Findings on and description of the revised Nutri-Score algorithm

No. 2022/29Ae, The Hague, 29 November 2022

Background document to:
Evaluation of the Nutri-Score algorithm
No. 2022/29e, The Hague, 29 November 2022

Health Council of the Netherlands

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summary of findings and the qualification of the Nutri-Score per product group

1.1 The working method in brief

On request of the Health Council of the Netherlands, the National Institute for Public Health and the Environment RIVM (S. ter Borg and E. Steenbergen) calculated the Nutri-Scores according to the current[1] as well as the revised[2] algorithm for products available in Dutch supermarkets and compared these Nutri-Scores with the Dutch Wheel of Five.[3] RIVM analysed two databases: the 'Levensmiddelendatabank' (LEDA, which is a branded food database, extraction 2020) and the 'Nederlands Voedingsstoffenbestand' (NEVO, which is the Dutch food composition table, summer 2022). S. ter Borg and E. Steenbergen were not involved in the interpretation of the results and the reflection by the Health Council of the Netherlands. However, RIVM's E.H.M. Temme took part in the meetings of the committee and working group of the Health Council in the role of structurally consulted expert.

LEDA is managed by the Netherlands Nutrition Centre (Voedingscentrum) and RIVM. This dataset is not publicly available. It contains data on the level of individual brands from participating producers and supermarkets and comprises approximately 75% of the total product supply.
The producers and supermarkets are responsible for providing the data for LEDA. The LEDA data were available to the Health Council at a product group level, not on the level of the individual brands. The product groups used in the analyses for the Health Council, were – as much as possible – based on groups that had been used for the Reformulation Monitor (Herformuleringsmonitor) 2020 and for the Wheel of Five. However, where required (and feasible) the division into groups was modified for a better fit with the Dutch Dietary Guidelines 2015. Therefore, the arrangement of groups used in the analyses is specific to this advisory report by the Health Council.

If LEDA presented missing values for data required to calculate the Nutri-Score, these were – whenever possible – replaced by estimates.[4] The amount per 100 grammes of the sum of vegetables, fruit, legumes, nuts, seeds, rapeseed oil, walnut oil and olive oil (current algorithm) and of the sum of vegetables, fruit and legumes (revised algorithm) were not available in the LEDA-database. These values were replaced by assumptions on a group level. If the fibre content was missing, it was replaced by the mean value in similar products (usually the remainder of the product groups). Other missing values could usually be replaced by zero, because it could be assumed that the product did not contain the nutrient (or contained only negligible levels of it).

In some cases, for instance in the case of specific types of nuts and oils, it was not feasible to specify relevant product groups in the LEDA-analyses. In such cases, the NEVO analyses were used. NEVO is managed by RIVM and is publicly available through the website https://NEVO-online.rivm.nl.

1.2 Tables with the summary of findings and the qualification per product group

Elucidation of the tables

Based on the LEDA-analyses the standing committee on Nutrition qualified the Nutri-Score per product group as ‘good’, ‘moderate’ or ‘not good’ relative to the dietary recommendations in the Netherlands.
The tables present the main findings, the resulting qualifications and the points of special attentions for each product group.

The analyses were carried out as thoroughly as possible, but section 1.1 makes clear that the results could not be flawless and may – to a limited extent – deviate from reality. For instance: in some cases it was not feasible to use the optimal food groups due to time constraints in establishing this advisory report. Also, some of the calculated Nutri-Scores may deviate from reality because an assumption had to be made for the component ‘fruit, vegetables and legumes’.

The findings based on the LEDA-analyses are summarised in tables 1.1 through 1.12.[a] Every table comprises an umbrella product group. The tables provide information on the product groups used for the advisory report. If there were differences between products within these groups, this is specified. The tables describe the following information:

- The information presented above every table is relevant to the whole umbrella product group: the relevant Dutch dietary guidelines[5], the ratio of the quantities recommended in the Netherlands to the quantity used for Nutri-Score (Nutri-Score is based on levels per 100 grammes of the product), and the number of LEDA-items available in the umbrella group.
- The left column of each table presents the specific product group and the number of LEDA-items it comprises. Note that the committee examined more product groups than presented in the table.
- The second column of each table specifies the percentage of products (items in LEDA) with a green Nutri-Score (Nutri-Scores A or B) based on the revised algorithm. Note that in the analyses, the committee combined the green Nutri-Scores (A and B) as well as the yellow (C), orange (D) and red (E) Nutri-Scores to facilitate the comparison with the Dutch dietary guidelines and the Wheel of Five, as both are dichotomous. This second column also specifies the most frequent Nutri-Score(s) based on the revised algorithm. Finally, this column also specifies whether the revised algorithm changed the Nutri-Scores compared to the current algorithm, and, if so, the direction of the change. All findings are based on LEDA.
- The third column of each table specifies the percentage of these LEDA-items that are included in the Wheel of Five. The most distinguishing

[a] More detailed analyses were examined in committee meetings. This preliminary work [only available in Dutch] may be requested, but the Health Council notes that this work may not be flawless, because the final analyses were not incorporated in this work.

criterion or criteria in the Wheel of Five are presented between brackets. An overview of all Wheel of Five criteria can be found in the report *Richtlijnen Schijf van Vijf* by the Netherlands Nutrition Centre.[3]

- The fourth column of each table specifies the extent to which the Nutri-Score (based on the revised algorithm) aligns with the Dutch dietary guidelines 2015 ("NS-DDG") and/or with the Dutch Wheel of Five ("NS-Wo5"). This column gives the preliminary qualification, which arises directly from the extent of alignment.

There is proper alignment if products with Nutri-Scores A or B are recommended in the DDG or are included in the Wo5. Products with Nutri-Score C, D or E are in proper alignment if the DDG recommend limiting or minimising their consumption or if these products are excluded from the Wo5. If the extent of the alignment equals 80% or more, the preliminary qualification is 'good'; with 60 to 80% alignment, it is 'moderate'; and with less than 60% alignment it is 'not good'. If the preliminary qualification is 'moderate' or 'not good', the table specifies the type of discrepancy: type 1) products with Nutri-Score A or B which are excluded from the Wo5 (in which case the evaluation by Nutri-Score is more favourable than evaluation in the Wo5); type 2) products with Nutri-Score C, D or E which are included in the Wo5 (in which case the evaluation by Nutri-Score is less favourable than evaluation in the Wo5).

- For several product groups, the committee adjusted the preliminary qualification (column 4) upward or downward. In these cases, the fifth column provides the argumentation. The argumentation may be related to the cause of the discrepancy between Nutri-Score and the dietary recommendations, or to the room provided by the algorithm for relatively high levels of salt, sugar and saturated fat.
- The sixth column of each table specifies the final qualification for the product group, which results from the preliminary qualification (arising from the extent of alignment between the Nutri-Score and dietary recommendations; column 4) and arguments to adjust the qualification (column 5).
- The right column (column 7) provides contextual information which is not taken into account in the qualification, but has importance for the nuance in the advisory report.

Columns 6 and 7 provide the information on which the advisory report is based; the other columns describe the aspects taken into account.

Table 1.1 **Fruit**

Information that applies to the whole table:
- DDG: Eat at least 200 grammes of fruit daily.
- Recommended intake of fruit is 2x the amount evaluated for the Nutri-Score.
- This table comprises a total of 2,195 LEDA-items.

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment of NS with DDG/Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Fresh and frozen fruit (n=1,535)	• 98% A/B (mainly A) • Unchanged	98% is included in the Wo5	NS-DDG: 98% (good) NS-Wo5: 97% (good)		Good	On a population level, fruit consumption mainly consists of fresh fruit. The scientific foundation of the DDG on fruit is based on all fruit, but in this research, fruit consumption also mainly consists of fresh fruit.
Canned fruit and fruit in glass (n=394) and fruit purée and compote (n=244)	• 'Canned fruit and fruit in glass' 93% A/B (mainly A) 'Fruit purée and compote' 96% A/B (mainly A) • Small change toward less favourable scores	25% of 'canned fruit and fruit in glass' and 35% of 'fruit purée and compote' are included in the Wo5 (no added sugar)	'Canned fruit and fruit in glass' and 'fruit purée and compote', respectively: NS-DDG: 93% and 96% (good) NS-Wo5: 32% and 39% (not good), type of discrepancy: NS-A/B but excluded from the Wo5	NS-A leaves much room for added sugar. Therefore, most items with added sugar (fruit on syrup, fruit purée and compote with added sugar) have NS-A. There is hardly any differentiation between fresh fruit and processed fruit with added sugar.	Moderate	The contribution of this group of fruit to the total fruit consumption in the Netherlands is small.
Dried fruit (n=534)	• 14% A/B (mainly C) • Small change toward less favourable scores (from mainly A/B/C to mainly A/C/D)	64% is included in the Wo5 (no added sugar); Wo5 recommends consuming no more than 20 grammes of dried fruit per day	NS-Wo5: 34% (not good), type of discrepancy: NS-C/D but included in the Wo5	Dried fruit probably has little impact on the scientific basis of the DDG on fruit, which is mainly based on fresh fruit. Unsweetened dried fruit is included in the Wo5, however, with the remark to consume no more than 20 grammes per day, because dried fruit has a high sugar content. There is plenty of fruit with a green NS (A/B). Therefore, the committee agrees that most dried fruit has NS-C/D and adjusts the qualification from 'not good' to 'good'.	Good	The contribution of this group of fruit to the total fruit consumption in the Netherlands is small.

