FIVE YEAR REVIEW
OF THE HEALTH STAR RATING (HSR) SYSTEM

HSR Technical Advisory Group (TAG)

Fats, oils and oil based spreads

Contents

Summary

Australian and New Zealand dietary recommendations include advice to replace oils and spreads high in saturated fats (e.g. butter, cream, palm oil) with small amounts of healthy oils and spreads high in poly and mono-unsaturated fats. The defining components for this category are saturated fat for oils and saturated fat, energy and sodium for spreads.

Current scaling in this category results in low HSR values for some products with known health benefits, and a wide range in HSR values within the healthier fat, oils and oils-based spreads from 2.0 to 5.0 stars. This could give consumers the impression that 3.0 star oils such as olive oil are less healthy than 4.5 star oils such as canola oil, when these products are treated equally in Australian and New Zealand dietary recommendations. The situation is similar for spreads.

Four options have been identified to address these concerns:

- No change in current algorithm for this Category
- Re-scaling the category upwards to ensure better consistency of this category with dietary recommendations
- Include trans fatty acids (TFA) in the algorithm in addition to saturated fat
- Remove edible oils from the HSR system.

Option 2 would result in overall higher HSR scores for products with known health benefits (starting at 3.0 stars) and a narrower range of scores for these products (3.0 to 5.0 stars). Importantly, re-scaling would not change the appropriately low rating (≤2.0 stars) of oils and spreads high in saturated fat such as coconut oil and butter. Option 3 would provide a more complete risk profile for fats. However its addition is unlikely to change the HSR of most products or address the other issues raised for this category.

None of these options provide a solution to the following industry concerns:

- The lower HSR of olive oil compared with other commonly used, relatively healthy oils such as sunflower or canola. Re-scaling will increase the HSR of these oils, including olive oil but will not remove the difference in HSR values between olive oil and other oils.
- The HSR not differentiating between <u>pressed</u> oils such as extra virgin olive oil and <u>extracted</u> oils such as canola.

This paper needs to be considered in conjunction with the paper on consideration given to saturated fats in the HSR algorithm.

Problem Definition

Scope of products in this paper

Fats, oils, edible oil spreads and butter currently fall into Category 3 of the HSR System. Products in this category currently show a tri-modal distribution in Star Points. High saturated fat products such as butter score at the lower end of the distribution curve, as would be expected. Oils and full-fat spreads considered to be good sources of poly- and mono-unsaturated fats, score between 2.0 and 4.0 stars. Fat-reduced table spreads with the lowest levels of energy and saturated fat (but also the lowest levels of unsaturated fats) score up to 5.0 stars.
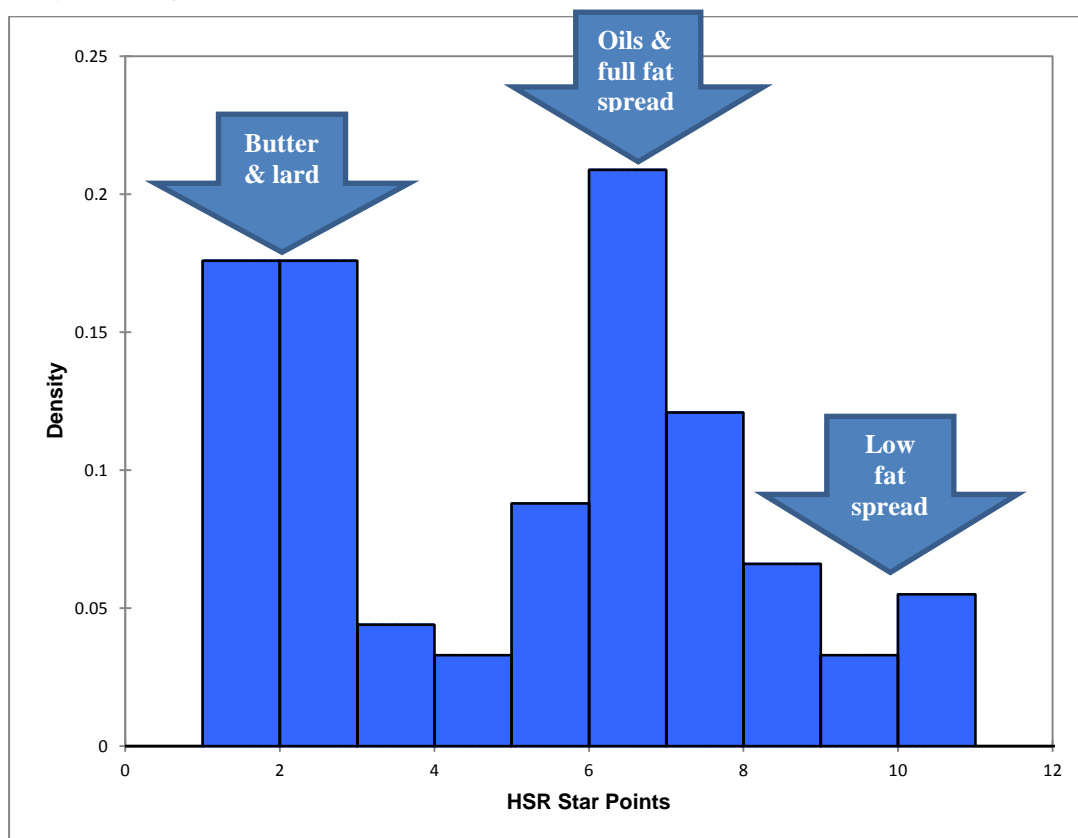

Figure 1: Star Points for fats, oils and oil based spreads under the current HSR algorithm

Saturated fat (for oils) and saturated fat, energy and sodium (for spreads) determine the HSR of these products according to the algorithm. In contrast, their low saturated and trans fat content combined with a high poly- and mono-unsaturated fat content determines the classification of these products as healthy fats under Australian and New Zealand dietary guidelines.[1,2]

Mono- and poly-unsaturated fats are not included in the HSR algorithm (although the inclusion of saturated fat could be considered as a proxy for unsaturated fats in many foods).

