearance and labelling information of food products. It also analysed the responses of brand owners to the legislative changes by means of a survey. The objectives of this study are threefold.

1. Assessment of the occurrence of compositional differences between food products marketed under the same brand and the same or similar packaging in the European single market in 2021. This part

⁽¹¹⁾ These Member States were Bulgaria, Czechia, Denmark, Germany, Estonia, Greece, Spain, France, Croatia, Italy, Cyprus, Latvia, Lithuania, Hungary, Malta, the Netherlands, Poland, Slovenia and Slovakia.

of the study replicates the 2018/2019 testing campaign for the same products but extends the number of included Member States to 26 (from 19).

2. Assessment of the changes compared with the 2018/2019 testing campaign. This study aims to examine whether the occurrence of DC-SIP has changed between the 2018/2019 testing campaign and the 2021 testing campaign for the selected 19 Member States.
3. Assessment of brand owners' (potential) responses to the amendments of the UCPD concerning DC-SIP. This analysis aims to provide a better understanding of whether brand owners adjusted or planned to adjust DC-SIP between Member States, the drivers behind the brand owners' choices and their approach to informing consumers about any justified differences in the composition of products.

2 Methodological approach

The study's methodological approach replicates the approach taken in 2018/2019 and is in line with the common testing methodology developed by the JRC in close collaboration with the other Commission services and representatives from Member States' competent authorities, consumer organisations and the industry. It consisted of three stages, as shown in **Figure 2**. First, the data, i.e. front-of-pack pictures and labelling information, were collected in the Member States. Second, the data were analysed and the products classified. Third, companies were asked to reply to a survey about DC-SIP. Finally, companies were invited to provide comments and to check the collected information about their products.

Figure 2. Stages of the methodological approach



2.1 Data collection

The data collection took place between February and June 2021. In this period, nutrition information, ingredients and front-of-pack pictures were collected in 26 Member States for the same products that were included by the 2018/2019 testing campaign ⁽¹²⁾. The aim was to collect data in all 27 Member States, but because of COVID-19-related travel restrictions data collection was not possible in Malta. After the data collection and processing were finished, the final product list consisted of 124 products, and the number of samples (i.e. data from individual Member States) available for the analysis was 1 757 ⁽¹³⁾.

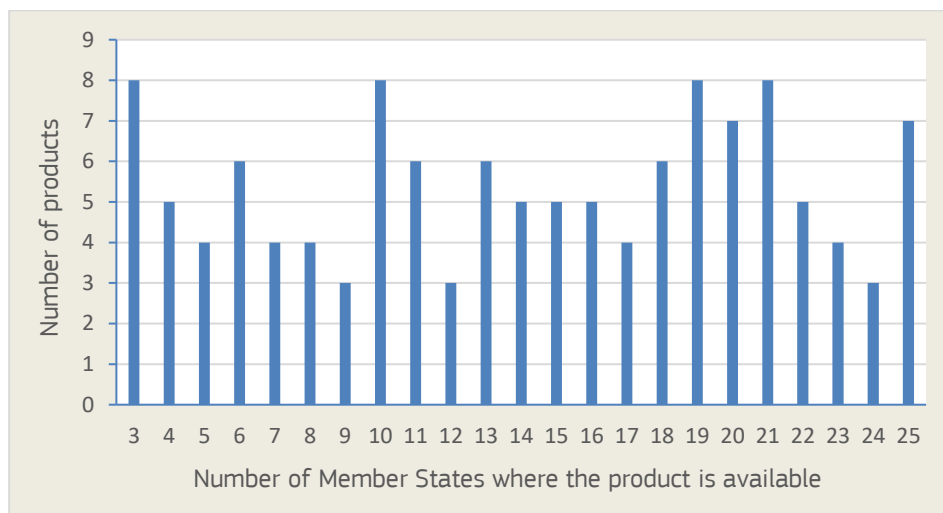
Figure 3 shows the availability of the branded products included in the survey in the EU Member States. On average, a product was available in 14.2 Member States, ranging from nine products available in three Member States ⁽¹⁴⁾ (i.e. the first column in the figure) to seven products being available in 25 Member States (i.e. the last column in the figure).

⁽¹²⁾ The data collection was carried out by an external contractor.

⁽¹³⁾ For the remainder of the report, 'sample' refers to data from an individual Member State (except where it refers to, for example, all products included in a testing campaign), 'product' refers to a specific product and 'product version' denotes the same product but with a different ingredient list than in the other Member States. All products (alongside nutrition information, QUID, ingredient list and front-of-pack picture) can be found in Annex 1.

⁽¹⁴⁾ Note that only products that are available in at least three Member States were considered, in line with the harmonised methodology (European Commission, 2018); hence, the horizontal axis in **Figure 3** starts with three Member States.

Figure 3. Availability of branded products included in the EU-wide survey in the Member States



2.2 Differentiation of products

The first objective of this study was to assess the occurrence of compositional differences between food products marketed with the same brand labelling and the same or similar packaging in the European single market in 2021. While the study, as also explained above, follows the methodology of the 2018/2019 testing campaign, it extends the number of Member States included to 26 (from 19 in 2018/2019). The extension of the number of included Member States resulted in more representative results on the occurrence of the DC-SIP in the European single market in 2021.

As in the 2018/2019 testing campaign, the classification consists of two main criteria:

- (dis)similarity of product packaging (i.e. front-of-pack appearance/product presentation)
- (dis)similarity of composition.

Both the packaging and the composition of each product were classified into three groups: identical, similar and different. An overview of these classifications is provided in **Table 1**. To compare the product packaging, JRC followed the common methodology developed in the previous testing campaign (European Commission, 2018). The front-of-pack appearance was evaluated based on motif, colour, logo, font, pictures, layout and shape. Five JRC researchers evaluated the packaging individually to reduce subjective bias ⁽¹⁵⁾. A product was determined to be different if the front-of-pack elements (e.g. motif, logo, font, layout or shape) of the samples had a different appearance.

The difference in composition was determined by analysing the nutrition information, ingredients and, where available, the quantity of ingredients declaration (QUID) list. If a product had a difference in QUID, nutrition information or ingredients, it was considered to be different in composition. Following the previous testing campaign, the classification for the nutrition information was determined as follows: 'To judge whether the nutrition declaration of the different [samples] of the same product differed to a larger extent the relative standard deviation of the declared nutrient content was computed provided that data for at least three national [samples] of the same product was available. In case that the value was less than 10 % for all declared nutrients, the nutrition declaration was considered to be similar, otherwise it was rated as being different' (European Commission, 2019).