Abbreviations: LEDA: Levensmiddelendatabank (Dutch database of branded food items); NS: Nutri-Score; DDG: Dutch dietary guidelines 2015 by the Health Coucil of the Netherlands; Wo5: Wheel of Five of the Netherlands Nutrition Centre

Table 1.2 **Vegetables**

Information that applies to the whole table:
- DDG: Eat at least 200 grammes of vegetables daily. Note that this group is also relevant in relation to the DDG on salt intake.
- Recommended intake of vegetables is 2x (DDG) and 2.5x (Wo5) the amount evaluated for the Nutri-Score.
- This table comprises a total of 6,172 LEDA-items.

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/ Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Fresh and frozen vegetables (n=4,423)	• 99% A/B (mainly A) • Unchanged	94% is included in the Wo5	NS-DDG: 99% (good) NS-Wo5: 95% (good)	-	Good	On a population level, vegetable consumption mainly consists of fresh vegetables. The scientific foundation of the DDG on vegetables is based on all vegetables, but even there vegetable consumption mainly consists of fresh vegetables.
Canned vegetables and vegetables in glass or bag (n=1,444)	• 86% A/B (mainly A) • Unchanged	17% is included in the Wo5 (no added salt or sugar)	NS-DDG on vegetables: 86% (good), however, the DDG on salt is also relevant for this group. NS-Wo5: 31% (not good), type of discrepancy: NS-A/B but excluded from the Wo5	The NS is in line with the DDG on vegetables, but the algorithm leaves too much room for added salt (median level of salt in the LEDA-items with NS-B: 3 g salt /200g). Therefore, the NS does not align well with the DDG on salt. This explains part of the discrepancy between NS and Wo5.	Not good	The contribution of this group of vegetables to the total vegetable consumption in the Netherlands is small.
Pickles (n=314)	• 66% A/B (mainly A) • Small change toward less favourable scores (less A/B, more E)	2% is included in the Wo5 (no added salt or sugar)	NS-Wo5: 36% (not good), type of discrepancy: NS-A/B but excluded from the Wo5	The NS is in line with the DDG on vegetables, but the algorithm leaves too much room for added salt (median level of salt in the LEDA-items with NS-B: 2,4 g salt /200g). Therefore, the NS does not align well with the DDG on salt. This explains part of the discrepancy between NS and Wo5.	Not good	The contribution of this group of vegetables to the total vegetable consumption in the Netherlands is small.
Dried vegetables (n=25)	• 64% A/B (mainly A, also B-D) • Change toward less favourable scores (less A/B, more C/D)	44% is included in the Wo5 (no added salt or sugar)	NS-Wo5: 72% (moderate), type of discrepancy: NS-C/D/E but included in the Wo5	-	Moderate	The contribution of this group of vegetables to the total vegetable consumption in the Netherlands is small.

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/ Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Olives: unstuffed (n=473) and stuffed (n=14)	• 0% A/B (unstuffed olives mainly D; stuffed olives mainly D-E) • Change toward less favourable scores (unstuffed olives: from mainly C to mainly D; stuffed olives: from mainly D to mainly D/E)	0% is included in the Wo5	NS-Wo5: 100% (good)	-	Good	The contribution of this group of vegetables to the total vegetable consumption in the Netherlands is small.
Seaweed, glasswort (n=2)	• 0% A/B (only C) • Unchanged	0% is included in the Wo5	NS-Wo5: 100% (good)	-	Good	Niche product Very small LEDA group

Abbreviations: LEDA: Levensmiddelendatabank (Dutch database of branded food items); NS: Nutri-Score; DDG: Dutch dietary guidelines 2015 by the Health Coucil of the Netherlands; Wo5: Wheel of Five of the Netherlands Nutrition Centre

Table 1.3 **Legumes**

Information that applies to the whole table:
- DDG: Eat legumes weekly. Note that this group is also relevant in relation to the DDG on salt intake.
- Recommended intake of legumes per week is 1x the amount evaluated for the Nutri-Score.
- This table comprises a total of 960 LEDA-items.

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/ Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Dry beans, dry peas, etc. (n=167)	• 100% A/B (only A) • Unchanged	98% is included in the Wo5	NS-DDG: 100% (good) NS-Wo5: 98% (good)	-	Good	-
Beans, lentils, peas:canned or in glass or bag (n=507)	• 99% A/B (mainly A) • Unchanged	64% is included in the Wo5 (salt level ≤200 mg/100g; no added sugar)	NS-DDG on legumes: 99% (good), however, the DDG on salt is relevant as well for this group. NS-Wo5: 65% (moderate), type of discrepancy: NS-A/B but excluded from the Wo5	NS aligns well with the DDG on legumes, but the DDG on salt is relevant as well for this group. NS aligns moderately well with Wo5; NS differentiates little between legume products with different salt levels. Therefore, the final qualification for this group is ‘moderate’.	Moderate	-
Hummus (n=286)	• 27% A/B (mainly C) • Change toward less favourable scores (from mainly A-C to mainly B/C)	0% is included in the Wo5 (salt level ≤200 mg/100g; no added sugar)	NS-Wo5: 73% (moderate), type of discrepancy: NS-A/B but excluded from the Wo5	-	Moderate	The main ingredients of hummus align with the DDG (legumes, oils, seeds), but hummus also contains salt.

Abbreviations: LEDA: Levensmiddelendatabank (Dutch database of branded food items); NS: Nutri-Score; DDG: Dutch dietary guidelines 2015 by the Health Coucil of the Netherlands; Wo5: Wheel of Five of the Netherlands Nutrition Centre

Table 1.4 **Bread, grains and grain products**

Information that applies to the whole table:
- DDG: Replace refined cereal products by whole-grain products. Eat at least 90 grammes of wholegrain bread, brown bread or other wholegrain products daily. Note that this group is also relevant in relation to the DDG on salt intake.
- Recommended intake of wholegrain bread, brown bread or other wholegrain products is 0.9x the amount evaluated for the Nutri-Score.
- This table comprises a total of 6,354 LEDA-items.

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Everyday bread (n=1,821), of which: wholegrain bread (n=594), brown bread (n=103), white bread (n=1,124)	Wholegrain bread: • 98% A/B (mainly A) • Unchanged Brown bread: • 43% A/B (mainly C) • Change toward less favourable scores (from mainly A/B to mainly C) White bread: • 6% A/B (mainly C) • Change toward less favourable scores (from mainly B to mainly C)	89% of the wholegrain bread, 23% of the brown bread and 1% of the white bread is included in the Wo5 (salt and fibre)	NS-DDGs on bread and wholegrain products*: Wholegrain bread: 98% (good) Brown bread: 43% (not good), type of discrepancy: NS-C-E but brown bread is recommended in DDG White bread: 94% (good) * For this group, the DDG on salt is also relevant. NS-Wo5: Wholegrain bread: 91% (good) Brown bread: 81% (good) White bread: 95% (good)	The distinction between wholegrain, brown bread and white bread has strongly improved; the alignment between NS and Wo5 is 'good' for all three types of bread. When compared with the DDG on bread, the alignment is 'good' for wholegrain bread and white bread, but 'not good' for brown bread. However, the committee notes that the DDG on salt is also relevant for bread. The Wo5 evaluation of bread includes fibre and salt, which is why the committee uses the preliminary qualification based on NS-Wo5. The committee thus concludes that the qualification for brown bread is 'good'.	Good	-
Luxury bread: plain and sweet (n=883), savoury (n=267)	Luxury bread, plain and sweet: • 2% A/B (mainly D) • Change toward less favourable scores (from mainly C to mainly D) Luxury bread, savoury: • 4% A/B (mainly C) • Change toward less favourable scores (from mainly B-D to mainly C-D)	2% of the luxury bread plain and sweet and 0% of the luxury bread savoury is included in the Wo5 (salt, sugar, saturated fat, energy)	NS-Wo5: luxury bread plain and sweet: 97% (good) luxury bread savoury: 97% (good)	-	Good	-
Toast, crackers, rusk etc. (n=1,207)	• 23% A/B (mainly C-D) • Change toward less favourable scores (was 33% A/B)	7% is included in the Wo5	NS-Wo5: 84% (good)	-	Good	-