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[1] Australian Guide to Healthy Eating | Eat For Health. 2017. Australian Guide to Healthy Eating | Eat For Health. [ONLINE] Available at: https://www.eatforhealth.gov.au/guidelines/australian-guide-healthy-eating
[2] Ministry of Health NZ. 2017. Eating and Activity Guidelines for New Zealand Adults | Ministry of Health NZ. [ONLINE] Available at: https://www.health.govt.nz/publication/eating-and-activity-guidelines-new-zealand-adults

As a result:

- The HSR algorithm differentiates reasonably well <u>between</u> fats, oils and oil-based spreads high in saturated fat and those relatively low in saturated fat with products high in saturated fat consistently receiving low scores ≤2.0 stars.

- However the HSR of some healthy products that are high in mono and poly-unsaturated fats is similar to that of products high in saturated fat. The range of HSR ratings for healthy oils and spreads high in mono and poly-unsaturated fats is also wider than expected, given that these products are treated as equal in dietary guidelines.

Dietary intake data

Dietary intake data from the 2011-12 Australian Health Survey[3] (AHS) and 2008/09 New Zealand Adult Nutrition Survey[4] (NZANS) suggests that intake of saturated fat is higher than recommended and unsaturated fat, in particular polyunsaturated fat, is lower than recommended. Any changes to the HSR algorithm should aim to support the replacement of oils and spreads high in saturated fats with oils and spreads low in saturated fats.

Oils and spreads

Margarine and butter:

- In the 2011-13 AHS[3], around twice as many Australians (26.5%) consumed margarine-style spreads (27%) as butters (15.2%), generally in conjunction with bread products. Dairy blends (mixtures of butter and oil) were only consumed by 3.7% of consumers. Among margarine spreads, more were monounsaturated than polyunsaturated.[5] These figures do not include consumption of butter and spreads in foods such as bakery products and added to vegetables.
- Two-thirds of New Zealanders (68.6%) reported choosing margarine as a spread most of the time. One-fifth (20.1%) chose butter.[6]

Oils and spreads:

- The AHS found that Australians aged two years and over consumed an average 2 serves of unsaturated oils and spreads from non-discretionary sources per day. Children consumed an average of 1.3 serves and adults 19 years and older an average of 2.2 serves per day.[7] Of oils consumed, most were mono-unsaturated oils such as olive oil and canola oil.[5]
- In New Zealand, oil was used most often when cooking by 89.7% of males and 90.1% of females, rather than butter or margarine.[6]

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[3] Australian Bureau of Statistics. 2014. Australian Health Survey: Nutrition First Results - Foods and Nutrients, 2011-12. [ONLINE] Available at: http://www.abs.gov.au/ausstats/abs@.nsf/mf/4364.0.55.007

[4] Ministry of Health NZ. 2017. A Focus on Nutrition: Key findings from the 2008/09 NZ Adult Nutrition Survey | Ministry of Health NZ. [ONLINE] Available at: https://www.health.govt.nz/publication/focus-nutrition-key-findings-2008-09-nz-adult-nutrition-survey

[5] Australian Bureau of Statistics. 2014. Australian Health Survey: Nutrition First Results - Foods and Nutrients, 2011-12. [ONLINE] Available at: http://www.abs.gov.au/ausstats/abs@.nsf/mf/4364.0.55.007

[6] University of Otago and Ministry of Health. 2011. A Focus on Nutrition: Key findings of the 2008/09 New Zealand Adult Nutrition Survey. Wellington: Ministry of Health

[7] Australian Bureau of Statistics. 2016. Australian Health Survey: Consumption of Food Groups from the Australian Dietary Guidelines, 2011-12. [ONLINE] Available at: http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4364.0.55.012main+features12011-12

Fatty acid classes

Saturated fat intake:

- In Australia, saturated fat (including trans fatty acids (TFA)) contributed an average 12% of total energy for the population aged two years and over, which exceeds the Suggested Dietary Target[8] (up to 10% of energy intake from saturated and trans fatty acids).
- In New Zealand, saturated fat contributed around 13% of total energy (kilojoules) for New Zealand adults (aged 19-64 years), which is also above the Suggested Dietary Target.
- The main sources of saturated fat in the Australian diet were milk products and dishes contributing 24.9% followed by cereal-based products and dishes, (e.g. biscuits, cakes, pastries), contributing 24.4%.
- In New Zealand, the main contributors to saturated fat intake are butter and margarine, milk and cheese, bread-based dishes and starchy vegetables.

TFA intake:

- The cereal based products and dishes category is the largest contributor to TFA intake for the Australian population aged 2 years and over at 24.9%. This food category includes sweet biscuits, savoury biscuits, cakes, muffins, scones, cake-type desserts, pastries, mixed dishes where cereals are the major ingredient, and batter-based products[9]. These products largely contain industrially produced TFAs. The second leading contributor to TFA intake is the milk products and dishes category (24.2%) followed by the meat, poultry and game products and dishes category (23.2%). These products largely contain naturally occurring or ruminant TFAs.
- The NZANS does not report on the proportion of intake of TFA according to food categories. However, earlier monitoring reports undertaken by Food Standards Australia New Zealand (FSANZ) in 2007[10] and a comparison report in 2009[11] indicated that major contributors to the intake of TFA in Australia and New Zealand were (in order of contribution): dairy products, pastry, pastry-based mixed foods, fats and oils, meat and poultry, cereal and cereal products and cereal-based mixed foods. It was also found that ruminant TFAs contributed around 60 to 75% of total TFA intake. There was a higher contribution to total TFA intake from fats and oils for New Zealanders compared to Australians.
- The 2009 FSANZ report found that Australians obtain on average 0.5% of their daily energy intake from TFAs and New Zealanders on average 0.6%, although intakes were higher in some population groups. This is below the World Health Organization recommendation[12] of no more than 1% of dietary energy. It is also below the levels in many other countries

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[8] National Health and Medical Research Council, Australian Government Department of Health and Ageing, New Zealand Ministry of Health. 2006. Nutrient Reference Values for Australia and New Zealand. Available at https://www.nhmrc.gov.au/_files_nhmrc/file/your_health/healthy/nutrition/17599_nhmrc_nrv_update-dietary_intakes_0.pdf

[9] Australian Bureau of Statistics. 2014. Australian Health Survey: Nutrition First Results – Foods and Nutrients, 2011–12 [ONLINE] Available at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4364.0.55.0072011-12?OpenDocument

[10] Food Standards Australia New Zealand. 2007. 'Review Report: Trans fatty acids in the New Zealand and Australian Food Supply' [ONLINE] Available at:
http://www.foodstandards.gov.au/publications/documents/Transfat%20report%202007.pdf

