

Reformulation across Europe

An overview on planned and implemented strategies in European countries other than Germany – part 1

Linda Dorothea Kleis, Eva Andrea Schulte, Anette E. Buyken

Abstract

Health promotion and prevention of diet-related diseases in Germany have so far focused mainly on nutrition education. Internationally, however, a variety of measures are already implemented aiming at changes in the nutritional environment. These include so-called reformulation strategies to improve the nutritional composition of foods offered. Part 1 provides a systematic overview of strategies currently formulated in European countries outside Germany and their implementation.

Keywords: Health promotion, Public Health Nutrition, reformulation, sugar, salt, fat, energy

Introduction

Cardiovascular diseases account for more than half of all deaths in Europe, over 60 million people in Europe have diabetes and in many European countries the number of obese people has tripled in the last 30 years [1]. In the past, the prevention of these diet-related diseases was mainly based on information, consumer education and campaigns so as to influence individual nutritional behaviour in a favourable way. Such measures are part of behavioural prevention. Nowadays, numerous European countries are formulating and/or implementing health policy measures to change the nutritional environment [2], hence these measures address environmental prevention. One such instrument is the introduction of product reformulation measures. These measures change the composition of highly processed foods with the aim of improving the products offered to the consumer in a sustainable way [3]. This approach corresponds to "changing the default": the targeted reduction of ingredients such as sugar, salt and/or saturated fats can reduce the intake of these nutrients even when maintaining current dietary habits [4].

In 2008, the EU Commission published a framework concept for national salt reduction initiatives and in 2011 a framework concept for the reduction of sugar and fat. Participation is voluntary; cooperation is intended to help the participating countries to improve the nutritional situation at national levels, with the reformulation of foodstuffs being explicitly mentioned as a measure to be considered [5, 6]. In 2018, Germany was one of the last EU member states to adopt the "National Reduction and Innovation Strategy for Sugar, Fats and Salt in ready-made products" as the basis for German reformulation measures. This strategy aims at reducing the energy intake of the population by reducing the sugar or fat content or the portion size of foods as well as further reducing the intake of salt and non-ruminant trans fatty acids at the population level. The strategy focuses on ready-made

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products [7]. Other European countries have already formulated reformulation strategies for one or more nutrients and have in some cases been implementing these measures for several years [3].

This paper therefore firstly provides an overview of the reformulation strategies which are currently formulated in the European neighbouring countries, addressing both voluntary and mandatory targets. Results achieved so far and identified success factors are presented and discussed in part 2 (■ ■ ■ ERNÄHRUNGS UMSCHAU 11/2020).

Methodology

This systematic review was based on an internet search using the Google search engine and was carried out using defined keywords for the European neighbouring countries. It considered EU member states as well as the neighbouring countries Switzerland and Norway.

♦ Figure 1 illustrates the search strategy. The following search terms were used:

- [name of country] in *English* + ("reformulation" OR "food reformulation" OR "reformulation strategy")
- [name of country] in the *local language* + "reformulation"
- OR [food reformulation] OR [reformulation strategy] in the *respective national language* (if such a term exists)

The results were supplemented by information from documents additionally identified, which describe multinational nutrition-related health promotion measures (♦ Figure 1).

Only strategies involving a governmental institution were evaluated. The identified $n = 272$ documents were checked for fulfilment of the inclusion and exclusion criteria. Only articles and documents were included which met the requirements below:

- clear reference to a European neighbouring country or a comparison of European countries
- focus on food reformulation or reformulation strategies
- mention of sugar, salt, fat or energy content
- presentation of data on the implemented strategy or specific results.

The article and document types below were excluded:

- exclusive descriptions of health promotion measures beyond food reformulation
- results of the implementation of reformulations on the sensory and food technology level
- popular-science articles, reports and websites or reports from industry.

In a further step, all documents available in German, English or French were analysed to illustrate the formulated strategies (♦ Tables 1 and 2). Documents available in the national language only, which could not be converted to an English version, were not included in the analysis (exception: French). An overview of the excluded documents is available on request from the corresponding author. The search strategy did not identify articles published in peer-reviewed journals.