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Bases such as wraps, pancakes, pizza bases, puff pastry, (n=373)	• 12% A/B (mainly C-D) • Change toward less favourable scores (was 36% A/B)	3% is included in the Wo5	NS-Wo5: 90% (good)	-	Good	-
Bread mixes (n=88)	• 32% A/B (mainly C) • Change toward less favourable scores (was 58% A/B)	14% of all bread mixes is included in the Wo5	NS-Wo5: 70% (moderate)	Possibly, the nutritional values refer partly to the level in dry products. Because this is a relatively small product group, this was not investigated further.	Moderate	-
Grains for hot meals (n=852)	• Overall: 93% A/B rice (both white and wholegrain) mainly B; pasta and couscous (both white and wholegrain) mainly A; noodles: mainly A-B) • Change toward less favourable scores (from only/mainly A to more/ mainly B; pasta and noodles more often C/D/E)	83%-100% of the wholegrain variants are included in the Wo5; 0-11% of the 'white' variants are included in the Wo5	Overall: NS-Wo5 33% (not good), discrepancy mainly in the 'white' products, type of discrepancy: NS-A/B but excluded from the Wo5	-	Not good	-
Breakfast cereals (n=863)	• Overall: 41% A/B (some subgroups such as oat flakes mainly A, others such as 'crunchy muesli, granola, etc.' mainly C or D) • Change toward less favourable scores (less A/B and more C/D/E)	87% of the oat flakes, 60% of other grain products for porridge, 44% of the bran and germ, 32% of the muesli, 6-7% of the 'crunchy muesli, granola, etc.', 2% of the corn flakes, chocopops, etc.	Overall: NS-Wo5 79% (moderate), main type of discrepancy: NS-A/B but excluded from the Wo5 (this type of discrepancy applies to 20% of these LEDA-items, divided over all subgroups of breakfast cereals. Note that 1% of the LEDA-items for breakfast cereals has NS-C but is included in the Wo5; these are unsweetened variants of (crunchy) muesli.)	-	Moderate	-

Abbreviations: LEDA: Levensmiddelendatabank (Dutch database of branded food items); NS: Nutri-Score; DDG: Dutch dietary guidelines 2015 by the Health Coucil of the Netherlands; Wo5: Wheel of Five of the Netherlands Nutrition Centre

Table 1.5 **Nuts and seeds**

Information that applies to the whole table:
- DDG: Eat at least 15 grammes of unsalted nuts daily. Note that this group is also relevant in relation to the DDG on salt intake.
- Recommended intake of nuts is 0.15x the amount evaluated for the Nutri-Score.
- This table comprises a total of 1,612 LEDA-items.

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/ Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Unsweetened and unsalted nuts (n=178), unsweetened and unsalted seeds (n=178)	• 95-98% A/B (mainly A, also B) • Small change toward more favourable scores (more A, less B/C)	97-98% is included in the Wo5	NS-DDG on nuts: 97% (good) NS-Wo5: 97% (good)	-	Good	-
Sweetened nuts (n=374)	• 6% A/B (mainly C) • Substantial change toward less favourable scores (from A to B, B to C and C to D)	41% is included in the Wo5 (these items in the group 'sweetened nuts' contains dried fruit, but no added sugar)	NS-Wo5: 57% (not good) Main type of discrepancy: items with NS-C/D which are included in the Wo5 (39%); but 4% of the items has NS-A/B but are excluded from the Wo5	The 39% discrepancy with the Wo5 comprises nuts mixed with dried fruit without added sugar; these are included in the Wo5 but have NS-C or D. According to the committee, the unfavourable NS of these products is not a problem, like with dried fruit. Therefore, the qualification is adjusted to 'good'. (The committee notes that the discrepancy in the opposite direction is very small (4%), and has no impact on the qualification.)	Good	-
Salted nuts (n=503)	• 25% A/B (mainly C) • Small change toward more favourable scores (with current as well as revised algorithm mainly C, but slightly more A)	0% is included in the Wo5	NS-Wo5: 76% (moderate), type of discrepancy: NS-A/B but excluded from the Wo5	-	Moderate	-
Coated nuts (n=152)	• 1% A/B (mainly C-D) • Small change toward less favourable scores (from mainly C, to mainly C-D)	0% is included in the Wo5	NS-Wo5: 99% (good)	-	Good	-

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/ Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Sweetened and/ or salted seeds (n=29)	• 38% A/B (varies, mostly A-D, but also E) • Small change toward less favourable scores	14% is included in the Wo5	NS-Wo5: 76% (moderate), type of discrepancy: NS-A/B but excluded from the Wo5	-	Moderate	-
Peanut butter (n=153)	• 30% A/B (mainly C) • Change toward more favourable scores (from mainly D to mainly C)	0% is included in the Wo5 (no added salt and/or sugar)	NS-Wo5: 70% (moderate), type of discrepancy: NS-A/B but excluded from the Wo5	-	Moderate	• An average portion on a slice of bread is 0,2x the quantity evaluated for NS. • Replaces other sandwich toppings which often have higher levels of salt and/or sugar.
Nut butter (n=16)	• 88% A/B (mainly A) • Change toward more favourable scores (with current as well as revised algorithm mainly A (B, C), but with changes from C to B and from B to A)	19% is included in the Wo5 (no added salt and/or sugar)	NS-Wo5: 31% (not good), type of discrepancy: NS-A/B but excluded from the Wo5	The committee does not mind that NS-A and NS-B leave room for salt or sugar, because the levels in nut butter are relatively low. Therefore, the qualification is adjusted to ‘moderate’.	Moderate	Same notes for nut butter as for peanut butter, plus additional notes: • This is a small product group (few items). • The average consumption is low.
Tahini / sesame paste (n=29)	• 86% A/B (mainly A) • Change toward more favourable scores (from mainly B to mainly A)	48% is included in the Wo5 (no added salt and/or sugar)	NS-Wo5: 62% (moderate), type of discrepancy: NS-A/B but excluded from the Wo5	-	Moderate	• This is a small product group (few items). • The average consumption is low.

Abbreviations: LEDA: Levensmiddelendatabank (Dutch database of branded food items); NS: Nutri-Score; DDG: Dutch dietary guidelines 2015 by the Health Coucil of the Netherlands; Wo5: Wheel of Five of the Netherlands Nutrition Centre

Table 1.6 **Dairy products excluding dairy drinks (yogurt, quark, dairy desserts and cheese)**

Information that applies to the whole table:
- DDG: Take a few portions of dairy produce daily, including milk or yogurt. Note that cheese is also relevant in relation to the DDG on salt intake.
- The recommendation is in portions and the portion sizes differ between types of dairy. Most dairy has a natural lactose content of 4-5 g/100g, which contributes to the total sugar content. Dairy can be a valuable source of calcium, vitamin B12 and protein.
- This table comprises a total of 7,941 LEDA-items.

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/ Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Plain yogurt (n=168), of which: low-fat (n=53), semi-skimmed (n=27), full-fat (n=88)	Low-fat: • 100% A/B (only A) Semi-skimmed: • 96% A/B (mainly A) Full-fat: • 98% A/B (mainly B) All: • Revised versus current NS: little change	94% of the low-fat, 89% of the semi-skimmed and 0% of the full-fat plain yogurt is included in the Wo5 (saturated fat)	NS-DDG: low-fat, semi-skimmed, full-fat: 96-100% (good) NS-Wo5: low-fat and semi-skimmed: 92% and 94% (good); full-fat: 2% (not good), type of discrepancy: NS-A/B but excluded from the Wo5	The committee considers the discrepancy for full-fat yogurt between NS and Wo5 as non-problematic, because, irrespective of the fat content, yogurt consumption is associated with lower risks of type-2 diabetes (DDG2015) and stroke and colorectal cancer (IWC-report).	Good	One portion of yogurt, quark or dairy dessert is 1-1,5x the amount evaluated for NS.
Fruit yogurt and vanilla yogurt (n=62), of which: low-fat (n=34), semi-skimmed (n=25), full-fat (n=3)	Low-fat: • 85% A/B (mainly B) • Small change toward less favourable scores (from mainly A/B to mainly A-C) Semi-skimmed: • 48% A/B (half B, half C) • Substantial change toward less favourable scores (from only B to B/C) Full-fat: • 0% A/B (only C) • Unchanged	26% of the low-fat and 0% of the semi-skimmed and full-fat fruit yoghurt or vanilla yogurt is included in the Wo5 (no added sugar; saturated fat)	NS-Wo5: Low-fat: 41% (not good), type of discrepancy: NS-A/B but excluded from the Wo5 Semi-skimmed: 52% (not good), type of discrepancy: NS-A/B but excluded from the Wo5 Full-fat: 100% (good)	-	Low-fat: not good Semi-skimmed: not good Full-fat: good	The lower the fat content of fruit yogurt and vanilla yogurt, the more room for sugar in NS algorithm.

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/ Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Quark (n=115), of which: low-fat (n=61), semi-skimmed (n=33), full-fat (n=21)	Low-fat: • 98% A/B (mainly A) • Unchanged Semi-skimmed: • 27% A/B (mainly C) • Change toward less favourable scores (from mainly B to mainly C) Full-fat: • 0% A/B (mainly C) • Change toward less favourable scores (from mainly B/C to mainly C)	87% of the low-fat quark and 0% of the semi-skimmed and full-fat quark is included in the Wo5 (no added sugar, saturated fat)	NS-Wo5: Low-fat: 89% (good); Semi-skimmed: 73% (moderate), type of discrepancy: NS-A/B but excluded from the Wo5; Full-fat 100% (good)	The committee considers that for low-fat quark the NS algorithm leaves relatively much (undesired) room for sugar. Therefore, the qualification for low-fat quark is adjusted to ‘moderate’.	Low-fat: moderate Semi-skimmed: moderate Full-fat: good	The lower the fat content of quark, the more room for sugar in NS algorithm. In comparison to yogurt, quark has a higher protein level, resulting in more protein points in the NS algorithm. Therefore, the room for added sugar is larger for quark than for yogurt.
Dairy desserts (n=1,563)	Porridge: • 20% A/B (mainly C) Milk pudding • 7% A/B (mainly D) Custard: • 5% A/B (mainly C) Indulgent desserts: • 2% A/B (mainly C-E) Basic ice cream: • 3% A/B (mainly D) Mousse and special ice cream: • 0-1% A/B (mainly D-E) All: • Change toward less favourable scores	0-3% of the dairy desserts are included in the Wo5 (saturated fat and sugar)	NS-Wo5: 82-100% (good)	-	Good	-