[11] Food Standards Australia New Zealand. 2009. 'Intakes of trans fatty acids in New Zealand and Australia: Review Report 2009' [ONLINE] Available at:
http://www.foodstandards.gov.au/publications/documents/TFAs_intakes_2009.pdf This report used the 2007 Australian National Children's Nutrition and Physical Activity Survey for 2-16 year olds as well as the 1995 Australia National Nutrition Survey (NNS) for 2 years and above with post 2007 TFA concentration data; and the NZ NNS for 5-14 year olds and the 1997 NZ NNS for 15 years and above with post 2007 TFA concentration data

[12] WHO, 2015, Guideline: Sugars intake for adults and children, p. 4

Issues raised in submissions to the five year review

An overview of the issues raised for this category by respondents to the 5 year HSR review is provided in Appendix 5. They are summarised into two main issues as follows:

1. The HSR of some healthy fats, oils and oil-based spreads is low and there is a wide range of HSR values for healthy products that are high in mono and poly-unsaturated fats

    *   The HSR of healthier oils varies from peanut (2.5) to olive (3.0-3.5), sunflower (3.0) and canola (4) oils. The energy and sodium content of these products is the same so the differences in rating are due to relatively small differences in saturated fat content: olive oil (16% saturated), sunflower (11%) and canola (7.6%). This is compared to the high saturated fat content of the low scoring fats and oils such as butter (~55% saturated and HSR of 0.5-1.0 and coconut oil (93% saturated and HSR of 0.5-1.0).

    *   The situation for spreads is similar except that energy and sodium content also influences the rating of these products. As a result, low fat spreads achieve the highest HSR scores in this category because of their relatively lower energy and saturated fat content (because they also contain ingredients such as water), despite their lower content of healthy mono- and poly-unsaturated fats.

    *   This wide range in HSR ratings is inconsistent with both the Australian Dietary Guidelines (ADG) and New Zealand Eating and Activity Guidelines (NZEAG), where all fats, oils and oil-based spreads that are high in mono and poly-unsaturated fats are treated as equal. It may suggest to consumers that a particular oil or spread is healthier than another when this is not necessarily the case, particularly when their poly- and mono-unsaturated fat content is taken into account. In the case of oils, as single ingredient products, there is also no opportunity to reformulate these products to improve the star rating. More information on the range of products in this category and their HSR can be found in Appendix 2. The HSR distribution of products in this category can be seen in Figure 1.

2. Suggestions differ as to which nutrients/components found in fats, oils and oil-based spreads should be considered in the HSR algorithm.

    *   A number of respondents suggested that saturated fat is not a risk nutrient and should be not included in the algorithm. This is not supported by the evidence and recommendations in the Australian or New Zealand dietary recommendations and was therefore not included as an option in this paper.

    *   Other respondents wanted to see pressed healthy oils (such as extra virgin olive oil) obtain a higher HSR score than refined healthy oils (such as mild or light olive oil) because they contain components, such as polyphenols, that may have beneficial health benefits. The HSR algorithm does not take into account components such as polyphenols, which are not currently recognised as nutrients. There are also other labelling tools available to industry to make on-pack content claims for nutrients that are not part of the HSR system.

    *   It was suggested TFA be included in the algorithm, along with saturated fat as a risk nutrient, because of its effect on increasing blood cholesterol and cardiovascular disease.

Alignment with system objectives and priorities

Linkages with other TAG work

Fats, oils and oil-based spreads links with the following TAG topic:

- Alignment with the Australian and New Zealand dietary guidelines: particularly in relation to nuts. Nuts are a high fat, FFG food included in the 'lean meats and poultry, fish, eggs, tofu, nuts and seeds and legumes and beans' food group but are also a source of mono- and poly-unsaturated fats. All nuts are treated as equally healthy in the dietary guidelines but similar to oils, the HSR of different nuts varies because of their varying saturated fat content.

- Treatment of saturated fatty acids in the HSR algorithm.

Dietary Guidelines

The role of fats, oils and spreads in Australian and New Zealand dietary recommendations is not entirely clear. They are not included in the four (New Zealand) or five (Australian) food groups required for health; the ADG and Guide to Healthy Eating (AGHE) include fats, spreads and oils as a separate group to both the five food groups (FFG) and discretionary foods with a recommendation to "use small amounts" (Appendix 3). However a classification of fats, oils and spreads as either 'FFG' or 'discretionary' has been made for the purpose of analysing Australian dietary intake data against the ADGs[13] (Appendix 2).

Both Australian and New Zealand recommendations are consistent in their advice to replace oils and spreads high in saturated fats with small amounts of oils and spreads high in poly- and mono-unsaturated fats, with all oils and spreads high in poly- and mono-unsaturated fat treated equally as healthy choices. The specific advice provided is as follows:

- *Replace high fat foods which contain predominantly saturated fats such as butter, cream, cooking margarine, coconut and palm oil with foods which contain predominantly polyunsaturated and monounsaturated fats such as oils, spreads, nut butters/pastes and avocado. (ADG 3)*

- *To help make sure you stay healthy, it is important to eat unsaturated fats in small amounts as part of a balanced diet. (AGHE). Choose the [fat], varieties that are lower in saturated and trans fats and higher in poly and monounsaturated fats (AGHE).*

- *Choose and/or prepare foods and drinks with unsaturated fats (canola, olive, rice bran or vegetable oil, or margarine) instead of saturated fats (butter, cream, lard, dripping, coconut oil) (NZEAG).[14]*

In relation to trans fatty acids (TFA), the ADG note that the intake of TFA is low in Australia and consequently there is no specific recommendation to limit compared to current intake. However, it is important to ensure that intake remains at its current low level.

The NZEAG do not contain any specific recommendation for the intake of TFA. It is recommended that TFA and saturated fats combined represent between 8-10% of total dietary intake.

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[13] National Health and Medical Research Council. 2017. Australian Dietary Guidelines (2013) [ONLINE] Available at: https://www.nhmrc.gov.au/guidelines-publications/n55
[14] Ministry of Health. 2015. Eating and Activity Guidelines for New Zealand Adults. Wellington: Ministry of Health. Available at: https://www.health.govt.nz/

Nutrient Profiling Scoring Criterion (NPSC)

Fats and oils eligible to make health claims are mainly plant sterol-containing (cholesterol lowering) spread products. These products currently carry a HSR value ranging from 3.0 to 5.0 with the lower fat (22%) products obtaining a higher rating.