The level of detail about the ingredients and nutrition information provided on the product labels were used to compare product samples and thus had an influence on the results. In addition, the translation of ingredient names from other languages into English (executed by the external contractor) may also have had an impact on the results. For this reason, the JRC conducted an extensive check of translations and collected information (including by consulting the brand owners) in an attempt to harmonise the terminology and address potential issues with the collected information as much as possible. Overall, the impact of translation differences on the

⁽¹⁵⁾ However, a certain level of subjectivity in the judgement of the packaging cannot be excluded. For more detailed analyses of consumers' perceptions of differences in packaging of seemingly identical branded food products, see Solano-Hermosilla et al. (2023).

results is expected to be minimal, because most of the identified compositional differences of the included products are based primarily on quantitative information (e.g. nutrition information and QUID).

Table 1. Grid for classifying products according to similarities/differences

	COMPOSITION	FRONT-OF-PACK
IDENTICAL	Nutrition declaration and ingredients are the same	Motif, colours, logos, fonts, pictures, layout, shape are the same
SIMILAR	Small variations in nutrition declaration and/or ingredient list	Small variation in characteristics but generally having the same appearance
DIFFERENT	Different ingredients or different Quantitative Ingredient Declaration (QUID)	Different appearance

Source: Table 1 in European Commission (2019).

Cluster analyses were carried out for the products for which differences in composition were observed in order to examine whether there is a geographical pattern in the occurrence of DC-SIP. As explained in European Commission (2019), a cluster analysis is a statistical technique to group a set of objects in such a way that objects within the same group (or cluster) are more similar to each other than objects in other groups (or clusters).

To examine whether the occurrence of DC-SIP had changed in the European single market between the 2018/2019 testing campaign and the 2021 testing campaign, we adapted the 2021 sample to the Member States included in the 2018/2019 sample. This was to make the samples comparable given that in the current campaign the sample included 26 Member States while in the 2018/2019 testing campaign the sample included 19 Member States⁽¹⁶⁾. The aim of this comparison was to examine the changes over time in the composition or front-of-pack appearance of the same products in the same Member States.

2.3 Survey of companies

After the data were collected and processed as described, an online EU survey was carried out with companies whose products were included in both testing campaigns. The purpose of the survey was to collect information necessary to assess the brand owners' (potential) responses to the modifications to the UCPD brought about by Directive (EU) 2019/2161⁽¹⁷⁾. That is, as soon as the results of the current testing campaign were available, the JRC shared the survey (from 7 March 2022) with the concerned companies. Relevant EU-wide associations of food and drink manufacturers and retailers were asked to support the dissemination of the survey. The deadline for responding to the survey was initially 31 March 2022 and was extended to 30 April 2022. The JRC provided another opportunity to companies to answer the online survey between 25 July and 10 October 2022. The results of the survey are anonymous.

Two online surveys were designed:

1. a survey targeting companies that were found to have DC-SIP (see Annex 2)
2. a survey targeting companies that were not found to have DC-SIP (see also Annex 2).

Companies that were found to have DC-SIP in the current and/or previous testing campaign were invited to respond to the first survey. The first survey included the following five sections:

1. an introductory section about the company profile

⁽¹⁶⁾ Malta is excluded from the comparative analysis because it was not included in the 2021 testing campaign owing to the COVID-19-related travel restrictions.

⁽¹⁷⁾ This report analyses 'potential' responses to the amended UCPD because during the implementation of this study the relevant amendment had not been fully transposed and applied across all Member States. Therefore, companies were invited to indicate their planned response.

2. awareness of and reasons for the compositional differences between similar or identical food products
3. the company's response to DC-SIP
4. the economic impacts of DC-SIP
5. a concluding section for the company's comments.

The second survey was addressed to the companies that were not found to have DC-SIP for the tested products in the two testing campaigns. The second survey largely followed the structure of the first survey ⁽¹⁸⁾.

Overall, the response rate to the online surveys was 75 %. Out of the 44 companies included in the testing campaign, 33 responded to the survey: 24 (out of 28) to the first survey and nine (out of 16) to the second survey.

2.4 Contacting companies

Companies were invited to provide comments on their food products that were included in the testing campaign. Companies were also given the opportunity to check information collected about their products and to provide clarifications, in case any questions about the collected information or the methodology emerged (including translations of ingredients). Overall, companies provided comments for 101 products; these are included in the product dashboards in Annex 1.

⁽¹⁸⁾ With the exception of Section 3, which was displayed only when a company declared that it had DC-SIP (other than those included in the testing campaign).

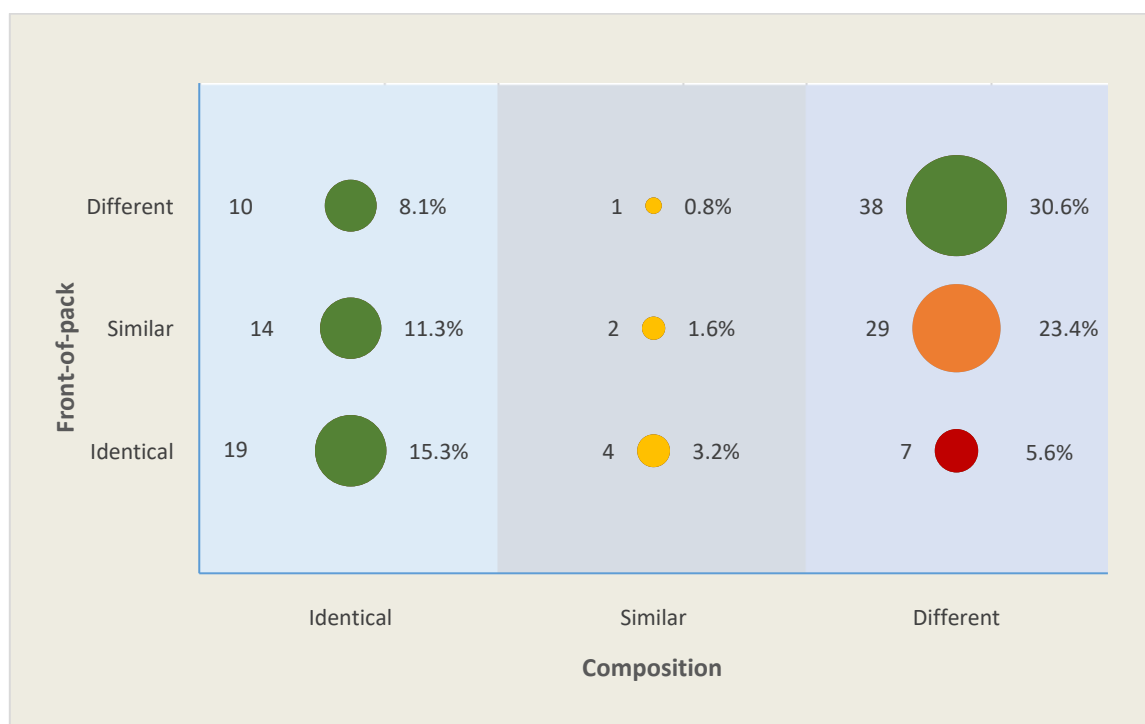
3 Results

The results derived from applying the methodology outlined in the previous section are presented as follows. First, Section 3.1 presents the results from the 2021 testing campaign (first objective of the study). Second, these results are compared with the 2018/2019 testing campaign results in Section 3.2 (second objective of the study). Finally, Section 3.3 presents the results of the company survey regarding the reasons why these differences exist and how the companies concerned have responded or planned to respond to the changes in EU legislation on DC-SIP (third objective of the study).