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/ Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Plant-based substitutes for the previous dairy groups (n=120)	• Without sugar: 47% A/B (mainly C-D) • With sugar: 55% A/B (range A-D)	0-7% is included in the Wo5 (saturated fat, sugar; and in addition there are criteria for calcium, vitamin B12 and protein to determine whether the product is a full-fledged substitute for dairy).	NS-Wo5: 53% and 51% (not good), type of discrepancy: NS-A/B but excluded from the Wo5	The discrepancy between NS and Wo5 is partly the result of the Wo5-criteria to determine whether the product is a full-fledged substitute for dairy (based on the levels of calcium, vitamin B12 and protein). The NS algorithm is not suitable for this specific evaluation (the algorithm is *across the board* as much as possible). This part of the evaluation should be arranged through other means than the NS algorithm. Therefore, the qualification is adjusted from 'not good' to 'moderate'.	Moderate	Legislation is required to guarantee that plant-based substitutes for dairy are full-fledged substitutes for dairy, based on the levels of calcium, vitamin B12 and protein. The NS algorithm is not suitable for this purpose. Consumers are not able to judge this themselves and they probably assume that these products are full-fledged substitutes.
Cheese (n=6,221), of which: 40+/48+ cheese (n=3,272), 20+/30+ cheese (n=493), 'cheese-product with altered fatty acid composition' (n=6), cottage cheese, ricotta, mozzarella (n=110), dairy spread (n=71), blue cheese (n=261)	Cottage cheese, ricotta, mozzarella etc.: • 19% A/B (mainly C-D) Other types of cheese: • 0%* A/B (most types mainly D; cheese-product with altered fatty acid composition and blue cheese half D, half E) All: • Revised versus current NS: little or no change * Dairy spread 1% instead of 0%.	75% of the 20+/30+ cheese, 57-58% of the 'cottage cheese, mozzarella, ricotta etc.' and 'dairy spread'; 16% of the 'brie, camembert, etc.'; 100% of 'cheese-product with altered fatty acid composition'; 0-9% of the remaining cheese groups (salt, saturated fat)	NS-Wo5: Not good: 'cheese-product with altered fatty acid composition' (0%), 20+/30+ cheese (26%), dairy spread (44%), Moderate: 'cottage cheese, ricotta, mozzarella etc.' (62%) All other cheeses: ≥80% (good) Type of discrepancy: NS-C/D/E but included in the Wo5.	NS does not distinguish between cheese types with a diversity of saturated fat levels. Most cheeses have NS-D (overall 87% of all cheese-items) and NS-D comprises variants of cheese from 20+ up to and including 60+. The NS algorithm results in the maximum of 10 points for saturated fat for 30+ cheeses; therefore, cheeses with higher saturated fat levels cannot receive more points for this component. Most cheeses receive the maximum of seven points for protein; few cheeses have NS-E. In addition, the cheese-items with a green NS (NS-B) have relatively low levels of calcium and vitamin B12 compared to the cheeses with less favourable NS, whereas in the dietary pattern cheese may especially be valuable as a source of these nutrients. Therefore, the qualification of cheese is adjusted to 'not good'.	Not good	The amount recommended in the Wo5 (40 grammes per day) is 0.4 times the amount evaluated for NS. Note that the group 'cheese-product with altered fatty acid composition' comprises very few items.

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/ Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Plant-based substitutes for cheese (n=37)	• 3% A/B (mainly D-E) • Small change toward less favourable scores (from mainly D to mainly D-E)	0% is included in the Wo5 (saturated fat, salt and in addition there are criteria for calcium, vitamin B12 and protein to determine whether the product is a full-fledged substitute for cheese)	NS-Wo5: 97% (good)	The discrepancy between NS and Wo5 is partly the result of the Wo5-criteria to determine whether the product is a full-fledged substitute for cheese (based on the levels of calcium, vitamin B12 and protein). The NS algorithm is not suitable for this specific evaluation (the algorithm is *across the board* as much as possible). This part of the evaluation should be arranged through other means than the NS algorithm. Nevertheless, only a very small part of the plant-based substitutes for cheese has NS-A/B, which aligns with the fact that these products are generally excluded from the Wo5. Therefore, the preliminary qualification was 'good' and the qualification needs no adjustment.	Good	Legislation is required to guarantee that plant-based substitutes for cheese are full-fledged substitutes for cheese, based on the levels of calcium, vitamin B12 and protein. The NS algorithm is not suitable for this purpose. Consumers are not able to judge this themselves, but probably assume that these products are full-fledged substitutes for cheese. Many plant-based cheeses contain very low levels of protein, and therefore are no full-fledged substitutes for cheese (the committee had no information on the levels of calcium and vitamin B12, which should also be sufficiently high in order for the product to be a full-fledged cheese substitute).

Abbreviations: LEDA: Levensmiddelendatabank (Dutch database of branded food items); NS: Nutri-Score; DDG: Dutch dietary guidelines 2015 by the Health Coucil of the Netherlands; Wo5: Wheel of Five of the Netherlands Nutrition Centre

Table 1.7 **Meat**

Information that applies to the whole table:
- DDG: Limit the consumption of red meat, particularly processed meat. Note that this group is also relevant in relation to the DDG on salt intake.
- The amounts recommended in Wo5 are, for red and white meat, respectively: 0.45x and 0.3x the amount evaluated for the Nutri-Score.
- This table comprises a total of 13,376 LEDA-items.

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Unseasoned and unprocessed meat (n=2,165), of which: 'chops, spareribs, pig's feet' (n=100), 'beef strips, meat for soup or stew, liver' (n=31), 'lam, mutton, goat' (n=44)	• Overall 78% A/B, but varying from 99% to 0% A/B (types with a lower fat content mainly A; the types with the highest fat content mainly D) • Small change toward less favourable scores	The analyses comprised 16 subgroups. The percentage of items which are included in the Wo5 was 90-100% in 9 subgroups, 86-87% in 2 subgroups, 59-76% in 3 subgroups, 30% in 1 subgroup, and 0% in 1 subgroup. (unseasoned and unprocessed with ≤5 g saturated fat/100g is included in the Wo5)	NS-Wo5: Overall 87% (good) The preliminary qualification varied between subgroups: Good: 13 subgroups. Not good: 'chops, spareribs, pig's feet' (56%), type of discrepancy: NS-C/D/E but included in the Wo5. Moderate: 'beef strips, meat for soup or stew, liver' (71%), both types of discrepancy: 19% NS-C/D/E but included in the Wo5 and 10% NS-A/B but excluded from the Wo5; lam/mutton/goat (68%), type of discrepancy: NS-C/D/E but included in the Wo5.	Poor discrimination between (unseasoned and unprocessed) red versus white meat. Therefore, NS does not fit well with the DDG to limit the consumption of red meat.	Unseasoned and unprocessed red meat: moderate Unseasoned and unprocessed white meat: good	-

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Seasoned and/or processed meat (n=6.691), of which: 'seasoned/ processed chicken' (n=1,148), 'seasoned/ processed turkey and duck' (n=68); 'seasoned shawarma, gyro meat, kebab' (n=248); 'seasoned satay/chicken skewer (n=421); 'seasoned beef/calf' (n=151)	• Overall 21% A/B, but varying between 0% and 54% (white meat with the lowest fat content mainly A, but also B-E; the fattest types of meat mainly D or E) • Small change toward less favourable scores	The analyses comprised 18 subgroups. The percentage of items which are included in the Wo5 was 1-5% in 3 subgroups, and 0% in the remaining 15 subgroups (seasoned or processed meat is excluded from the Wo5)	NS-Wo5: Overall 80% (good) The preliminary qualification varied between subgroups: Good: 13 subgroups. Not good: 'seasoned / processed chicken' (46%), 'seasoned / processed turkey and duck' (46%); 'seasoned shawarma, gyro meat, kebab' (56%). Moderate: 'seasoned satay/ chicken skewer' (61%); 'seasoned beef/calf' (69%). Type of discrepancy: NS-A/B but excluded from the Wo5.	For seasoned / processed low-fat red meat, the NS-algorithm offers relatively much room for salt in products with NS-A/B. For seasoned / processed white meat there is even more room for salt, because white meat receives more points for protein than red meat. Therefore, the committee has adjusted the qualification downward.	Seasoned and/or processed white meat: not good Seasoned and/or processed red meat: moderate or good (the overall picture: 'moderate' for types with less fat, and 'good' for types with more fat).	-
Sliced cold meats for sandwiches (n=4,520), of which: roast beef (n=36)	• Overall 2% A/B (roast beef mainly A; most other types mainly D of E) • Small change toward less favourable scores	The analyses comprised 15 subgroups. The percentage of items which are included in the Wo5 was: 25% for roast beef; 1% for 1 subgroup, and 0% for the remaining 13 subgroups (seasoned and processed meat is excluded from the Wo5)	NS-Wo5: 98% (good) The preliminary qualification is the same in most subgroups: Good: 14 subgroups. Not good: roast beef (28%), type of discrepancy: NS-A/B but excluded from the Wo5.	-	Good (the only exception is roast beef)	-