Results

Reformulation strategies and measures reducing nutrients in food have been formulated in 23 countries so far (as of January 2019: ♦ Tables 1 and 2). Reformulation strategies on combinations of different nutrients were formulated in a total of 18 countries. This has either been done through action plans or agreements on more than one nutrient or there are measures for several nutrients separately formulated at different timepoints. A total of ten countries have formulated a strategy for reducing sugar, 18 countries for reducing salt and eight countries for reducing fat (♦ Table 1). In addition, nine countries have formulated a measure to reduce trans fatty acids (♦ Table 2).

While most of the measures to reduce trans-fatty acids are based on a *mandatory* upper limit of 2 g per 100 g of fat, the majority of measures to reduce the salt, sugar and fat content of foods are based on *voluntary agreements* between a government institution and industry representatives. The number of participating companies varies greatly from country to country. Regulations by law exist only for the reduction of salt in Bulgaria, the Netherlands and Portugal. In Lithuania, there is a prospect that a tax will be waived should the industry comply with the agreements to reduce sugar (♦ Table 1).

Many agreements aim for a *stepwise implementation* of the respective strategy over a multi-annual period, for example in Belgium, Italy, Croatia, the Netherlands, Norway, Slovenia and the United Kingdom. In addition, strategies often focus on *product groups* in which the respective nutrient is present in particularly critical quantities, such as added sugar in beverages or breakfast cereals targeted at children or salt in bread or cheese (for example in Belgium, Italy and Croatia). Some voluntary agreements involving various companies set company-specific targets and measures (e.g. in Lithuania).

The *extent of the planned reduction* ranges from clearly formulated reductions (e. g. -30% in saturated fats in Slovenia, -20% sugar in industrial products targeted at children and young people in the United Kingdom, -30% salt in Norway) to moderate targets (e. g. -10% sugar in soft drinks in Belgium, -10% salt in bread in Lithuania, -10% sugar, salt and fats in food in Spain) and general statements (e. g. reduction of salt, sugar and fat in France).