3.1 Results from the 2021 EU-wide testing campaign

The nutrition information, QUID, ingredient list and front-of-pack pictures are listed in Annex 1 for each product. Using this information, the branded products were divided into nine classes, based on the classifications given in **Table 1**. These nine classes are used to classify DC-SIP, i.e. products with differences in composition that have an identical or similar appearance. The results of the classification – both the number and the proportion of products in each class – are given in **Figure 4**.

Figure 4. Classification of products included in the 2021 EU-wide testing campaign by the similarity of product versions available in multiple markets (the number to the left of a bubble refers to the absolute number and the percentage to the right indicates the relative proportion)



Identical composition

Figure 4 shows that 34.7 % (i.e. 43) of the products included in the sample had an identical composition (presented in green on the left-hand side). Considering the front-of-pack appearance and composition combination, 15.3 % of the products had an identical composition and an identical front-of-pack appearance, 11.3 % of the products had an identical composition and a similar front-of-pack appearance and 8.1 % of the products had an identical composition and a different front-of-pack appearance.

Similar composition

Around 5.6 % (i.e. 7) of the tested branded products had a similar composition (presented in yellow in Figure 4). Products in this class have only small variations in nutrition values and have identical ingredients. Out of these 5.6 % of products with a similar composition, 3.2 % had an identical, 1.6 % had a similar and 0.8 % had a different front-of-pack appearance. As in the previous testing campaign, these small variations could also be

due to different ways of rounding or estimating these values, in particular if the product is produced in different places.

Different composition

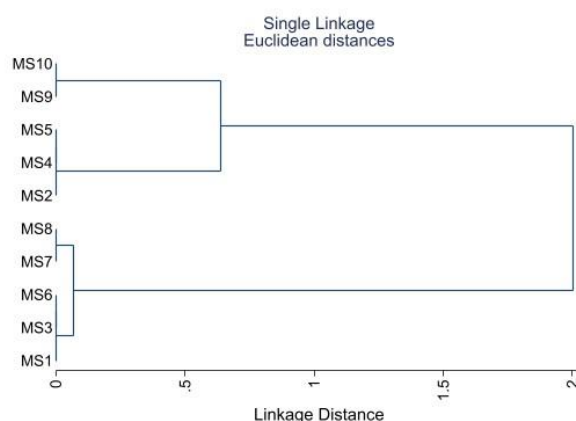
A total of 29.0 % (i.e. 36) of tested products had a different composition and a similar or identical front-of-pack appearance (presented in red and orange in Figure 4). Among these, 5.6 % of the products had a different composition and an identical front-of-pack appearance and 23.4 % had a different composition and a similar front-of-pack appearance. These products are considered in our study to be DC-SIP ⁽¹⁹⁾.

The remaining 30.6 % (i.e. 38) of the tested products had a different composition and a different front-of-pack appearance (presented in green Figure 4).

No geographical pattern

To assess if the identified DC-SIP followed any geographical pattern, cluster analyses were carried out. Cluster analysis is a statistical technique in which sets of objects are grouped in such a way that objects in the same group (or cluster) are more similar to each other than to objects in other groups (or clusters). The graphical presentation of the results of an analysis is called a dendrogram (or similarity tree). An example of a dendrogram, for a fictive product available in 10 Member States, is shown in **Figure 5**. Vertical lines joining product versions indicate that they are similar and belong to the same group; the distance along the horizontal axis at which clusters are joined indicates their (dis)similarity. In the fictive example in **Figure 5**, four clusters would best describe the similarities among the versions of this particular product (cluster 1: Member States 1, 3 and 6; cluster 2: Member States 7 and 8; cluster 3: Member States 2, 4 and 5; and cluster 4: Member States 9 and 10).

Figure 5. Hierarchical cluster analysis of a fictive product available in 10 Member States (MSs)



For 65 out of the 124 products, sufficient data were available to perform a cluster analysis. The resulting dendrograms are included in Annex 3. Taking them all together, the differences are not concentrated on certain geographical areas but are spread across Member States from different EU regions and, therefore, no trend of differentiation of products specific to certain geographical regions was observed.

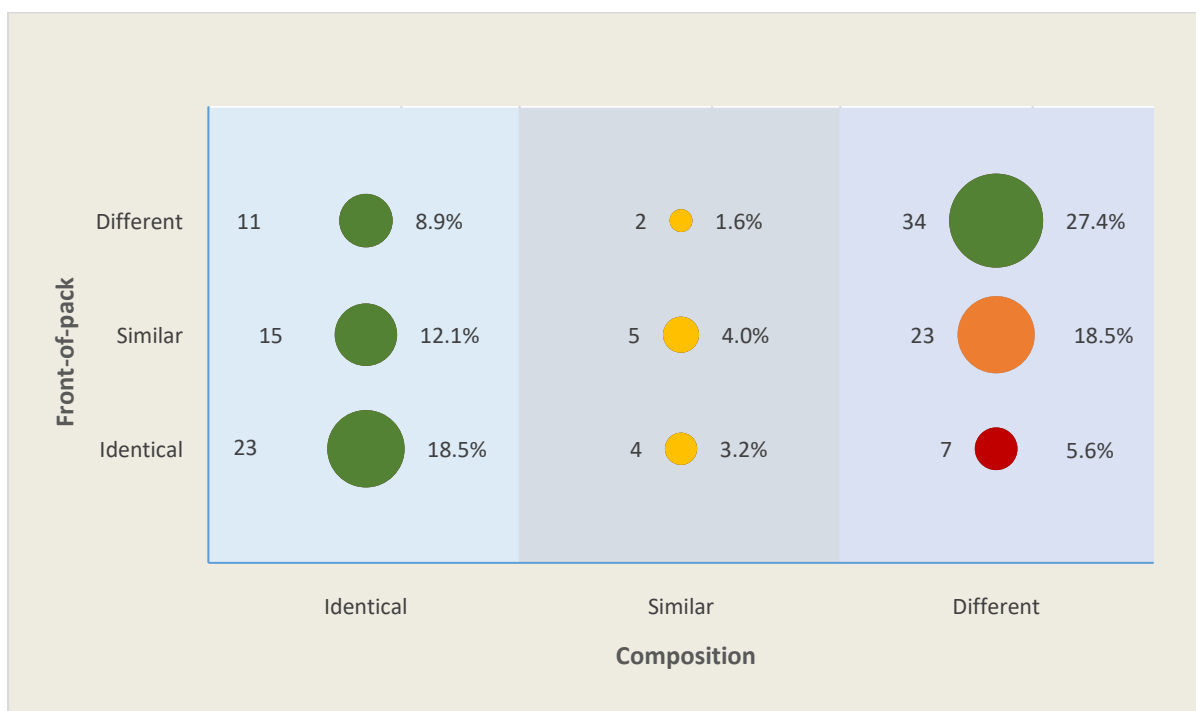
3.2 Comparing the results of the 2018/2019 and 2021 testing campaigns