Consideration of Issues raised in submissions

Method

The initial database used in the development of the HSR system was expanded with data provided by the food industry in 2017. This revised TAG database includes product nutrient data for 5,885 food products across 42 food categories based on the AGHE categories (e.g. fats and oils, FFG cereals, dairy, processed and unprocessed fruits and vegetables, animal protein etc.). Data cover the range of HSR components found in Australian and New Zealand foods, including fruit, vegetable, nut and legume (FVNL) and fibre content data for all foods where applicable. The data are not independently verified.

The fats, oils and oil-based spreads category component of the database was re-scaled upwards with the aim of increasing the HSR of healthy oils and spreads to ensure better discrimination <u>between</u> products classified as FFG and discretionary and to reduce the range of HSR values for products classified as FFG to be more consistent with the AGHE and the NZEAG.

Results

The results pre and post re-scaling are shown in Figure 2 in Appendix 1.

- Re-scaling results in the curve moving to a more bi-modal distribution with healthier and discretionary oils and spreads more clearly differentiated.

- There is little change in the ratings of the unhealthy fats and oil products up to 1.5 stars (Copha, lard, butter, palm, coconut). Above 1.5 stars, ratings increase by a ½ star for both oils and table spreads with some upwards 'compression' of low fat spreads at the top end. The rating of macadamia, avocado, sunflower and olive oils increases from 3.0-3.5 to 4.0 stars and canola oil from 4.0-4.5 to 5.0 stars.

- The saturated fat distribution is approximately as follows: 5 stars <12% saturated fat, 4 stars <16%, 3 stars <20% and 2 stars 25%.

- Plant sterol spreads making health claims receive a HSR of 3.5 as a minimum instead of 3.0.

- As can be seen in Figure 3 in Appendix 1, re-scaling healthier oils upwards has made the system more responsive to saturated fat content and slightly less responsive to energy. It retains roughly the same sensitivities for the other HSR components. This is because re-scaling has negated some of the positive lower energy effect of fat reduced spreads on the distribution of ratings by compressing low fat spread ratings at the top end while moving full-fat oil ratings upwards.

Discussion

Re-scaling will largely address Issue 1 (low HSR for some healthy products) and support dietary recommendations in both Australia and New Zealand by increasing the HSR of fats, oils and oil-based spreads that are high in mono and poly-unsaturated fat and reducing the HSR range within these products. The HSR of discretionary products high in saturated fats is unaffected and remains low. However re-scaling will not address Issue 2 (inclusion of additional components).

Options for addressing identified issues

Options Summary

Options to improve the consistency of this category with the AGHE and NZEAG are provided in Table 1.

Table 1: Options to address consistency of the fats, oils and spreads category with dietary guidelines

Option Number	Option	Benefits	Disadvantages
1	No change to category	The system is working reasonably well: discretionary oils and spreads generally obtain low HSR scores and healthier oils and spreads obtain higher scores.	• Inconsistencies with the dietary guidelines in both countries would remain: the range of HSR scores for fats with identified health benefits, oils and oil-based spreads high in mono- and poly-unsaturated fats is wide and overlaps with the HSR of products classified as discretionary. • Does not address olive oil industry concerns about the difference in HSR between olive oil and other oils such as canola. • Does not address olive oil industry concerns about a lack of HSR difference between pressed and extracted oils.
2	Re-scaling of category upwards	• Improves consistency with dietary guidelines: • Increases scores of healthier products to ensure better discrimination between these and discretionary. Healthier products start at 3.0 rather than 2.0 stars. • Reduces the range of HSR values within healthy (FFG) oils and spreads. • Does not increase the HSR of discretionary (predominantly saturated fat) oils and spreads. • Products eligible to make health claims under the NPSC increase their HSR from 3.0 to 3.5 stars.	• Does not address olive oil industry concerns about the difference in HSR between olive oil and other oils such as canola. • Does not address olive oil industry concerns about a lack of HSR difference between pressed and extracted oils.
3	Include TFA in the algorithm in	• Provides a more complete risk profile for fats in the diet – given dietary	• Average intake of TFAs in Australia and New Zealand is estimated to be low.

Option Number	Option	Benefits	Disadvantages
	addition to saturated fat	recommendations are to reduce intake of both. • May be more important in New Zealand where the fats and oils category is a significant contributor to saturated fat and TFA intake.	• The addition of TFA is unlikely to change the HSR of products in this category: sources of ruminant TFAs (butter) already have a low HSR due to their high saturated fat content. Major margarine manufacturers have reduced the TFA content of their products to < 1% per 100g.[15] • Manufacturers do not necessarily have TFA data as they are not required to label TFA content unless they make a claim.
4	Remove edible oils from the system	• Addresses concerns about some healthy oils having a higher HSR when all are treated equally in the AGHE and NZEAG. • Addresses concerns about not being able to reformulate oils to reduce energy or saturated fat. • Aligns with the current approach to not use the HSR on single ingredient foods.	• Does not support consumers to follow the AGHE and NZEAG and select healthier choices in this category i.e. to select fats and oils low in saturated fat such as olive/ canola oil or margarine spreads instead of those high in saturated fat such as coconut oil or butter.

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[15] Food Standards Australia New Zealand. 2007. 'Review Report: Trans fatty acids in the New Zealand and Australian Food Supply' [ONLINE] Available at:
http://www.foodstandards.gov.au/publications/documents/Transfat%20report%202007.pdf

Conclusion

If it is considered necessary to address issue 1, that the HSRs of some healthy fats, oils and oil-based spreads are low and there is a wide range of HSR values for healthier products, then Option 2 would be most effective. This option would improve the alignment of this category with Australian and New Zealand dietary recommendations. This approach is also likely be supported by industry because it will result in an increase in the HSR in many healthy oils and spreads and no decrease in the HSR of any products.

There are no options that address concerns related to issue 2:

- The lower HSR of olive oil compared to other oils cannot be addressed by the algorithm as olive oil has relatively higher saturated fat content than other commonly used, relatively healthy oils. Olive oil (high in monounsaturated fats) is treated as equally healthy as canola/ sunflower oils (high in polyunsaturated fats) in dietary recommendations.