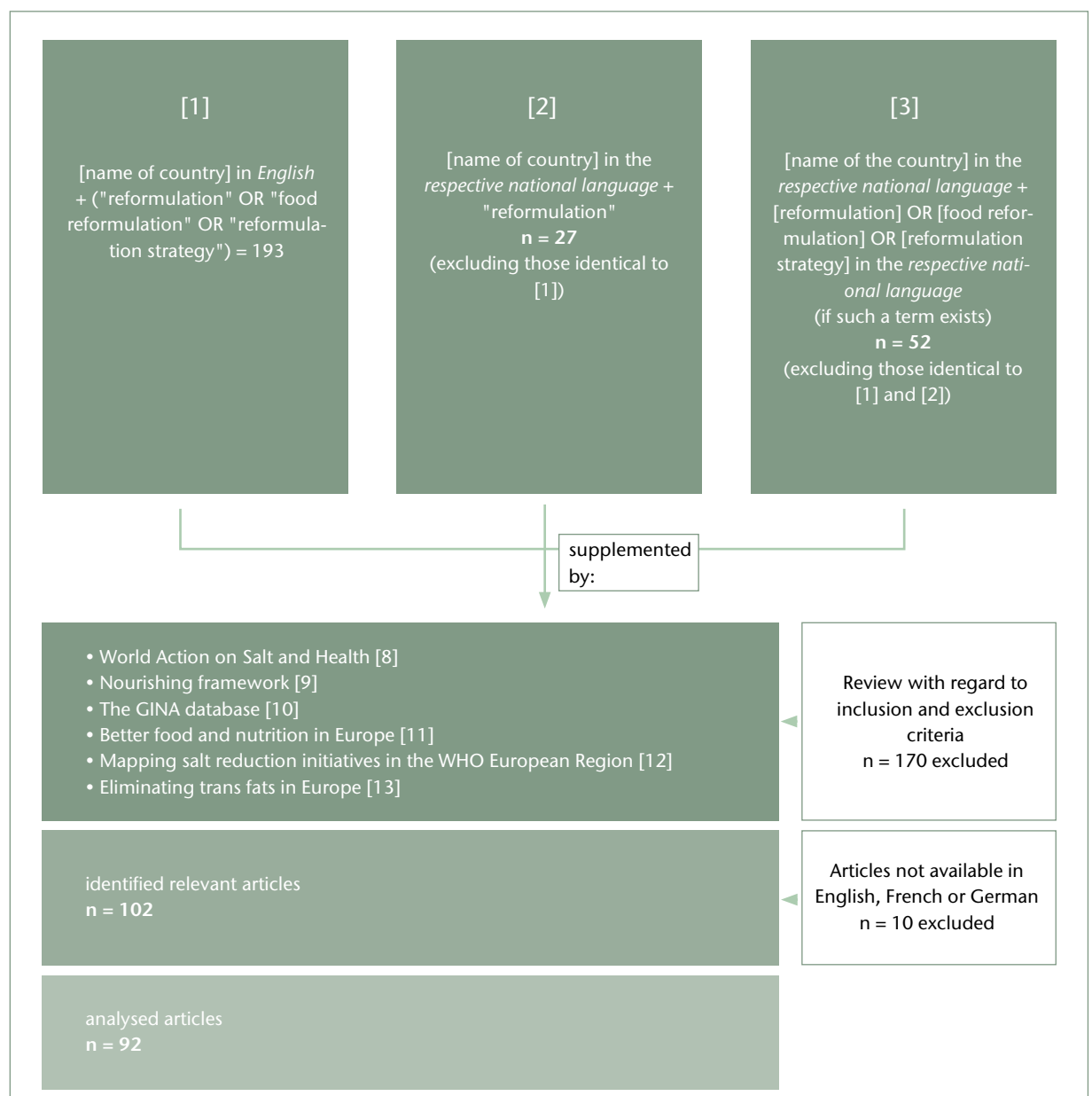


Fig. 1: Search strategy

Some countries have also included a requirement in their strategies for companies to report regularly on their *progress* (e. g. Ireland) or for *inspections* by the responsible agency at set timepoints (e. g. Latvia).

Conclusion

In summary, a wide range of reformulation strategies can be identified in Europe which differ mainly in the following points:

- character of the reformulation (voluntary or mandatory)
- scope of the planned reductions
- extent of formulation of product group-specific objectives
- existence of explicit targets regarding time corridors and step-by-step implementation

- obligation for companies to submit regular progress reports or to be controlled by independent agencies

The reformulation strategies in Belgium (for salt and sugar), Bulgaria (for salt), Italy (for salt, fat and sugar), Latvia (for trans-fatty acids), the Netherlands (for salt), Portugal (for salt), Slovenia (for salt and saturated fats) and the United Kingdom (for salt and sugar) can be classified as ambitious with regard to several of the points outlined above (♦ Tables 1 and 2).

| Country | Defined targets ^a | Strategy | Implementation of the strategies |
|---|--|--|--|
| Belgium [14] [15] [16] [9] | <ul style="list-style-type: none"> • 10% sugar reduction in soft drinks • 8% reduction of added sugar in dairy products • 4% sugar reduction in break-fast cereals • total target: reduction of the energy content by 5% | <ul style="list-style-type: none"> • <i>voluntary agreement</i> between the Ministry of Health, the <i>Fédération de l'industrie alimentaire belge</i> and the <i>Fédération pour le commerce et les services</i> | <ul style="list-style-type: none"> • implementation by 2020 • <i>stepwise</i> implementation: Sugar reduction in soft drinks by 5% and in dairy products by 3% by the end of 2017 • increase in reduction targets over 3 years |
| | ⇒ reduction of salt content by 10% in various food groups by 2012 ⇒ reduce individual daily salt intake per person to a maximum of 6 g | ⇒ <i>voluntary agreement</i> between the Ministry of Health, the food processing sector and the food distribution sector ⇒ reformulation, e.g. of bread | ⇒ replacement of table salt by iodized table salt in bread ⇒ <i>stepwise</i> reduction |
| Bulgaria [8] | <ul style="list-style-type: none"> • salt reduction in the food served in school canteens and kindergartens | <ul style="list-style-type: none"> • <u>law</u> | <ul style="list-style-type: none"> • implementation from 2009 to 2012 |
| | <ul style="list-style-type: none"> • salt reduction in certain products | <ul style="list-style-type: none"> • <u>mandatory</u> upper limits for salt in the specified products | <i>specific requirements</i> for the following foods: <ul style="list-style-type: none"> • 3 kinds of flour and 3 kinds of national bread: ≤ 1.2 g of salt in 100 g of bread • Bulgarian white cheese: 3.5 ± 0.5 % salt • Bulgarian yellow cheese: 1.8–3 % salt • meat and poultry products: ≤ 2 g of salt/100 g of bread • cooked smoked sausage: ≤ 3.5 g salt/100 g bread |