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Plant-based or dairy-based substitutes for meat (n=978)	• Overall 43% A/B ('tofu, tempeh, seitan, etc.' mainly A; cheese-based burger mainly D, but the NS varies between A and D or E in all subgroups of substitutes for meat) • Change toward less favourable scores	The analyses comprised 15 subgroups. The percentage of items which are included in the Wo5 was: 43% in 1 subgroup ('tofu, tempeh, seitan, etc.'); 1% in 3 subgroups, and 0% in the 11 remaining subgroups (saturated fat, salt, and in addition there are criteria for iron, vitamin B12 and protein to determine whether the product is a full-fledged substitute for meat)	NS-Wo5: overall 66% (moderate) The preliminary qualification varied between subgroups: Good: 4 subgroups, Moderate: 5 subgroups, Not good: 5 subgroups. Type of discrepancy: NS-A/B but excluded from the Wo5.	The discrepancy between NS and Wo5 is partly the result of the Wo5-criteria to determine whether the product is a full-fledged substitute for meat (based on the levels of iron, vitamin B12 and protein). The NS algorithm is not suitable for this specific evaluation (the algorithm is *across the board* as much as possible). This part of the evaluation should be arranged through other means than the NS algorithm. The committee uses the qualification 'moderate' for the whole group.	Moderate	Legislation is required to guarantee that substitutes for meat are indeed full-fledged substitutes for meat, based on the levels of iron, vitamin B12 and protein. The NS algorithm is not suitable for this purpose. Consumers are not able to judge this themselves and they probably assume that these products are full-fledged substitutes.

Abbreviations: LEDA: Levensmiddelendatabank (Dutch database of branded food items); NS: Nutri-Score; DDG: Dutch dietary guidelines 2015 by the Health Coucil of the Netherlands; Wo5: Wheel of Five of the Netherlands Nutrition Centre

Table 1.8 **Fish**

Information that applies to the whole table:
- DDG: Eat one serving of fish weekly, preferably fatty fish. Note that this group is also relevant in relation to the DDG on salt intake.
- Recommended intake of fish per week is 1x the amount evaluated for the Nutri-Score.
- This table comprises a total of 2,904 LEDA-items.

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/ Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Lean fish (n=1,540)	• Overall 80% A/B (mainly A, but also all other NS; 'fish fingers and fish burgers' mainly B and C) • Small change toward less favourable scores	12-92% of lean fish Specified for subgroups: 89-92% of 'fresh or frozen lean fish (seasoned or not seasoned)' and of the 'canned lean fish or lean fish in glass'; 61% of the 'fried fillet of lean fish'; 12-15% of the 'fish fingers and fish burgers', and of surimi (all fish and fish products which containing at least 70% fish are included in the Wo5)	NS-Wo5 Good: 'fresh or frozen lean fish (seasoned or not seasoned)' (90%); 'oven-baked fish dishes'* (82%) Moderate: 'canned lean fish or lean fish in glass' (70%), 'fried fillet of lean fish' (66%). Not good: 'fish fingers and fish burgers' (49%) Both types of discrepancy: mainly NS-A/B but excluded from the Wo5, however also NS-C/D/E but included in the Wo5. * Most 'oven-baked fish dish' contain lean fish	The product group 'fresh or frozen lean fish (seasoned or not seasoned)' comprises a mix of items. RIVM revealed that all unseasoned items have NS-A, whereas all items with Nutri-Scores B-E are seasoned or marinated. (Note that also some items with NS-A may be lightly seasoned.) For seasoned and/or processed lean fish, the NS algorithm leaves relatively much room for added salt or added saturated fat. Therefore, the committee adjusts the qualification of seasoned and/or processed lean fish to 'not good'. This implies that the preliminary qualification of 'canned lean fish or lean fish in glass' and 'fried fillet of lean fish' is adjusted from 'moderate' to 'not good'. The qualification of 'oven-baked fish dishes' is not adjusted, because this subgroup shows good alignment between NS and Wo5.	Unseasoned and unprocessed lean fish and oven-baked fish dishes: good Seasoned or processed lean fish: not good	-

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/ Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Fatty fish (n=1,364)	• Overall 43% A/B ('fresh or frozen fatty fish (either or not seasoned)' and 'canned fatty fish or fatty fish in glass' mainly A, but also B-E; smoked fatty fish and herring mainly D. • change for 'fresh or frozen fatty fish (either or not seasoned)': more A, less B and a slight increase of A/B. Smoked fish and herring: little change.	80-99% of the fatty fish (all fish and fish products which containing at least 70% fish are included in the Wo5)	NS-Wo5: Moderate: 'fresh or frozen fatty fish (either or not seasoned)' (76%). Not good: 'canned fatty fish and fatty fish in glass' (52%); smoked fatty fish (9%), herring (20%). Type of discrepancy: mostly NS-C/D/E but included in the Wo5.	The subgroup 'fresh or frozen fatty fish (seasoned or not seasoned)' comprises a mix of items. RIVM revealed that all unseasoned items have NS-A, whereas all items with Nutri-Scores B-E are seasoned or marinated. (Note that also some items with NS-A may be lightly seasoned.) The committee considers that it is good that fish items have different NS, based on salt levels (and other levels) and adjusts the qualification for 'fresh or frozen fatty fish (either or not seasoned)' from 'moderate' to 'good'. In the subgroups 'canned fatty fish and fatty fish in glass', 'smoked fatty fish' and herring the discrepancy between NS and Wo5 is mainly the result of the liberal Wo5-criteria: for fish, the Wo5 does not take the salt content into account, whereas NS does. As said, the committee considers it good that fish items have different NS based on salt levels. Therefore, the qualification for these groups is adjusted from 'not good' to 'moderate'.	'Fresh or frozen fatty fish (either or not seasoned)': good Canned fatty fish, fatty fish in glass, smoked fatty fish and herring: moderate	Especially fatty fish is a source of fish fatty acids.
Shellfish (and some other fish products) (n=975)	• Overall: 50% A/B (diverse group: some subgroups mainly A/B, other subgroups mainly C, D of E)	77-97% of shellfish (all fish and fish products which containing at least 70% fish are included in the Wo5)	NS-Wo5: overall 56% (not good) Type of discrepancy: mostly NS-C/D/E but included in the Wo5.	The discrepancy is mainly caused by high levels of salt and saturated fat, which lead to unfavorable Nutri-Scores but not to exclusion from the Wo5. The committee considers the unfavorable Nutri-Scores useful. Therefore, the qualification is adjusted to 'moderate'.	Moderate	As for lean fish and fatty fish, this group comprises a mix of unseasoned / unprocessed and seasoned / marinated / processed products.

Abbreviations: LEDA: Levensmiddelendatabank (Dutch database of branded food items); NS: Nutri-Score; DDG: Dutch dietary guidelines 2015 by the Health Coucil of the Netherlands; Wo5: Wheel of Five of the Netherlands Nutrition Centre

Table 1.9 **Fats and oils**

Information that applies to the whole table:
- DDG: Replace butter, hard margarines, and cooking fats by soft margarines, liquid cooking fats, and vegetable oils.
- The amount recommended in the Wo5 is approximately 0.5x the amount evaluated for the Nutri-Score.
- This table comprises a total of 1,650 LEDA-items.

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Olive oil (n=268)	• Olive oil: 99% A/B (almost always B) • Change toward more favourable score (from C to B)	99% is included in the Wo5 (saturated fat)	NS-DDG and NS-Wo5: 99% and 100% (good)	-	Good	-
Sunflower oil (n=54), other oils (n=162)	• Sunflower oil: 9% A/B • Other oils: 27% A/B (both mainly C) • Change toward more fav ourable scores (from mainly D to mainly C)	98-100% is included in the Wo5 (saturated fat)	NS-DDG and NS-Wo5: sunflower oil respectively 9% and 9%, other oils respectively 27% and 30% (not good), type of discrepancy: NS-C (or D) but included in the Wo5.	-	Not good	-
Coconut oil (n=46)	• 0% A/B (only E) • Unchanged	0% is included in the Wo5 (saturated fat)	NS-DDG and NS-Wo5: 100% (good)	-	Good	-
Oil or fat for deep-frying (n=85)	• 13% A/B (mainly C, but also B, D and some E) • Change toward more favourable scores (from mainly D to B-D)	80% is included in the Wo5 (saturated fat)	NS-Wo5: 33% (not good), type of discrepancy: NS-C but included in the Wo5	-	Not good	-
Cooking/frying fat (n=126)	• 10% A/B (mainly C, but also E, B and D) • Change toward more favourable scores (from mainly D to mainly C; was C-E, is B-E)	37% is included in the Wo5 (saturated fat)	NS-Wo5: 73% (moderate), type of discrepancy: NS-C but included in the Wo5	-	Moderate	-
Butter and butter blends (n=202)	• 1% A/B (mainly E) • Small change toward less favourable scores (with current as well as revised algorithm mainly E, but E slightly increases with the revised algorithm)	3% is included in the Wo5 (saturated fat)	NS-Wo5: 98% (good)	-	Good	-
Low-fat margarine (n=289)	• 0% A/B (mainly C, also D) • Small change toward more favourable scores (with current as well as revised algorithm mainly C, but C slightly increases with the revised algorithm)	66% is included in the Wo5 (saturated fat)	NS-Wo5: 34% (not good), type of discrepancy: NS-C but included in the Wo5	-	Not good	-