- Pressed oils such as extra virgin olive oil have the same HSR as extracted oils such as canola oil because the algorithm does not take into account novel nutritional components such as the polyphenols in extra virgin olive oil. There is also no clear rationale to include these components as they are not recognised as nutrients and the evidence for their beneficial effects is limited. In addition, much of the olive oil for sale in the market is extracted and not pressed.

- The addition of TFA to the HSR algorithm is unlikely to impact on the HSR value because products that could contain TFAs in this category either already have a low HSR rating because of their saturated fat content (butter) or are already low in trans fat due to previous reformulation (margarine spreads).

APPENDIX 1: Modelling of options to address alignment of fats, oils and spreads with dietary guidelines

Figure 2: Star Points for fats, oils and oil based spreads before and after re-scaling to increase the star rating of healthy oils

- *Before re-scaling*
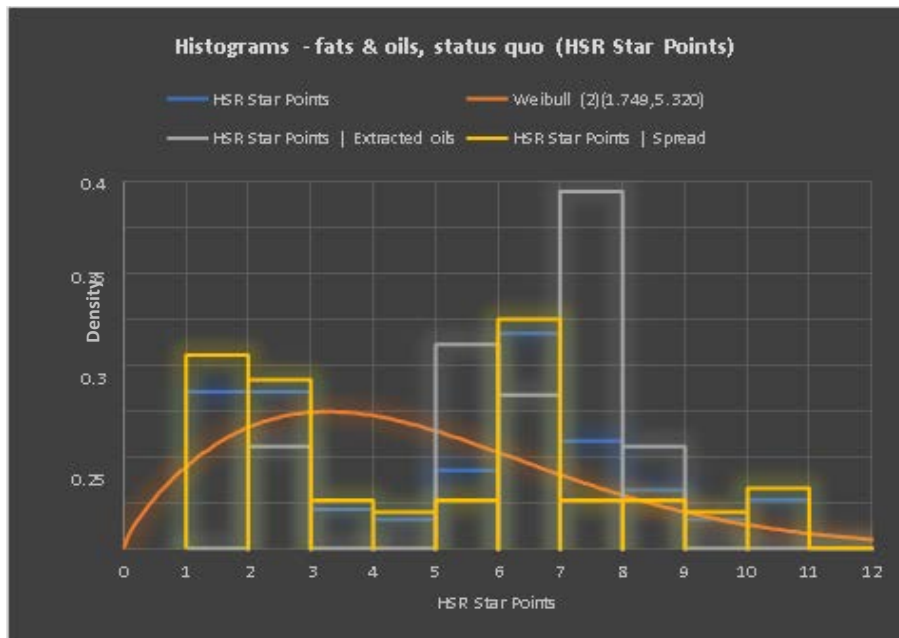
- *After re-scaling*
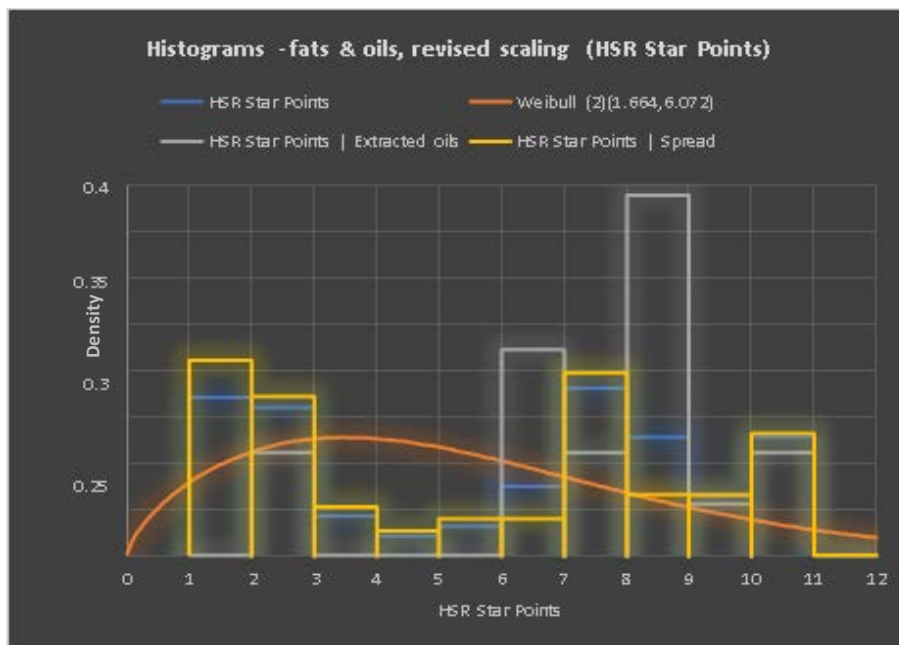
The Weibull curves indicate the likely spread of HSRs for foods within the relevant HSR group given the food data obtained to date. In chart legends, for each food type the colour of its corresponding Weibull curve is indicated immediately after the corresponding food type.

For any sub-category of foods it is important to position each within the broader AGHE/HSR group as the broader groups often consist of healthier and less healthy sub-groups although based on the same FFG source foods.

Figures 3a and 3b: Nutrient sensitivities for fats, oils and spreads before and after re-scaling