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| France [17] [18] | <ul style="list-style-type: none"> reduction of salt, sugar and fat | <ul style="list-style-type: none"> individual agreements between each <u>voluntarily</u> participating company and the Ministry of Health with specific targets | <ul style="list-style-type: none"> there are currently agreements with 37 companies (as of 2019) introduction in 2008 companies from various sectors, e. g. manufacturers of dairy products, beverages and confectionery |
| Greece [8] [19] | <ul style="list-style-type: none"> salt reduction | <ul style="list-style-type: none"> reduction of the salt content, e.g. in bread <u>voluntary</u> agreement initiated by the Hellenic Food Authority | <ul style="list-style-type: none"> formulated strategy for the time frame 2016 to 2020 |
| Ireland [8] | <ul style="list-style-type: none"> reduce salt in processed products | <ul style="list-style-type: none"> Salt Reduction Programme 2003 initiated by the Food Safety Authority companies can participate in the programme on a <u>voluntary</u> basis | <ul style="list-style-type: none"> annual report by companies 54 companies were involved in 2012 |
| Italy [20] [21] [8] | <ul style="list-style-type: none"> reformulation of foods high in fat, salt and/or sugar | <ul style="list-style-type: none"> <u>voluntary</u> agreements between the Ministry of Health and various companies with different, individual goals reformulation of products targeted at children | <ul style="list-style-type: none"> stepwise reduction from 2008 to 2017 different fixed percentages to reduce the various nutrients in different product groups for example: reducing the sugar content in biscuits by 20% by 2017 or reducing the salt content in breakfast cereals by 56% by 2017 monitoring system: data from the companies are collected; market analysis by an external provider |
| | <ul style="list-style-type: none"> reduce salt content in some baked goods by 10–15% | <ul style="list-style-type: none"> <u>voluntary</u> agreement between the Ministry of Health and the main representatives of the bakery trade | <ul style="list-style-type: none"> initiated in 2009 implementation over a time frame of 2 years |
| Croatia [9] [22] | <ul style="list-style-type: none"> salt reduction in some types of bread by 30% reduce daily salt intake to 9.3 g per person | <ul style="list-style-type: none"> project of the National Institute of Public Health on a <u>voluntary</u> basis with the food industry | <ul style="list-style-type: none"> reach a maximum daily intake of 9.3 g per person by 2019 reduction of salt intake by 4% per year since 2012 |