Comparisons were conducted to examine the change in the occurrence of DC-SIP over time. To conduct these comparisons, first, the occurrence of DC-SIP for 2021 was recalculated to include only the Member States also included in the 2018/2019 sample ⁽²⁰⁾. The recalculated 2021 results are shown in Figure 6.

⁽¹⁹⁾ As was evident in the 2018/2019 testing campaign and as discussed in Section 2.2, some uncertainty exists about the group of products with a different composition and a similar front-of-pack appearance, as there is a certain level of subjective evaluation when determining whether the front-of-pack is similar or not.

⁽²⁰⁾ This recalculation is needed because some of the classifications shown in Figure 4 depend on product versions in Member States not included in the 2018/2019 testing campaign. For instance, for three products, Ireland had its own version of the products whereas the products were identical in the rest of the Member States. As Ireland was not included in the 2018/2019 testing campaign, these products were reclassified in the sample used for the comparison.

Figure 6. Classification of products included in the 2021 EU-wide testing campaign by the similarity of product versions available in multiple markets (the number to the left of a bubble refers to the absolute number and the percentage to the right indicates the relative proportion), including only the Member States also included in the 2018/2019 testing campaign

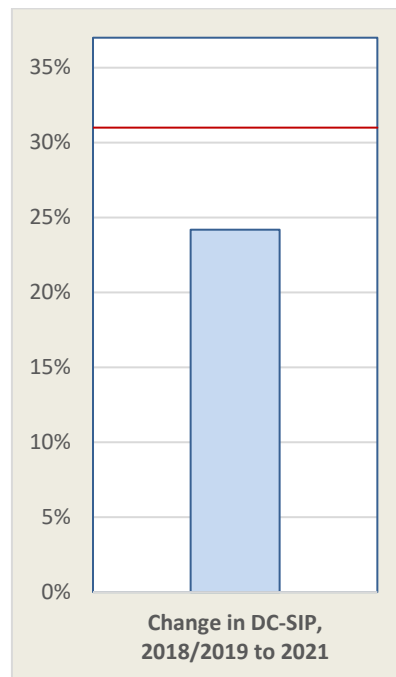


The results show that 39.5 % (i.e. 49) of the products had an identical composition (presented in green on the left-hand side of Figure 6), and 51.5 % (64) of the products had a different composition (presented in red, orange and in green on the right-hand side of Figure 6). The DC-SIP products are indicated in red and orange in Figure 6: 5.6% (7) had a different composition but an identical front-of-pack and 18.5 % (23) a different composition and indicated to a certain extent those differences in the front-of-pack. Therefore, 24.1 % (30) of the products had a different composition and an identical or similar front-of-pack appearance i.e. can be considered DC-SIP. Figure 7 summarises the occurrence of DC-SIP in the 2021 testing campaign compared with that in the 2018/2019 testing campaign. The red horizontal line indicates the occurrence of DC-SIP in 2018/2019 – i.e. at 31 % – and the bar denotes the occurrence of DC-SIP in 2021, i.e. at 24.1 %. The main conclusion from this comparison can be summarised as follows.

- **The occurrence of DC-SIP has decreased between 2018/2019 and 2021.** Figure 7 includes only the Member States included in both the 2018/2019 and 2021 testing campaigns. As seen in Figure 7, the occurrence of DC-SIP in these Member States in 2021 has decreased since the 2018/2019 testing campaign. Indeed, in the comparable Member States ⁽²¹⁾, the share of products having different composition but an identical or similar front-of-pack appearance decreased from, respectively, 9 % and 22 % in 2018/2019 (11 and 28 out of 128 products) to 5.6 % and 18.5 % in 2021 (7 and 23 out of 124 products). Therefore, 24.1 % of the products were considered DC-SIP in 2021 compared with 31 % in 2018/2019. That is, the share of cases of DC-SIP among all products has decreased by almost 7 percentage points in the period 2019–2021.

⁽²¹⁾ The Member States which were subject of the study in 2018/2019.

Figure 7. Comparison of the occurrence of DC-SIP in the 2018/2019 and 2021 testing campaigns



3.3 Company survey results: brand owners' (potential) responses to the changes in EU law ⁽²²⁾

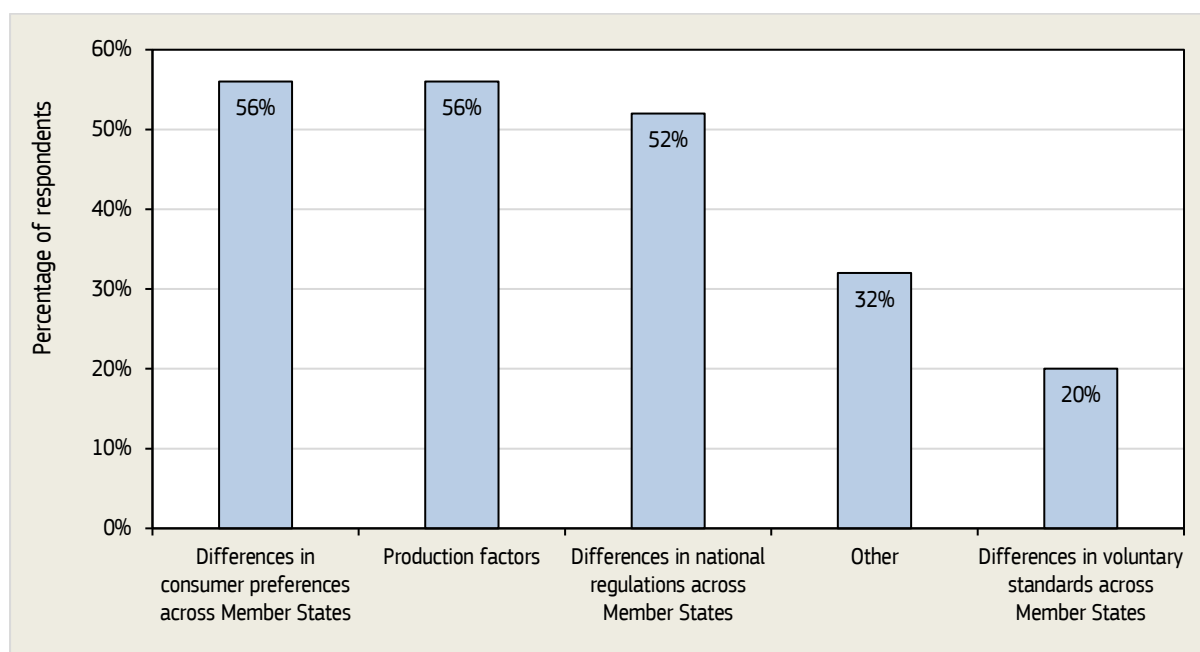
This section summarises the results from the online survey, attempting to assess brand owners' (potential) responses to the amended UCPD ⁽²³⁾.