- *Before re-scaling*
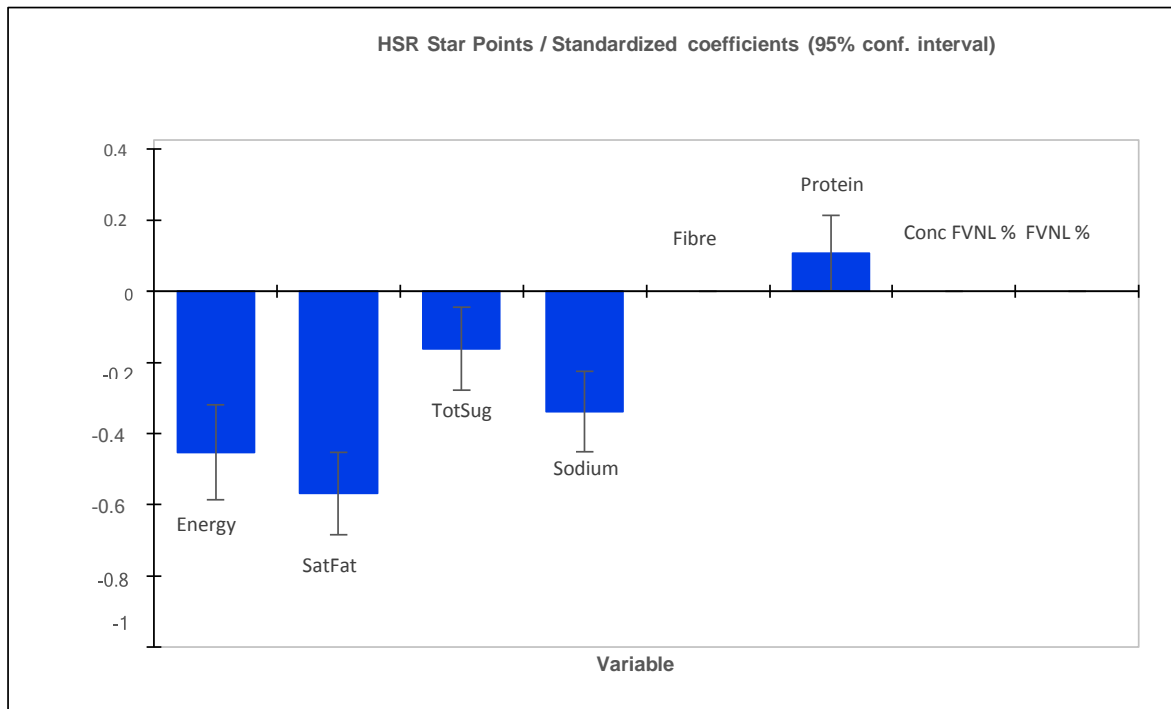
- *After re-scaling*
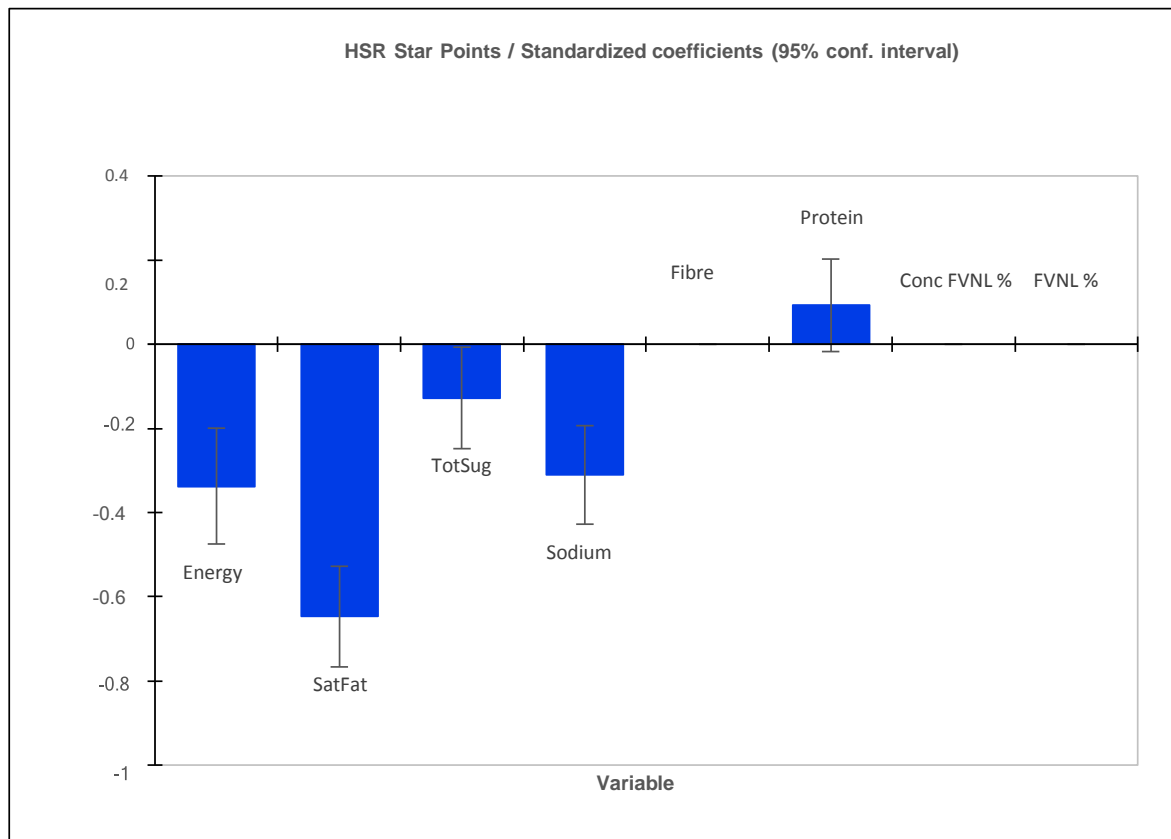
Standardised coefficients indicate the relative impact or leverage that the various HSR nutrients have on the spread of star ratings within a group or category of foods. Standardisation allows an assessment of the relative impact of each nutrient even though the nutrients might be measured on different scales such as kilojoules, grams or milligrams.

APPENDIX 2: Effect of re-scaling the fats, oils and oil-based spreads category on the HSR of FFG and discretionary products

FoPL Evaluation Categories (AGHE-based)	AGHE FFG or Discretionary	Food	Energy (kJ/100 g)	Sat Fat (g/100 g)	Sodium (mg/100 g)	Current HSR	Re-scaled HSR
Spread	FFG	Ultra Light 70% less fat	900	5.7	360	★★★★★	★★★★★
Spread	FFG	Extra light reduced fat spread	890	4.2	390	★★★★★	★★★★★
Spread	FFG	Ultra light	900	5.7	360	★★★★★	★★★★★
Spread	FFG	Extra Light Spread	1170	7.8	340	★★★★★	★★★★★
Spread	FFG	Extra light	1170	7.8	340	★★★★★	★★★★★
Spread	FFG	70% less fat spread	711	4.6	876	★★★★✧	★★★★★
Spread	FFG	Light 50% less fat	1500	9.3	360	★★★★✧	★★★★★
Spread	FFG	Cholesterol lowering light	1500	9.3	360	★★★★✧	★★★★★
Extracted oils	FFG	Canola Oil	3400	8.0	0	★★★★	★★★★★
Extracted oils	FFG	Oil, canola	3400	8.0	0	★★★★	★★★★★
Spread	FFG	Spread light	1750	10.9	350	★★★★	★★★★★
Spread	FFG	Olive	1800	11.0	360	★★★★	★★★★★
Spread	FFG	Light	1770	12.0	360	★★★★	★★★★✧
Spread	FFG	Light Spread	1820	12.3	340	★★★★	★★★★✧
Spread	FFG	Dairy Blend Trim	1480	14.0	400	★★★✧	★★★★✧
Spread	FFG	Lite spread	1930	13.0	400	★★★✧	★★★★✧
Spread	FFG	Spread free from	2240	15.3	10	★★★✧	★★★★✧
Extracted oils	FFG	Peanut Oil	3400	11.6	0	★★★✧	★★★★✧
Extracted oils	FFG	Macadamia oil	3400	12.5	0	★★★✧	★★★★
Extracted oils	FFG	Avocado oil	3713	11.6	0	★★★✧	★★★★
Extracted oils	FFG	Sunflower Oil	3400	13.8	0	★★★✧	★★★★
Extracted oils	FFG	Olive Oil	3390	14.0	0	★★★✧	★★★★
Extracted oils	FFG	Oil, sunflower	3400	13.8	0	★★★✧	★★★★