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Margarine (n=102)	• 3% A/B (mainly C, also E) • Change toward both directions (with current algorithm mainly D, with revised algorithm less D, more C and E)	27% is included in the Wo5 (saturated fat)	NS-Wo5: 75% (moderate), type of discrepancy: NS-C but included in the Wo5	-	Moderate	-
Sour cream and crème fraiche (n=52), whipping cream and cooking cream (n=179)	• 1-2% A/B (mainly D, also C) • Unchanged	0% is included in the Wo5 (saturated fat)	NS-Wo5: 98-99% (good)	-	Good	-
Plant-based substitutes for cream (n=19)	• 47% A/B (A-D) • Change toward more favourable scores (with current algorithm B-D, including 26% A/B)	0% is included in the Wo5 (saturated fat)	NS-Wo5: 53% (not good), type of discrepancy: mainly NS-A/B but excluded from the Wo5	-	Not good	-

Abbreviations: LEDA: Levensmiddelendatabank (Dutch database of branded food items); NS: Nutri-Score; DDG: Dutch dietary guidelines 2015 by the Health Coucil of the Netherlands; Wo5: Wheel of Five of the Netherlands Nutrition Centre

Table 1.10 **Basic product groups which are not included in a DDG**

Information that applies to the whole table:
• This table comprises a total of 1,810 LEDA-items.

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/ Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Potatoes (n=1,419), of which: 'french fries, chips, potato slices etc.' (n=981), all other subgroups together (unprocessed potatoes which are either or not peeled / pre-cooked, sweet potatoes and mashed potatoes) (n=438)	Unprocessed potato: • 100% A/B (mainly B) 'French fries, chips, potato slices etc.': • 55% A/B (mainly B/C) Mashed potato: • 17% A/B (mainly C/D, also B) All: • change toward less favourable scores and a broader distribution	94-100% of the unprocessed potatoes (pre-cooked or not pre-cooked) and sweet potatoes; 34% of 'french fries, chips, potato slices etc.'; 2% of mashed potatoes.	Overall NS-Wo5 84% (good) The preliminary qualification varied between subgroups: 4 subgroups: 'good' 1 subgroup: 'moderate', The preliminary qualification was 'moderate' for the group 'french fries, chips, potato slices etc.'. The extent of alignment was 79%, type of discrepancy: NS-A/B but excluded from the Wo5.	For all subgroups but one, the preliminary qualification is 'good' (≥80% alignment). For the largest subgroup, 'french fries, chips, potato slices etc.', the preliminary qualification is 'moderate', but the alignment percentage is at the upper end of the range for 'moderate' (79%). Therefore, the committee considers the qualification 'good' to be applicable to all potato products.	Good	-
Eggs (n=391)	Raw and cooked eggs: • 90-100% A/B (mainly A) • Change toward more favourable scores (from B to A) Devilled egg, omelette, etc.: • 0% A/B (alleen C) • Change toward less favourable scores (from B to C)	100% of the raw eggs, 73% of the cooked eggs, 0% of the 'devilled eggs, omelette, etc.'	NS-Wo5: 98% (good)	-	Good	-

Abbreviations: LEDA: Levensmiddelendatabank (Dutch database of branded food items); NS: Nutri-Score; DDG: Dutch dietary guidelines 2015 by the Health Coucil of the Netherlands; Wo5: Wheel of Five of the Netherlands Nutrition Centre

Table 1.11 **Meals and meal components**

Information that applies to the whole table:
• This table comprises a total of 11,639 LEDA-items.

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	DDG and % LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/ Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Meals (N=3,868), of which: Meals with beans (n=54), Salads, including main course salads (n=924), meal kits (n=312), Potato-meat-vegetable-meals (n=649), rice meals (n=489), pasta and noodle meals (n=613), savoury flan, quiche, oven-baked dishes (n=165), filled wraps (n=68), pizza (n=594)	Meals with beans: • 85% A/B (mainly A, also B, C); Salads, including main course salads: • 63% A/B (mainly B, also C, A); Meal kits: • 39% A/B (A-E); Potato-meat-vegetable-meals, rice meals, pasta and noodle meals: • 19-25% A/B (mainly C, also B) Savoury flan, quiche, oven-baked dishes: • 15% A/B (mainly C-D) Filled wraps: • 9% A/B (mainly C, also D, E) Pizza: • 1% A/B (mainly C/D) All: • Change toward less favourable scores	DDG: Follow a dietary pattern that involves eating more plant-based and less animal-based food, and that meets the guidelines for specific product groups. Wo5: 0% of these LEDA-items is included in the Wo5. The Wo5-criteria are not summarised here, as this would require too much text. We refer to the document *Richtlijnen Schijf van Vijf (in Dutch)*, which can be found on the Netherlands Nutrition Centre website.	NS-Wo5: Not good: meals with beans (15%), salads, including main course salads (37%). Moderate: meal kits (61%), potato-meat-vegetable-meals (75%), rice meals (76%). Good: pasta- and noodle meals (81%), savoury flan, quiche, oven-baked dishes (85%), filled wraps (91%), pizza (99%) Type of discrepancy: NS-A/B but excluded from the Wo5	The Wo5-criteria for meals and meal-products differ fundamentally from the NS-algorithm, which may explain (part of) the discrepancy between NS and Wo5. The subgroups of meals with the highest percentages of green Nutri-Scores (A/B), are the groups with the largest discrepancy between NS and Wo5. Nutri-Scores on meal kits may be based on a recipe which is provided on the package, also if part of the ingredients for this recipe are not included in the kit and have to be bought and added separately by the consumer.	Meals with beans, salads, including main course salads: not good Meal kits, potato-meat-vegetable-meals, rice meals: moderate Pasta and noodle meals, savoury flan, quiche, oven-baked dishes, filled wraps, pizza: good	A reservation to be made: in all analyses carried out for this report, an assumption was required for the combined amount of fruit, vegetables and legumes per 100 grammes of the product. This value is part of the NS algorithm, but not available in the LEDA-database (nor in the NEVO-database). In this specific product group of meals and meal products, the amount of fruit, vegetables and legumes may vary substantially between the items. Therefore, the assumptions used for this component of the NS-algorithm, and as a result, the NS itself, may deviate from reality in part of the products. Because of this, the results presented for meals and meal products are less reliable than for other product groups. A meal portion may be 300-500 grammes, which is 3-5x the amount evaluated for the Nutri-Score.

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	DDG and % LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/ Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Filled sandwiches (n=345)	Hamburger, shawarma, cheeseburger etc., served in a bread roll: • 18% A/B (mainly D) Filled sandwiches: • 6% A/B (mainly D) Toasted ham and cheese sandwich, bread with herb butter: • 0% A/B (mainly D) All: • Change toward less favourable scores	Not in DDG Wo5: 0-1% of these LEDA-items is included in the Wo5	NS-Wo5: 93% (good)	-	Good	-
Soups, broths (n=1.075), of which: Soups (n=981), broths (n=94)	Soups: • 46% A/B (mainly B-C) • Change toward less favourable scores (less A and B, more C; with the current algorithm mainly B) Broths: • 14% A/B (mainly C) • Small changes (less B, more A and C; but mainly C with both the current and the revised algorithm)	Not in DDG Wo5: 0% of these LEDA-items is included in the Wo5	NS-Wo5: Soups: 54% (not good), type of discrepancy: NS-A/B but excluded from the Wo5. Broths: 86% (good)	The Wo5-criteria for soups and broths differ fundamentally from the NS-algorithm, which may explain (part of) the discrepancy between NS and Wo5.	Soups: not good Broths: good	A portion of soup or broth may be 150 grammes, which is 1.5x the amount evaluated for the Nutri-Score.
Sauces (n=2.772)	• 0-3% A/B (mainly C/D/E, depending on the type of sauce) • Change toward less favourable scores	Not in DDG Wo5: 0% of these LEDA-items is included in the Wo5	NS-Wo5: 99% (good)	-	Good	-
Savoury sandwich toppings (n=2,009)	• 0-5% A/B (mainly C-E) • Change toward less favourable scores	Not in DDG Wo5: 0% of these LEDA-items is included in the Wo5	NS-Wo5: 99% (good)	-	Good	The savoury sandwich toppings group comprises salads for sandwiches, sandwich spread, vegetable spread, tapenade etc.
Sweet sandwich topping (n=1,570)	• 0-3% A/B (mainly C-E) • Change toward less favourable scores	Not in DDG Wo5: 2% of the jams and fruit spreads and 0% of the other LEDA items in this group are included in the Wo5	NS-Wo5: 98% (good)	-	Good	-

Abbreviations: LEDA: Levensmiddelendatabank (Dutch database of branded food items); NS: Nutri-Score; DDG: Dutch dietary guidelines 2015 by the Health Coucil of the Netherlands; Wo5: Wheel of Five of the Netherlands Nutrition Centre

Table 1.12 **Snacks**

Information that applies to the whole table:
• This table comprises a total of 23,553 LEDA-items.