The reasons provided by the surveyed companies for DC-SIP in the EU include differences in consumer preferences across Member States, as supported by studies/evidence (56 % of respondents); production factors (e.g. availability/seasonality of raw materials in different Member States, differences in the costs of sourcing of ingredients between markets, technological factors) (56 %); differences in national regulations (52 %); differences in voluntary industry codes of practices and standards across Member States (20 %); and other reasons (32 %) (**Figure 8**). Other reasons provided by respondents include gradual roll-out of recipe changes for organisational reasons and/or ensuring consumer acceptance, differences in retail environments and/or outdated packaging layout.

⁽²²⁾ This section discusses empirical evidence on brand owners' (potential) responses to the changes in the amended UCPD based on the company survey results. For a conceptual discussion on the brand owners' (potential) responses to the UCPD, see Annex 4.

⁽²³⁾ For more detailed survey analyses, see Annex 5.

Figure 8. Reasons for DC-SIP occurrences across Member States (percentage of total respondents that provided an answer)



NB: Respondents could select more than one reason.

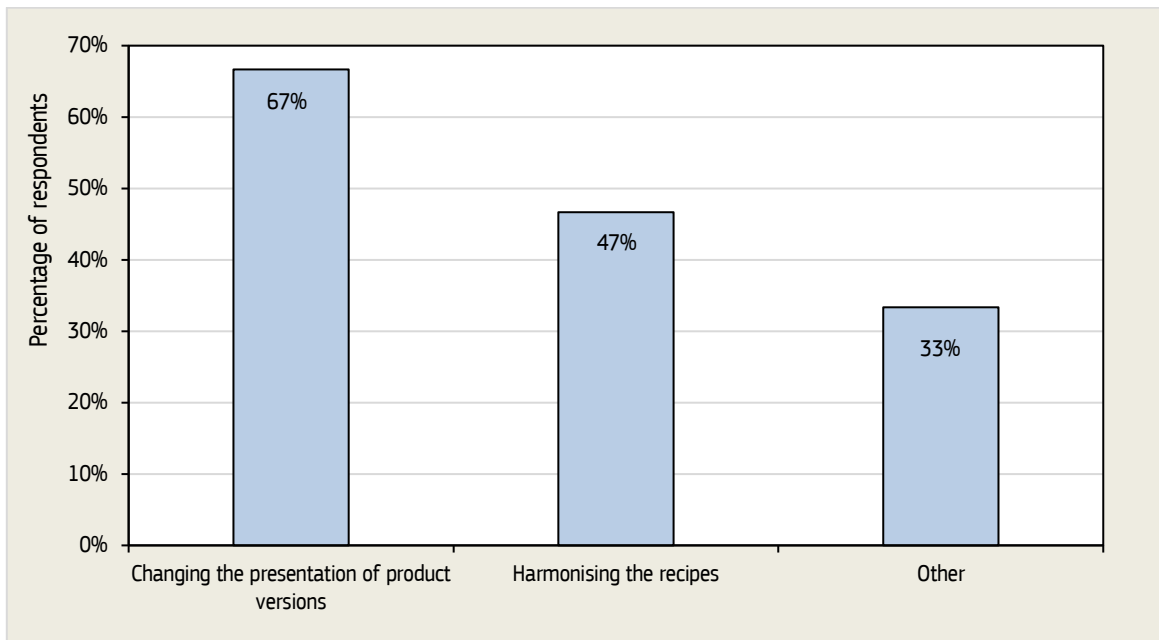
Brand owners' actions regarding DC-SIP products

About 60 % of surveyed companies with DC-SIP took or planned to take action in that respect. The most common actions included changing the product's presentation to differentiate between product versions (67 % of respondents that took or planned to take action), harmonisation of product recipes (47 %) and other actions (33 %) (**Figure 9**). Examples of other actions stated by respondents include informing consumers about significant differences in recipes by disseminating information through company websites and advertising, providing information on the front of the product packaging and in the ingredient list on the back of the product packaging or establishing internal company guidance and/or responsibilities to educate and raise awareness among employees about DC-SIP ⁽²⁴⁾. The majority of surveyed companies with DC-SIP (53 % of respondents that took or planned to take action) reported that they took or planned to take a combination of these actions, such as harmonising recipes and changing the presentation of product versions.

Of the respondents that had taken or planned to take action on DC-SIP, around 60 % had taken action, most of them doing so around 3 years previously, and the remaining respondents (around 40 %) planned to take action within the next year or did not specify a time period. Some respondents stated that it is a continuous process.

⁽²⁴⁾ A greater knowledge and awareness within the company about DC-SIP may incentivise company employees to adjust production and marketing process to avoid or reduce the emergence of DC-SIP.