FoPL Evaluation Categories (AGHE-based)	AGHE FFG or Discretionary	Food	Energy (kJ/100 g)	Sat Fat (g/100 g)	Sodium (mg/100 g)	Current HSR	Re-scaled HSR
Extracted oils	FFG	Extra virgin olive oil	3400	13.3	0	★★★✧	★★★★
Spread	FFG	Light olive	2040	15.0	360	★★★✧	★★★★
Spread	FFG	Original vegetable oil cholesterol lowering	2380	15.0	360	★★★	★★★★
Spread	FFG	Margarine vegetable oils	2650	15.0	360	★★★	★★★★
Extracted oils	FFG	Olive oil	3400	14.1	0	★★★	★★★★
Spread	FFG	Spread Canola	2330	15.8	340	★★★	★★★★
Spread	FFG	Buttery canola	2330	15.8	340	★★★	★★★★
Spread	FFG	Spread vegetable oil cholesterol lowering	2500	15.9	350	★★★	★★★✧
Spread	FFG	Spread lite olive	2060	15.2	380	★★★	★★★✧
Spread	FFG	Buttery vegetable oil cholesterol lowering	2410	15.0	364	★★★	★★★✧
Spread	FFG	Spread vegetable oil cholesterol lowering	2380	15.7	340	★★★	★★★✧
Spread	FFG	Salt Reduced Spread	2420	16.5	340	★★★	★★★✧
Spread	FFG	Light reduced fat spread	1520	18.8	380	★★★	★★★✧
Extracted oils	FFG	Extra Virgin Olive Oil	3680	16.6	0	★★★	★★★✧
Spread	FFG	Canola spreads	2420	16.1	340	★★★	★★★✧
Spread	FFG	Salt reduced	2420	16.5	340	★★★	★★★✧
Spread	FFG	Cholesterol spread	2380	17.0	360	★★★	★★★✧
Spread	FFG	Canola	2420	16.3	360	★★★	★★★✧
Spread	FFG	Salt reduced	2420	17.0	360	★★★	★★★✧
Extracted oils	FFG	Peanut oil	3400	16.6	0	★★★	★★★✧
Spread	FFG	Standard spread olive	2400	17.2	330	★★★	★★★✧
Spread	FFG	Spreads olive	2420	17.2	350	★★★	★★★✧
Spread	FFG	Buttery buttermilk & sunflower	2610	17.0	364	★★★	★★★✧
Spread	FFG	Classico	2420	17.6	360	★★★	★★★✧
Extracted oils	FFG	Peanut Oil	3400	18.4	0	★★✧	★★★

FoPL Evaluation Categories (AGHE-based)	AGHE FFG or Discretionary	Food	Energy (kJ/100 g)	Sat Fat (g/100 g)	Sodium (mg/100 g)	Current HSR	Re-scaled HSR
Extracted oils	FFG	Vegetable Oil	3400	18.4	0	★★✩	★★★
Extracted oils	FFG	Oil, peanut	3400	18.4	0	★★✩	★★★
Extracted oils	FFG	Oil, blended vegetable	3400	18.4	0	★★✩	★★★
Spread	Discretionary	Spreadable Light butter	1540	19.2	511	★★✩	★★★
Spread	FFG	Spread	2420	16.5	590	★★✩	★★★
Spread	FFG	Original	2420	17.0	590	★★✩	★★★
Spread	FFG	Original Spread	2420	16.5	640	★★✩	★★✩
Spread	Discretionary	Soft Spread	2650	22.0	360	★★	★★✩
Spread	Discretionary	Blended Lite	2250	21.5	400	★★	★★✩
Spread	Discretionary	Dairy extra soft salt reduced	2240	26.5	206	★★	★★
Spread	Discretionary	Spreadable soft	2190	24.7	481	★✩	★★
Spread	Discretionary	Blended regular	2610	26.0	400	★✩	★✩
Spread	Discretionary	Lactose free dairy spread	2240	26.5	370	★✩	★✩
Spread	Discretionary	Dairy extra soft salted	2240	26.5	370	★✩	★✩
Spread	Discretionary	with Butter Salt Reduced	2610	29.4	205	★	★✩
Spread	Discretionary	Butter unsalted	3080	54.6	19	★	★
Spread	Discretionary	Butter, Unsalted	3080	54.6	19	★	★
Spread	Discretionary	Butter, Unsalted Cultured	3100	54.0	19	★	★
Spread	Discretionary	Butter Cultured Unsalted	3090	54.7	18	★	★
Spread	Discretionary	Butter Unsalted Cultured Chefs Choice	3090	54.7	18	★	★
Spread	Discretionary	Spreadable Reduced Salt	2630	31.1	270	★	★
Spread	Discretionary	Unsalted Butter	3070	53.6	9	★	★
Spread	Discretionary	with Butter Salt Reduced	2620	30.4	205	★	★
Extracted oils	Discretionary	Palm Oil	3400	44.8	0	★	★
Spread	Discretionary	Copha	3700	92.4	1	★	★