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/ Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Crisps and other small savoury snacks (n=2,545)	• 0-5% A/B, except popcorn: 19% A/B (mainly C-E) • Change toward less favourable scores	19% of the popcorn 0% of the other LEDA-items in this group	NS-Wo5: 99% (good)	-	Good	-
Larger savoury snacks (n=1,650)	• 0-12% A/B, except one subgroup, fried shrimp and calamari: 47% A/B (mainly C-E) • Change toward less favourable scores	0% of these LEDA-items is included in the Wo5	NS-Wo5: 96% (good)	-	Good	This group comprises products such as croquette (smaller and larger types), minced-meat hot dog, sausage roll, pizza roll, deep-fried chicken snack, chicken nugget, deep-fried chow mein snack or rice snack with breadcrumb covering, deep-fried puff pastry snack, fried shrimp and calamari, Spanish tortilla
Ice lollies, sorbet (n=233)	• 0-8% A/B (mainly C) • Small change toward less favourable scores		NS-Wo5: 94% (good)	-	Good	-
Biscuits, cake and pastry (n=10.200)	• 0-9% A/B (mainly C) • Change toward less favourable scores	1% of the muesli bars and energy bars; 0% of the other LEDA-items in this group	NS-Wo5: 99% (good)	-	Good	-

Product group (n=number of LEDA-items)	Nutri-Score (NS) based on the revised algorithm: • % items with NS A or B (most frequent NS) • change compared to the current algorithm	% LEDA-items in the Wo5 (most distinguishing Wo5-criterion or criteria, if applicable)	Extent of alignment between NS and DDG/ Wo5 (preliminary qualification)	Argumentation why the preliminary qualification was adjusted (if applicable)	Final qualification for the product group	Contextual information
Candy, sweets and chocolate (n=8,925), of which: chewing gum (n=559), liquorice (n=776), peppermint and *stophoest* (n=428)	Chewing gum: • 69% A/B (mainly B) • Small change toward less favourable scores (from D to E), but mainly B with both the current and the revised algorithm Peppermint/*stophoest*: • 18% A/B (mainly E) • Substantial change toward less favourable scores (from mainly D to mainly E) Liquorice: • 11% A/B (mainly D) • Substantial change toward less favourable scores (from C to D and from D to E) Other sweets and chocolates: • 0-5% A/B (mainly D, also E) • Substantial change toward less favourable scores (from mainly D to mainly E)	0% of these LEDA-items is included in the Wo5	NS-Wo5: Chewing gum: 31% (not good), type of discrepancy: NS-A/B but excluded from the Wo5. All other groups combined 97% (good)	Although chewing gum is excluded from the Wo5, most or all sugar free chewing gum has Nutri-Score A or B. The committee considers that this is good. Sugarfree liquorice and *stophoest* may also have Nutri-Score A of B: this applies to 12% of the liquorice and 18% of the peppermint/*stophoest*. The committee feels that Nutri-Scores A and B are undesirable for liquorice and *stophoest*, because these products contain glycyrrhizine, a component of liquorice root extract, which can increase blood pressure. Therefore, the qualification for chewing gum is adjusted from 'moderate' to 'good', whereas the qualification for liquorice and stophoest is adjusted from 'good' to 'moderate'. The qualification of all other sweets and chocolates remains 'good'.	Liquorice and *stophoest*: moderate Chewing gum and all other remaining sweets and chocolate: good	*'Stophoest'* is a hard type of sweet with a mix of liquorice and mint.

Abbreviations: LEDA: Levensmiddelendatabank (Dutch database of branded food items); NS: Nutri-Score; DDG: Dutch dietary guidelines 2015 by the Health Coucil of the Netherlands; Wo5: Wheel of Five of the Netherlands Nutrition Centre

02
salt intake through breakfast, lunch and dinner

Table 2.1 provides an estimate of the salt intake in the dietary pattern, based on (1) the usual amount consumed (on a day that this product actually is consumed) and (2) the distribution of salt levels in these products per Nutri-Score (the median, the 90th percentile and the 95th percentile). Note that the products in the table, taken together, do not make for a complete daily dietary pattern. Obviously, the consumption of additional products, especially if these do not fit into a healthy diet, may increase salt intake substantially.

The table includes products of which there are variants with a green Nutri-Score (A or B) available. Consumers who choose products based on green Nutri-Scores will assume that this choice helps them to keep a healthy diet. Part of the consumers who choose unsalted products may add salt when preparing their meal; this is not taken into account in this example.

The committee compared the total salt intake with the DDG guideline on salt ‘limit salt intake to 6 grammes daily’. Table 2.1 shows that products with more unfavourable Nutri-Scores will often increase salt intake. However, this is not always the case, because Nutri-Score is not only determined by the level of salt, but also by levels of other nutrients and ingredients. Furthermore, the table shows that consumers who choose exclusively Nutri-Score A products will not exceed the salt guideline with the combination of products in the table. However, if they choose exclusively products with Nutri-Score B, they will often exceed the salt guideline. Salt intake from canned vegetables, processed meat and bread is relatively high. For instance, the 95th percentile of salt levels in peanut butter with Nutri-Score E equals the 95th percentile of chicken breast with Nutri-Score A.

Table 2.1 Salt intake in grammes through breakfast, lunch and dinner, based on amounts which may be consumed on one day, per Nutri-Score (N = number of products per category, P = percentile)

Product and amount	Score A				Score B				Score C				Score D				Score E[a]			
	N	P50	P90	P95	*N*	P50	P90	P95	*N*	P50	P90	P95	*N*	P50	P90	P95	*N*	P50	P90	P95
150 g semi-skimmed yogurt	*23*	0.19	0.27	0.29	*3*	0.23	0.35	0.35	*0*	-	-	-	*0*	-	-	-	*0*	-	-	-
40 g crunchy muesli	*25*	0.04	0.09	0.09	*21*	0.03	0.12	0.13	*122*	0.04	0.14	0.19	*46*	0.04	0.26	0.32	*1*	0.25	0.25	0.25
120 g wholegrain bread	*507*	1.12	1.31	1.34	*73*	1.17	1.50	1.54	*10*	1.32	2.58	3.12	*3*	2.63	3.31	3.31	*0*	-	-	-
20 g peanut butter	*25*	0.06	0.11	0.11	*21*	0.11	0.16	0.16	*102*	0.12	0.18	0.20	*4*	0.06	0.08	0.08	*1*	0.24	0.24	0.24
30 g cottage cheese or similar	*2*	0.21	0.24	0.24	*19*	0.21	0.30	0.36	*54*	0.18	0.27	0.30	*34*	0.38	0.60	0.60	*1*	0.51	0.51	0.51
20 g hummus	*10*	0.18	0.23	0.24	*67*	0.19	0.24	0.25	*192*	0.24	0.28	0.30	*14*	0.29	0.40	0.40	*3*	0.87	1.08	1.08
20 g chicken breast (sandwich topping)	*5*	0.24	0.26	0.26	*12*	0.34	0.35	0.36	*40*	0.34	0.39	0.40	*188*	0.44	0.50	0.51	*3*	0.60	1.02	1.02
200 g canned vegetables	*1,288*	0.66	1.46	1.66	*120*	3.00	3.00	3.50	*138*	3.00	4.80	5.60	*65*	6.00	8.80	10.0	*32*	3.40	13.0	24.0
100 g seasoned minced meat	*6*	0.00	0.20	0.20	*26*	1.57	1.58	1.58	*53*	0.54	1.43	1.50	*96*	1.27	1.70	1.73	*15*	2.09	2.30	2.50
200 g fries or similar	*139*	0.10	0.20	0.40	*395*	0.20	0.84	1.08	*424*	1.40	2.20	2.34	*20*	2.32	4.30	5.10	*3*	8.60	19.8	19.8
25 g salted nuts	*51*	0.18	0.23	0.25	*79*	0.20	0.25	0.30	*365*	0.20	0.31	0.38	*19*	0.38	0.60	0.85	*1*	0.73	0.73	0.73
Total salt (g)[b]		3.0	4.6	5.1		7.3	8.7	9.6		7.6	12.9	14.7		14.0	20.9	23.3		20.2	42.6	53.9

[a] The salt levels in some products with Nutri-Score E are very high at the top of the distribution (90th and 95th percentile); this probably is the result of items which are usually eaten in much smaller quantities than used for the calculations (see column 1), so these levels are probably not realistic.

[b] For some products, items with Nutri-Scores C, D and/or E were missing. In that case, the value in the nearest Nutri-Score is used for the calculation of the total salt intake: a missing value for the 50th percentile of Nutri-Score D is replaced by the 50th percentile of Nutri-Score C; a missing value for the 95th percentile of Nutri-Score E is replaced by the 95th percentile of Nutri-Score D.

03 description of the Nutri-Score algorithm

The tables in this chapter describe both the main algorithm of Nutri-Score and the algorithm for oils, fats, nuts and seeds.

Tables 3.1 and 3.2 relate to the main algorithm.
Tables 3.3 and 3.4 relate to the algorithm for fats, oils, nuts and seeds.

Tables 3.1 and 3.3 describe the allocation of points per component: the addition points for ‘unfavourable’ components (the column headings with an orange background: energy, saturated fat, sugar and salt) and subtraction points for ‘favourable’ components (the column headings with a green background: ‘fruit, vegetables, legumes’, fibre and protein).
The table provides the cut-off values in the revised algorithm (published July 2022).[2] The footnotes provide additional information and specify whether the revised algorithm has changed compared to the current algorithm (the algorithm which applies until the revised algorithm is implemented).[1]

Tables 3.2 and 3.4 describe the allocation of Nutri-Scores, which is based on the total number of points.