Figure 9. Action taken by respondents on DC-SIP products (percentage of total respondents that took or planned to take action)



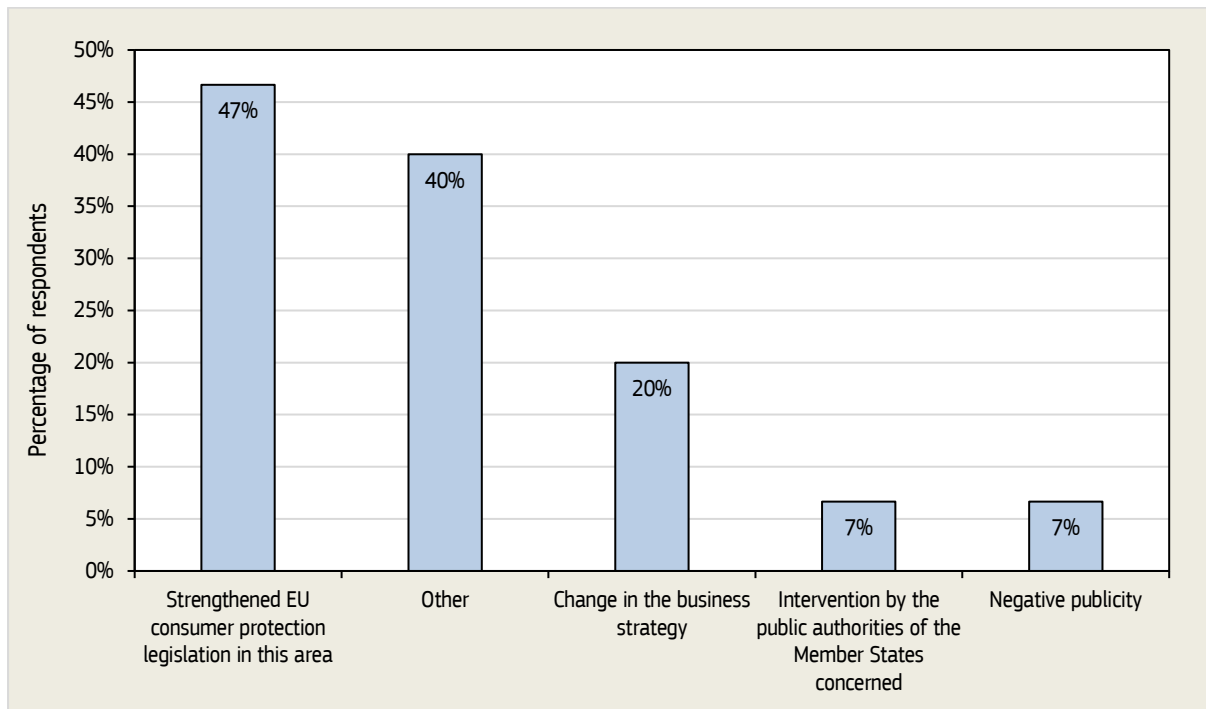
NB: Respondents could select more than one action.

Explanations for the brand owners' responses

The most common reasons provided by respondents for taking action on DC-SIP (Figure 10) were strengthened EU consumer protection legislation (47 % of respondents that provided an answer), change in business strategy (20 %), intervention by public authorities of Member States (7 %) and negative publicity (7 %). A significant share of the respondents (40 %) indicated that they took action for other reasons, such as the creation of the harmonised methodology by the JRC ⁽²⁵⁾, to enhance information for consumers or because of an internal review of product labelling for compliance with the company's transparency principles. Moreover, action could be taken as part of continuous improvement of technology and manufacturing processes between EU production facilities.

⁽²⁵⁾ The JRC harmonised methodology may stimulate companies to take action on DC-SIP because it provides a consistent framework to analyse and identify potential DC-SIP issues.

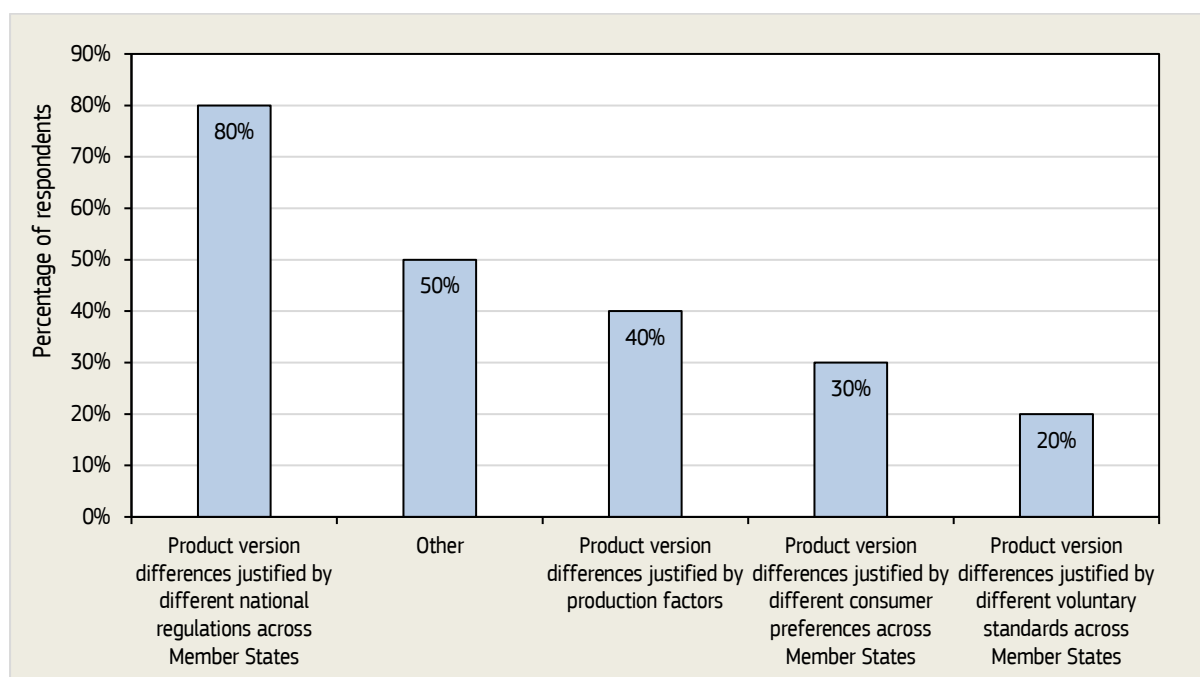
Figure 10. Main reasons for action taken by companies with DC-SIP (percentage of respondents that provided an answer)



NB: Respondents could select more than one reason.

The respondents that did not plan to take action on DC-SIP (40 % of respondents with DC-SIP) attributed the DC-SIP to differences in national regulations (80 % of respondents that provided an answer), production-related factors (40 %), differences in consumer preferences (30 %) and differences in voluntary standards across Member States (20 %). Other reasons for not taking action were given by 50 % of respondents that provided an answer (Figure 11). These other reasons included that compositional differences occur because of different rounding rules and that the products being compared were not from the same production period.

Figure 11. Main reasons stated by companies with DC-SIP for not taking action (percentage of total respondents that provided an answer)



NB: Respondents could select more than one reason.