FoPL Evaluation Categories (AGHE-based)	AGHE FFG or Discretionary	Food	Energy (kJ/100 g)	Sat Fat (g/100 g)	Sodium (mg/100 g)	Current HSR	Re-scaled HSR
Spread	Discretionary	Lard	3700	39.0	0	★	★
Spread	Discretionary	Butter soft salt reduced	3020	40.9	270	★	★
Extracted oils	Discretionary	Organic Coconut Oil	3700	93.0	0	★	★
Spread	Discretionary	Reduced Salt	3070	49.6	200	★	★
Spread	Discretionary	Butter Sea Salt	2610	29.4	480	★	★
Spread	Discretionary	Butter, salt reduced	3021	55.1	280	✧	✧
Spread	Discretionary	Soft Dairy Blend Reduced Salt	3050	32.9	350	✧	✧
Spread	Discretionary	Spreadable Original	2630	31.1	480	✧	✧
Spread	Discretionary	with Butter Sea Salt	2620	30.3	595	✧	✧
Spread	Discretionary	Butter Salted	3040	49.1	480	✧	✧
Spread	Discretionary	Natural Butter	3040	57.3	600	✧	✧
Spread	Discretionary	Butter	3030	49.1	600	✧	✧
Spread	Discretionary	Butter	3000	53.1	640	✧	✧
Spread	Discretionary	Butter Salted	3000	53.1	640	✧	✧
Spread	Discretionary	Soft Dairy Blend	3010	32.5	700	✧	✧
Spread	Discretionary	Organic Butter	3060	57.2	630	✧	✧
Spread	Discretionary	Dairy soft	3020	40.9	640	✧	✧
Spread	Discretionary	Butter, salted	3020	55.1	695	✧	✧
Spread	Discretionary	Salted Butter	3017	56.8	695	✧	✧
Spread	Discretionary	Butter, Salted	3060	54.2	640	✧	✧
Spread	Discretionary	Butter salted	3036	56.2	776	✧	✧

*Classification based on the ABS classification in the 4363.0.55.001 - Australian Health Survey: Users' Guide, 2011-13:
http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4363.0.55.001Chapter65062011-13 [Accessed 2 February 2018]. See also Appendix 4.

The outputs of the HSR algorithm align with both the Australian Dietary Guidelines and Health Claims Standard 1.2.7 "NPSC cut-points" with a possibility of 10 different star ratings able to be displayed for foods ranging from ½ star (least healthy) to 5 stars (most healthy).

APPENDIX 3: Fats, oils and oil-based spreads in the Australian Guide to Healthy Eating

APPENDIX 4: ABS classification of fats, oils and spreads as FFG or discretionary[16]

Reported at the 2, 3 and 5-digit level

FFG or Discretionary	Food group	Food Group name
	14	**Fats and oils**
	141	**Butters**
Discretionary	14101	Butter
Discretionary	14102	Butter products
	142	**Dairy blends**
Discretionary	14201	Dairy blend, regular, fat content ≥ 65g/100g
Discretionary	14202	Dairy blend, reduced fat, fat content <65 g/100g
Discretionary	14203	Dairy fats, unspecified type
	143	**Margarine and table spreads**
FFG	14301	Polyunsaturated margarine spreads, fat content ≥ 65g/100g
FFG	14302	Polyunsaturated margarine spreads, fat content <65 g/100g
FFG	14303	Monounsaturated margarine spreads, fat content ≥65 g/100g
FFG	14304	Monounsaturated margarine spreads, fat content <65 g/100g
Discretionary	14305	Cooking margarine
FFG	14306	Margarine spreads with added phytosterols
FFG	14307	Unspecified margarine spread
	144	**Plant oils**
FFG	14401	Polyunsaturated oils
FFG	14402	Monounsaturated oils
FFG	14403	Unspecified vegetable/nut oils
	145	**Other fats**
Discretionary	14501	Animal-based solid fats
Discretionary	14502	Vegetable-based solid fats
Discretionary	14503	Other fats or oils
	146	**Unspecified fats**
Discretionary	14601	Unspecified dairy-based fat or margarine used as a spread
Discretionary	14602	Unspecified fats or oil used in cooking

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[16] Australian Bureau of Statistics. 2014. Australian Health Survey: Users' Guide, 2011-13 — Discretionary Food List. Available at: http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4363.0.55.001Chapter65062011-13

APPENDIX 5: Summary of Submissions related to Fats, oils and oil-based spreads

The **focus on saturated fat as the only fat in the algorithm** was viewed as appropriate by some and not appropriate by others. There was general agreement that the system should distinguish between 'good' and 'bad' fats but disagreement as to what these types of fats were.

- Some said that the system should not include saturated fat noting that the evidence suggests saturated fat is not detrimental to health. Others suggested more emphasis should be placed on saturated fat as a risk nutrient in the Australian diet.

- Some said the system should give negative points to hydrolysed 'refined' seed oils that are high in omega 6 fats because of their role in causing inflammation. Others suggested that trans fat should be included as a risk nutrient in the algorithm, along with saturated fat, because of its adverse effect on heart disease. There was concern that not including trans fat could result in manufacturers using partially hydrogenated oils (high in trans) to reduce saturated fat content and obtain a higher HSR.

- A number of respondents could not understand why 'natural' products such as butter obtained a lower HSR than 'manufactured' products such as margarine.

The system was considered to **not support healthy fat choices** because it favours low fat products and rates some equally healthy fats better than others.

- High fat foods with predominantly healthy fats were considered to be disadvantaged because the algorithm does not take into account their high unsaturated fat content (e.g. spreads, mayonnaise, avocado, nuts and extra virgin olive oil). Those lower in total fat are favoured rather than those high in healthy fats (e.g. low fat margarines rate better than extra virgin olive oil).

- Healthy fats, oils and spreads are all treated the same way in Australian and New Zealand dietary recommendations with a wide range of healthy fats, oils, spreads and nuts recommended to be consumed. As a result, many argued that there should be no reason for them to have different HSR values.

- Furthermore, many oils are natural food products where the saturated and unsaturated fat content will naturally vary which can result in different HSRs for the same oil. These products are also unable to be reformulated to reduce saturated fat or energy content

- The most common example provided was extra virgin olive oil. Respondents reported that the evidence supporting a Mediterranean diet and the health benefits of pressed oils such as extra virgin olive oil should mean that extra virgin oil should score higher than refined oils, and margarine.

Suggested solutions included not using the HSR for single ingredient foods such as oils or changing the algorithm to promote unsaturated fats

- It was recommended the algorithm could address unsaturated fat content or include other beneficial components in the oil to ensure minimally processed oils score a higher HSR.

- The allocation of points for saturated fat content could also be revised to ensure a consistent HSR across all foods high in mono- and polyunsaturated oils.