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| Lithuania [23] [24] [25] | <ul style="list-style-type: none"> • salt reduction by 10% in bread | <ul style="list-style-type: none"> • <u>voluntary</u> agreement between the Ministry of Health and various companies • <u>option of a tax</u> (if industry does not comply with the agreement) | <ul style="list-style-type: none"> • implementation by 2013 |
| | <ul style="list-style-type: none"> • reduction of sugar in processed foods | | <ul style="list-style-type: none"> • each company has specified different reformulation measures • 10 participating companies in January 2018 • government must be kept informed of progress |
| Luxembourg [26] [8] | <ul style="list-style-type: none"> • reformulate foods high in salt, sugar and/or saturated fats | <ul style="list-style-type: none"> • <u>voluntary</u> cooperation between the Ministry of Health and the food industry is sought | <ul style="list-style-type: none"> • formulated health action plan for the time frame 2018 to 2025 |
| Malta [27] [28] | <ul style="list-style-type: none"> • reduce consumption of sugar, salt and saturated fats | <ul style="list-style-type: none"> • <u>voluntary</u> reformulation measures | <ul style="list-style-type: none"> • implementation by 2020 • in local and imported products • reduce the intake of foods high sugar, salt and fat content in schools |
| Netherlands [29] [30] [31] [11] | <ul style="list-style-type: none"> • <i>reduce the salt content in products, so that the population intake is limited to a maximum of 6 g salt per person per day</i> • <i>reduce the content of saturated fats in products, so that it is easier for the population to limit consumption to 10% of the daily energy intake</i> | <ul style="list-style-type: none"> • <u>voluntary</u> agreement between the Ministry of Health and industry associations • food reformulation • produce products with lower energy density • improving products targeted at children is a priority | <ul style="list-style-type: none"> • <i>to be implemented by 2020</i> • annual monitoring |
| | <ul style="list-style-type: none"> • <i>reduce the salt content in bread</i> | <ul style="list-style-type: none"> • <i>upper limit set by law</i> | <ul style="list-style-type: none"> • stepwise reduction of the permitted salt content • 2009: by 2,5% • 2011: by 2,1% • 2012: by 1,9% • 2013: by 1,8% • salt per 100 g of dry bread matter |
| Norway [11] [32] [9] | <ul style="list-style-type: none"> • reduce added sugar intake by 12.5% per person per day • reduce the intake of saturated fats to 13% of daily energy • reduce salt intake by 30%, to 8 g of salt per day and person | <ul style="list-style-type: none"> • <u>voluntary</u> agreement between industry and Ministry of Health • no specifications for implementation and achievement of the values | <ul style="list-style-type: none"> • implementation of sugar reduction by 2021 • implementation of the reduction of saturated fats by 2018 • implement salt reduction step by step until 2025 |

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| Austria [9] [12] | <ul style="list-style-type: none"> • salt reduction in baked goods by 15% | <ul style="list-style-type: none"> • <u>voluntary</u> initiative with industrial bakers | <ul style="list-style-type: none"> • implementation by 2015 |
| Portugal [33] [8] | <ul style="list-style-type: none"> • ≤ 1.4 g of salt in 100 g of bread | <ul style="list-style-type: none"> • <u>law</u> | <ul style="list-style-type: none"> • legally binding since 2009 • in 2016 a voluntary agreement was made to reduce the limit to 1 g of salt per 100 g of bread by 2021 |
| Romania [34] | <ul style="list-style-type: none"> • reduce the salt content in processed foods | <ul style="list-style-type: none"> • cooperation with industry on a <u>voluntary</u> basis | <ul style="list-style-type: none"> • implementation within a period of time of 5 years |
| Switzerland [35] [36] [37] | <ul style="list-style-type: none"> • sugar reduction in yoghurts and breakfast cereals | <ul style="list-style-type: none"> • <u>voluntary</u> agreement between the Ministry of Health and various companies • existing reduction measures to be continued | <ul style="list-style-type: none"> • implementation deadline end 2018 • third data collection planned for the end of 2018. Until then, a further sugar reduction by 2.5% for yoghurts and 5% for breakfast cereals is aimed at • as of August 2019: further reduction of sugar content in yoghurt by 10% and in breakfast cereals by 15% by 2024 |
| Slovenia [38] [8] | <ul style="list-style-type: none"> • reduce salt consumption to 5 g per day • reduce consumption of saturated fats by 30 % | <ul style="list-style-type: none"> • <u>voluntary</u> agreement • cooperation between government and industry to enable food reformulation | <ul style="list-style-type: none"> • stepwise reduction of the salt content in processed food since 2010 • annual salt reduction by 3.8 to 5.8% in the critical food categories • achieving the objective by 2020 |
| Spain [12] [9] [39] | <ul style="list-style-type: none"> • salt reduction | <ul style="list-style-type: none"> • product group-specific targets set by Public Health England • <u>voluntary</u> cooperation with industry | <ul style="list-style-type: none"> • no information on implementation |
| | <ul style="list-style-type: none"> • reduce sugar, salt and fat content of food by 10% | <ul style="list-style-type: none"> • product-specific; it depends on the product which nutrient is reduced by the reformulation • <u>voluntary</u> agreement between the Ministry of Health and the Food and Beverage Industry Association | <ul style="list-style-type: none"> • implementing the agreement by 2020 |