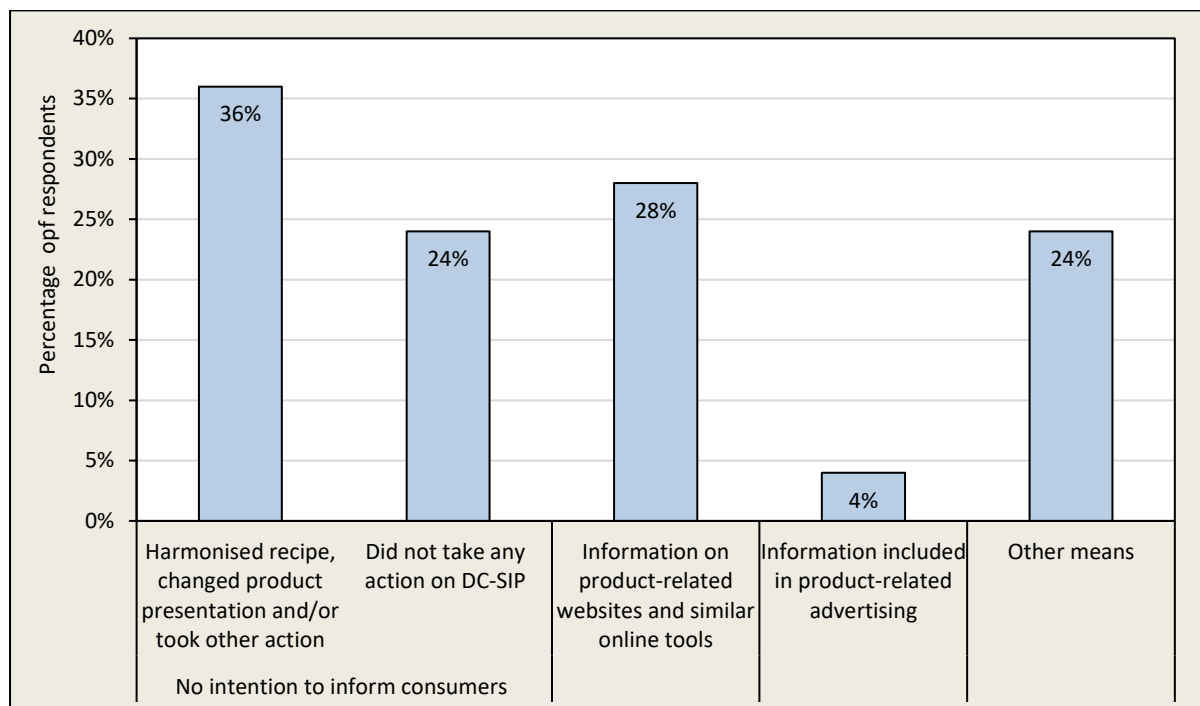
Brand owners' actions to inform consumers about product version differences

Around 40 % of surveyed companies with DC-SIP indicated that they would inform consumers about product version differences, which would be achieved through product-related online tools such as websites or mobile applications (28 % of respondents with DC-SIP), product-related advertisement (4 %) or other means (e.g. through product packaging with different layouts, labelling and/or ingredient lists) (24 %) (Figure 12). Some respondents (12 % of respondents with DC-SIP) indicated that they will use a combination of online tools, product-related advertisement and other means (Figure 12) ⁽²⁶⁾.

Informing consumers about product version differences is not relevant to around 36 % of respondents with DC-SIP because they had changed product presentation, harmonised product recipes and/or taken other action. The rest of respondents (24 % of respondents with DC-SIP) did not plan to inform consumers or take any other action on DC-SIP (Figure 12). Among these companies, 50 % did not consider that they have DC-SIP and/or considered that the product version differences were minor, and 17 % claimed that the differences between versions were not relevant because they were already mentioned on the labels. Furthermore, 33 % stated that the differences were due to production and packaging processes.

⁽²⁶⁾ Note that some respondents provided more than one answer; for this reason the percentages do not add up to 100 % in Figure 12.

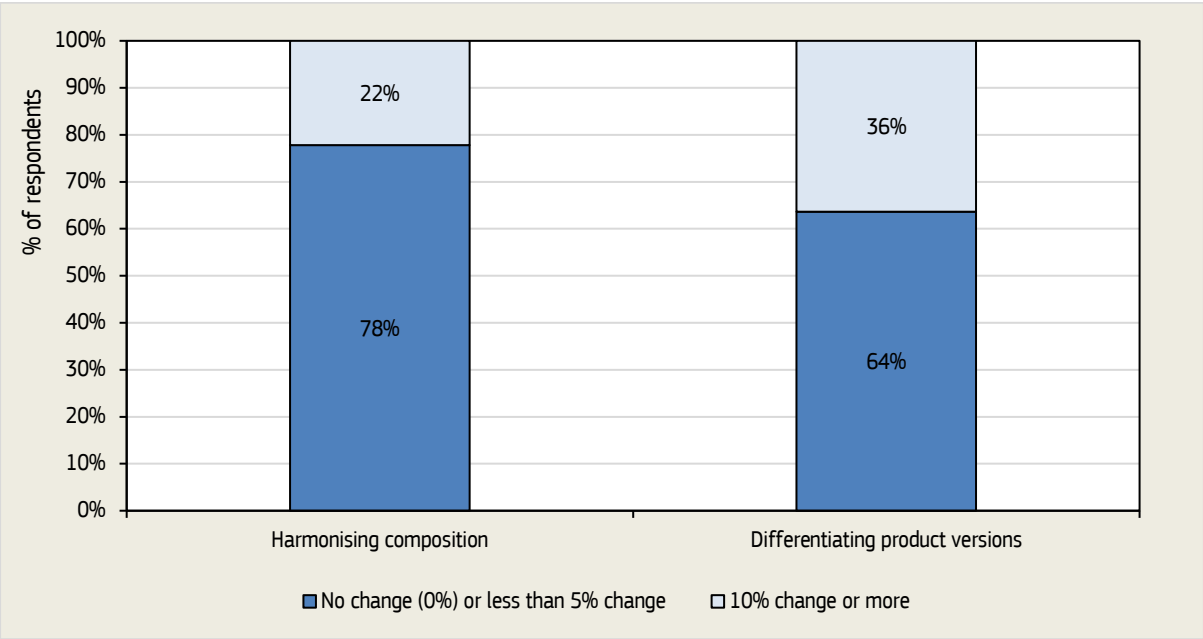
Figure 12. Companies' intentions to inform consumers about DC-SIP (percentage of respondents with DC-SIP)



NB: Respondents could select more than one action.

Regarding the economic impact of the amended UCPD (i.e. harmonisation and differentiation of product versions), the majority of respondents (67 %) indicated that they did not know what the economic impact of the legislative changes could be or that the survey question was 'not applicable'. The rest of the respondents (33 %) identified potential impacts on one or more indicators, e.g. on production and marketing costs, price, profit margins and brand reputation. The majority of those respondents – 78 % and 64 % – reported no or small (less than 5 %) (potential) impacts of harmonisation of product versions and differentiation of product versions on the considered performance/economic indicators, respectively. The rest of the respondents (22 % and 36 %) indicated the (potential) economic impacts could be greater than 10 % (**Figure 13**).