Table 3.1 Main algorithm: allocation of points per component

Points	Energy[a] (kJ/100 g)	Saturated fat[a] (g/100 g)	Sugar[b] (g/100 g)	Salt[c] (g/100 g)	Fruit, vegetables and legumes[d] (g/100 g)	Fibre[e] (g/100 g)	Protein[f] (g/100 g)
0	≤335	≤1	≤3.4	≤0.2	≤40	≤3.0	≤2.4
1	>335	>1	>3.4	>0.2	>40	>3.0	>2.4
2	>670	>2	>6.8	>0.4	>60	>4.1	>4.8
3	>1005	>3	>10	>0.6	-	>5.2	>7.2
4	>1340	>4	>14	>0.8	-	>6.3	>9.6
5	>1675	>5	>17	>1.0	>80	>7.4	>12.0
6	>2010	>6	>20	>1.2			>15.0
7	>2345	>7	>24	>1.4			>17.0
8	>2680	>8	>27	>1.6			
9	>3015	>9	>31	>1.8			
10	>3350	>10	>34	>2.0			
11			>37	>2.2			
12			>41	>2.4			
13			>44	>2.6			
14			>48	>2.8			
15			>51	>3.0			
16				>3.2			
17				>3.4			
18				>3.6			
19				>3.8			
20				>4.0			

Abbreviations: g: grammes; kJ: kilojoules

[a] For energy and saturated fat, there is no change.

[b] In the revised algorithm, the maximum number of addition points for sugar has been increased from 10 to 15. In addition, the sugar levels resulting in a (extra) addition point are lower in the revised compared to the current algorithm. As a result of both changes, the revised algorithm produces more addition points for sugar than the current algorithm. (The situation with the current algorithm is as follows: 0 sugar points if <4.5 grammes of sugar/100 grammes; 1 point at >4.5 g/100g; 2 points at >9 g/100g; 3 points at >13.5 g/100g; 4 points at >18 g/100g; 5 points at >22.5 g/100g; 6 points at >27 g/100g; 7 points at >31 g/100g; 8 points at >36 g/100g; 9 points at >40 g/100g; 10 points at >45 g/100g.)

[c] In the revised algorithm, the maximum number of addition points for salt has been increased from 10 to 20. In addition, the salt levels resulting in a (extra) addition point are lower in the revised algorithm (1 point per 0.20 grammes of salt per 100 grammes) compared to the current algorithm (1 point per 0.23 grammes of salt per 100 grammes). As a result of both changes, the revised algorithm produces more addition points for salt than the current algorithm.

[d] In the revised main algorithm, the so called 'vegetables and fruit component' only comprises vegetables, fruit and legumes. In the current algorithm, this component additionally comprises nuts and certain oils (olive oil, rapeseed oil and walnut oil).

[e] In the revised algorithm, the fibre levels resulting in a (extra) subtraction point are higher than in the current algorithm. As a result, the revised algorithm produces fewer subtraction points for fibre than the current algorithm. (The situation with the current algorithm is as follows: 0 fibre points at ≤0.9 grammes of fibre/100 grammes; 1 point at >0.9 g/100g; 2 points at >1.9 g/100g; 3 points at >2.8 g/100g; 4 points at >3.7 g/100g; 5 points at >4.7 g/100g.)

[f] In the revised algorithm, the maximum number of subtraction points for protein has been increased from 5 to 7. The exception is red meat, for which in the revised algorithm the maximum number of subtraction points for protein is 2 instead of 7 points (the current algorithm does not include an exception for red meat). Furthermore, the protein levels resulting in a (extra) subtraction point are higher in the revised algorithm (1 point for every 2.4 grammes of protein per 100 grammes for the first five protein points) compared to the current algorithm (1 point for every 1.6 grammes of protein per 100 grammes for the first five protein points). As a result of both changes, the revised algorithm produces less addition points for protein than the current algorithm, unless the protein content exceeds 15 grammes per 100 grammes (6 or 7 protein points do not exist in the current algorithm).

Table 3.2 Main algorithm: allocation of the Nutri-Scores[a]

Nutri-Score	Total number of points[b]	Colour
A	0 or less	Dark green
B	1 up to and including 2	Light green
C	3 up to and including 10	Yellow
D	11 up to and including 18	Orange
E	19 or more	Red

[a] In the revised algorithm, the total number of points is calculated with or without the protein points, dependent of the sum of addition points and whether or not the product is cheese. If the sum of addition points is less than 11 or if the product is cheese, the total number of points is calculated as all addition points minus all subtraction points including the protein points. If the sum of addition points is 11 or more, the total number of points is calculated as all addition points minus the subtraction points excluding the protein points (the sum of subtraction points only includes the subtraction points for 'fruit, vegetables, legumes' and for fibre), unless the product is cheese. In the current algorithm, the protein points are excluded if the sum of addition points is 11 or more, unless the product has 5 points for the component 'fruit, vegetables, legumes, nuts and certain oils (olive oil, rapeseed oil and walnut oil)'.

[b] The cut-off point for the difference between Nutri-Score A and B is 1 point higher in the revised algorithm versus the current one: in the revised algorithm, Nutri-Score B is allocated to products with a total of 1 or 2 points; in the current algorithm, to products with a total of 0 or 1 or 2 points. There is no change for Nutri-Scores C, D and E.

Table 3.3 Algorithm for fats, oils, nuts and seeds: allocation of points per component[a]

Points	Energy[a] (kJ/100 g)	Saturated fat[a] (g/100 g)	Sugar[b] (g/100 g)	Salt[c] (g/100 g)	Fruit, vegetables and legumes[d] (g/100 g)	Fibre[e] (g/100 g)	Protein[f] (g/100 g)
0	≤120	<10	≤3.4	≤0.2	≤40	≤3.0	≤2.4
1	>120	<16	>3.4	>0.2	>40	>3.0	>2.4
2	>240	<22	>6.8	>0.4	>60	>4.1	>4.8
3	>360	<28	>10	>0.6	-	>5.2	>7.2
4	>480	<34	>14	>0.8	-	>6.3	>9.6
5	>600	<40	>17	>1.0	>80	>7.4	>12.0
6	>720	<46	>20	>1.2			>15.0
7	>840	<52	>24	>1.4			>17.0
8	>960	<58	>27	>1.6			
9	>1080	<64	>31	>1.8			
10	>1200	≥64	>34	>2.0			
11			>37	>2.2			
12			>41	>2.4			
13			>44	>2.6			
14			>48	>2.8			
15			>51	>3.0			
16				>3.2			
17				>3.4			
18				>3.6			
19				>3.8			
20				>4.0			

Abbreviations: g: grammes; kJ: kilojoules

[a] In the revised algorithm, nuts and seeds are part of the algorithm for fats, oils, nuts and seeds, whereas in the current algorithm they are part of the main algorithm.

[b] In the revised algorithm for fats, oils, nuts and seeds the energy component is confined to the energy from saturated fat, whereas the current algorithm for fats and oils evaluated the total energy content (as in the main algorithm). Because of this, the cut-off points also are adjusted.

[c] For saturated fat as a percentage of total fat, the algorithm has not changed.

[d] For sugar, salt, fibre and protein, the algorithm for fats, oils, nuts and seeds has been changed according to the changes in the main algorithm.

[e] In the revised algorithm for fats, oils, nuts and seeds, the component 'vegetables, fruit and legumes' also includes oils of vegetables, fruit and legumes, such as olive oil, avocado oil, soy oil; note that in the revised main algorithm, these oils are not included in the component 'vegetables, fruit and legumes'. The current algorithm for fats and oils (as well as the current main algorithm) includes three specific oils in the component 'vegetables, fruit, legumes, nuts and certain oils': olive oil, walnut oil and rapeseed oil.

Table 3.4 Algorithm for fats, oils, nuts and seeds: allocation of the Nutri-Score[a,b]

Nutri-Score	Total number of points[c]	Colour
A	-6 or less	Dark green
B	-5 up to and including 2	Light green
C	3 up to and including 10	Yellow
D	11 up to and including 18	Orange
E	19 or more	Red

[a] In the revised algorithm, nuts and seeds are part of the algorithm for fats, oils, nuts and seeds, whereas in the current algorithm they are part of the main algorithm.

[b] The calculation of the total number of points is largely consistent with the main algorithm (see footnote a of Table 3.2), but in the revised algorithm for fats, oils, nuts and seeds the protein points are excluded if the sum of addition points amounts to 7 or more. This differs from the current algorithm for fats and oils, as well as from the current and revised main algorithms, where protein points are excluded from the calculation if the sum of addition points is 11 or more. Note that cheese is evaluated with the main algorithm (both in the current and in the revised situation), so that the exception for cheese does not apply to the algorithms of fats, oils (nuts, seeds).

[c] The cut-off point for the difference between Nutri-Score A and B is 5 points lower in the revised algorithm versus the current one: in the revised algorithm, Nutri-Score B is allocated to fats, oils, nuts and seeds with a total of -5 to 2 points; in the current algorithm, to products with a total of 0 or 1 or 2 points. There is no change for Nutri-Scores C, D and E.

literature

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