| | | | |
|---|--|--|---|
| United Kingdom [40] [41] [42] [43] [44] | <ul style="list-style-type: none"> • salt reduction | <ul style="list-style-type: none"> • <i>product group-specific targets set by Public Health England</i> • <u>voluntary</u> cooperation with industry | <ul style="list-style-type: none"> • <i>adaptation of new objectives at intervals</i> • monitoring |
| | <ul style="list-style-type: none"> • sugar reduction of 20% for industrial products for children and adolescents | <ul style="list-style-type: none"> • <i>concerns all sectors of the food industry</i> • <i>Public Health England provides guidelines</i> | <ul style="list-style-type: none"> • stepwise reduction: 5 % by the end of 2017 • annual reduction by a further 5 % • to be implemented by 2020 |

Table 1: Description of the reformulation strategies

Results are already available for entries in italics (■■■) Part 2 of this article in ERNÄHRUNGS UMSCHAU 11/2020)

bold: nutrient (defined targets column)

underlined: type of strategy (strategy column)

bold italics: type of implementation (implementation column)

^a The targets set reflect the objectives formulated by the countries. In some countries this includes the formulation of targets for the individual level of supply; these individual targets are only shown for countries that have formulated them.

| Country | Defined targets | Strategy | Implementation of the strategies |
|-------------------------------|--|--|---|
| Bulgaria [14] | <ul style="list-style-type: none"> • reduce the portion of industrially produced trans fatty acids | <ul style="list-style-type: none"> • food reformulation | <ul style="list-style-type: none"> • not yet implemented |
| Denmark [13] | <ul style="list-style-type: none"> • ≤ 2 g of salt in 100 g of bread | <ul style="list-style-type: none"> • <u>upper limit set by law</u> | <ul style="list-style-type: none"> • <i>legally binding since 2003</i> |
| Latvia [45] [46] | <ul style="list-style-type: none"> • maximum 2 g of trans fatty acids in the products | <ul style="list-style-type: none"> • upper limit set by <u>law</u> • 4 g of trans fatty acids per 100 g of product if the fat content of the product is 3–20% and 10 g per 100 g if less than 3% of the product is fat | <ul style="list-style-type: none"> • legally binding from 2015 and fully mandatory from January 2018 • period of 3 years to reformulate the products • monitoring by the Food and Veterinary Service, annual inspections with laboratory tests |
| Malta [27] | <ul style="list-style-type: none"> • ban of trans fatty acids | <ul style="list-style-type: none"> • reformulation measures | <ul style="list-style-type: none"> • implementation by 2020 • in local and imported products |
| Norway [13] | <ul style="list-style-type: none"> • maximum 2 g of trans fatty acids per 100 g of food | <ul style="list-style-type: none"> • upper limit set by <u>law</u> | <ul style="list-style-type: none"> • legally binding since January 2014 • does not apply to animal fats |
| Austria [13] | <ul style="list-style-type: none"> • maximum 2 g of trans fatty acids per 100 g of food | <ul style="list-style-type: none"> • upper limit set by <u>law</u> | <ul style="list-style-type: none"> • does not apply to animal products |
| Sweden [13] | <ul style="list-style-type: none"> • maximum 2 g of trans fatty acids per 100 g of food | <ul style="list-style-type: none"> • upper limit set by <u>law</u> | <ul style="list-style-type: none"> • legally binding since 2011 |
| Switzerland [13] | <ul style="list-style-type: none"> • maximum 2 g of trans fatty acids per 100 g of vegetable fat | <ul style="list-style-type: none"> • upper limit set by <u>law</u> | <ul style="list-style-type: none"> • implementation within one year after adoption of the law |
| Hungary [13] | <ul style="list-style-type: none"> • maximum 2 g of trans fatty acids per 100 g of fat | <ul style="list-style-type: none"> • upper limit set by <u>law</u> | <ul style="list-style-type: none"> • separate regulation for products with several ingredients |

Table 2: Description of the measures on trans fatty acids

Results are already available for entries in italics (■■■) Part 2 of this article in ERNÄHRUNGS UMSCHAU 11/2020)

bold: nutrient (defined targets column)

underlined: type of strategy (strategy column)

bold italics: type of implementation (implementation column)



Conflict of Interest

The authors declare no conflict of interest.

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