Figure 13. The (potential) economic impacts for companies of harmonising the composition of product versions and differentiating product versions through product packaging (percentage of respondents that provided an answer)



NB: Companies could report (potential) impacts of harmonising the composition of product versions and differentiating product versions on the following performance/economic indicators: production and marketing costs, price, profit margins, brand reputation and other impacts. The results in the figure count the number of responses if respondents reported (potential) impact for at least one indicator.

4 Conclusions

The objectives of the study were to assess the occurrence of DC-SIP in the EU in 2021, to compare the occurrence of DC-SIP in the 2018/2019 and 2021 testing campaigns and to examine brand owners' (potential) responses to the amended UCPD.

The most notable findings from all three study objectives are the following.

- A total of 35 % of the evaluated food products had an identical composition but not all of them had an identical front-of-pack appearance, 6 % and 23 % of the products had a different composition but an identical or similar front-of-pack appearance, respectively, 31 % had a different composition and indicated those differences by a different appearance on the front-of-pack, while 6 % had similar compositional characteristics. The analysis did not reveal a pattern of product differentiation across geographical areas.
- Comparing the results of the 19 Member States that were included in both the 2018/2019 and 2021 testing campaigns, there was a decrease in the occurrence of DC-SIP of 7 percentage points.
- According to the company survey results, the majority of surveyed companies with DC-SIP took or planned to take action, including by changing product presentation, harmonising recipes, implementing other measures or combining these actions. Other respondents accounted for DC-SIP by referring to, among other things, differences in national regulations, production-related factors, consumer preferences and differences in voluntary standards across Member States.

These results follow from an EU-wide testing campaign, which addressed the first two objectives of this report, and an online EU survey, which addressed the third objective. The testing campaign took place between February and June 2021 and included 26 Member States and 124 products. The products included in the 2021 testing campaign were the same as those in the 2018/2019 testing campaign with the exception of four products, which were not included in the 2021 testing campaign. In addition, the 2021 testing campaign included seven more Member States than the 2018/2019 testing campaign. The survey targeted companies whose products were included in both testing campaigns. Companies could respond to the survey between 7 March and 10 October 2022.

Regarding the first objective of the study, the results show that among the tested products 6 % and 23 % had a different composition but an identical or similar front-of-pack appearance, respectively. The rest of the evaluated food products (71 %) either had an identical or similar composition or they were different both in composition and front-of-pack appearance. The analysis did not reveal a pattern of product differentiation across geographical areas.

For the second objective of the study, the 2021 sample was adapted to include only the same Member States that were included in the 2018/2019 campaign in order to have comparable samples for the analysed periods. When using the comparable group of Member States of the two testing campaigns, the results reveal a decrease in the occurrence of DC-SIP. In the 2018/2019 testing campaign, 9 % and 22 % of the evaluated products had a different composition but an identical or similar front-of-pack appearance, respectively. However, in the 2021 testing campaign, these figures decreased to 5.6 % and 18.5 %, respectively.

Finally, regarding the third objective of the study, the results can be summarised as follows.

- A total of 60 % of surveyed companies with DC-SIP products took or planned to take action on DC-SIP, either by changing product presentation, harmonising recipes, taking other action – such as informing consumers about the differences in recipes through websites, advertising and/or packaging, or establishing internal company guidance and/or raising awareness among employees of DC-SIP – or taking a combination of these actions.
- The companies' reasons for taking action included strengthened EU consumer protection legislation (47 % of total responses), a change in business strategy (20 %), intervention by national public authorities (7 %) and negative publicity (7 %). Other reasons included the creation of the harmonised methodology by the JRC, an internal review of product labelling for compliance with the company's transparency principles or improved technology and manufacturing processes between production facilities (40 %).
- A total of 40 % of respondents with DC-SIP did not plan to take any action. They justified this approach by referring to differences in national regulations (80 %), production-related factors (40 %), consumer

preferences (30 %), differences in voluntary standards across Member States (20 %) and other reasons (50 %) such as rounding rules.

- A total of 40 % of respondents with DC-SIP indicated that they would inform consumers about the differences between product versions using online tools, product-related advertisement, other means or a combination of these.
- Informing consumers about product version differences was not relevant for 36 % of respondents with DC-SIP because they had changed product presentation, harmonised product recipes and/or taken other action. The remaining 24 % of respondents did not plan to inform consumers about the differences between product versions or take any action on DC-SIP because they did not consider themselves to have DC-SIP, product version differences were already mentioned on labels and/or product differences were minor and due to differences in production and packaging processes.

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List of abbreviations and definitions

DC-SIP	differences in composition of seemingly identical branded food products
JRC	Joint Research Centre
QUID	quantity of ingredient declaration
UCPD	Unfair Commercial Practices Directive

List of figures

Figure 1. Timeline of UCPD legislation and DC-SIP studies.....	7
Figure 2. Stages of the methodological approach	10
Figure 3. Availability of branded products included in the EU-wide survey in the Member States	11
Figure 4. Classification of products included in the 2021 EU-wide testing campaign by the similarity of product versions available in multiple markets (the number to the left of a bubble refers to the absolute number and the percentage to the right indicates the relative proportion).....	14
Figure 5. Hierarchical cluster analysis of a fictive product available in 10 Member States (MSs).....	15
Figure 6. Classification of products included in the 2021 EU-wide testing campaign by the similarity of product versions available in multiple markets (the number to the left of a bubble refers to the absolute number and the percentage to the right indicates the relative proportion), including only the Member States also included in the 2018/2019 testing campaign.....	16
Figure 7. Comparison of the occurrence of DC-SIP in the 2018/2019 and 2021 testing campaigns	17
Figure 8. Reasons for DC-SIP occurrences across Member States (percentage of total respondents that provided an answer).....	18
Figure 9. Action taken by respondents on DC-SIP products (percentage of total respondents that took or planned to take action).....	19
Figure 10. Main reasons for action taken by companies with DC-SIP (percentage of respondents that provided an answer).....	20
Figure 11. Main reasons stated by companies with DC-SIP for not taking action (percentage of total respondents that provided an answer).....	21
Figure 12. Companies' intentions to inform consumers about DC-SIP (percentage of respondents with DC-SIP).....	22
Figure 13. The (potential) economic impacts for companies of harmonising the composition of product versions and differentiating product versions through product packaging (percentage of respondents that provided an answer).....	23

List of tables

Table 1. Grid for classifying products according to similarities/differences12

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