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

HSR Technical Advisory Group (TAG)

Unprocessed fruits and vegetables

Contents

Summary

Unprocessed fruits rate at an average of 4.5 stars under the current HSR algorithm. Unprocessed vegetables rate at an average of 5 stars.

Dietary guidelines in both Australia and New Zealand encourage consumption of unprocessed fruit and vegetables. More detailed advice from dietary guidelines in both countries recommend more vegetable servings than fruit servings.

Submissions to the five year review of the HSR system held two different views. Many felt that most if not all unprocessed fruits and vegetables should receive 5 stars. Some suggested that the HSR Calculator should be tweaked to ensure this occurred via the algorithm, while others suggested a policy decision should be made to assign an automatic 5 star rating to unprocessed and minimally processed fruits and vegetables. In contrast, other submissions argued that different fruits and vegetables should gain different HSRs due to their differing nutrient contents, particularly with respect to fibre and sugar content. It was also suggested that the HSR system was assigning appropriate ratings to fruits and vegetables and therefore no change was needed.

The TAG has considered three options:

1. Status quo
2. Separate fruits from Category 2 and re-scale upper end of fruits category
3. Assign all unprocessed vegetables and fruits an automatic 5 stars.

All options provide valid outcomes.

Both fruit and vegetables currently receive high HSRs (option 1), reflecting dietary guidance. Although unprocessed fruits currently rate slightly lower than unprocessed vegetables, this also aligns with dietary guidance to consume more vegetables than fruit.

Separating categories and re-scaling (option 2) requires fruits to be treated differently to other HSR Category 2 products, however objectivity is maintained due to continued use of the HSR Calculator to assess and compare nutrient content. This is technically feasible but requires significant changes to the HSR Calculator and guidance documents to create the separate “fruit” category.

A decision to automatically assign 5 stars to all unprocessed and minimally processed fruits and vegetables (option 3) advantages all such products equally, while avoiding the need to create a separate category. This would require a change to HSR guidance documents only.

Problem definition

There is currently no definition of “minimally processed” in the Australia New Zealand Food Standards Code (the Code) or Australian and New Zealand dietary guidelines. However, in recommendations on fruit and vegetable intake, both sets of dietary guidelines include products which may be considered to have undergone minimal processing. As such, the use of the term “unprocessed” here broadly includes products that have been frozen, cut, washed, tinned, peeled and/or blanched to increase their functionality without significantly altering their nutrient content or other properties through, for example, juicing, dehydration, addition of other ingredients and/or other preparations and interventions.

The majority of unprocessed vegetables receive HSRs of 4.5 or 5 in the HSR system. Unprocessed fruits tend to rate slightly lower, with the majority receiving a rating of 4.5 and few receiving HSRs of 4.0 and 5. This difference in HSRs between unprocessed fruits and vegetables is driven mainly by fibre, protein and fruit, vegetable, legume and nut (FVNL) content. Figure 1 shows the drivers of HSRs for unprocessed fruits and vegetables. Figures 2 and 3 demonstrate the current distribution of unprocessed fruits and vegetables in the TAG database.

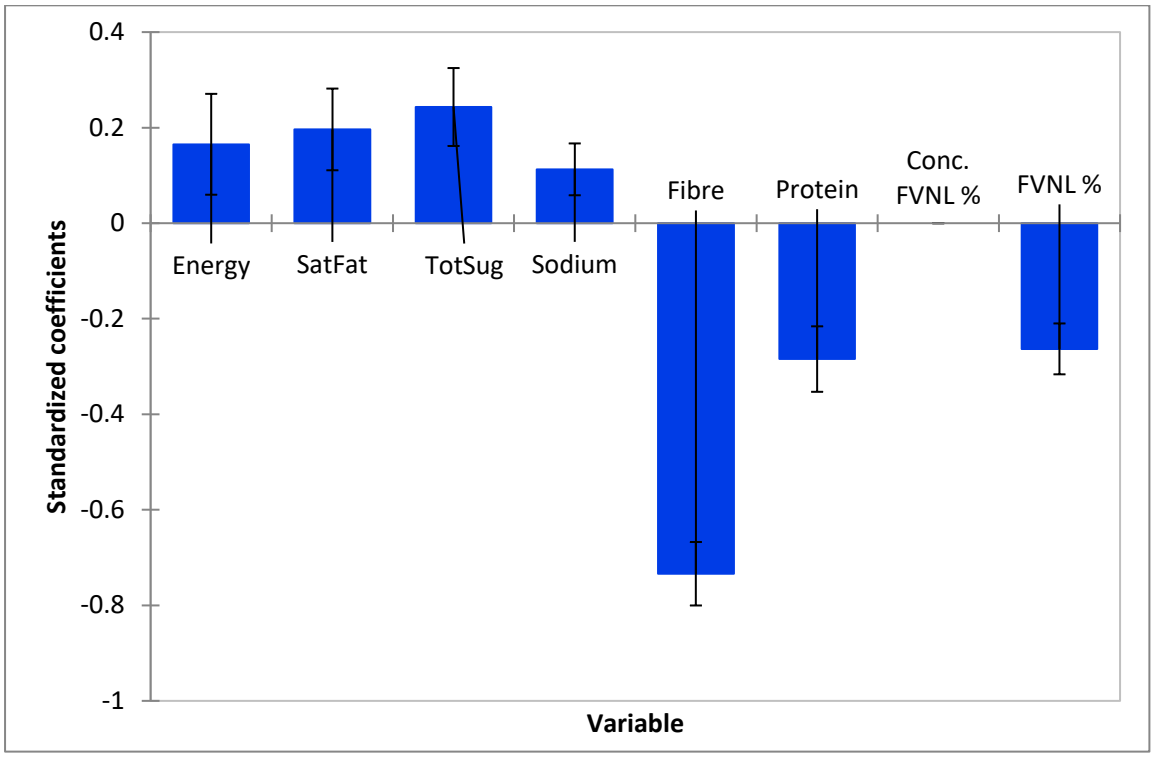

Figure 1: Nutrient/component drivers of HSRs for unprocessed fruits and vegetables in the TAG database

Note: In this figure, standardised coefficients above zero lead to a decrease in HSR while standardised coefficients below zero increase HSR. For these two categories the ratings respond less to the first group (energy, saturated fat (‘SatFat’), total sugars (‘TotSug’) and Sodium) than the latter (Fibre, Protein, FVNL); for other categories negative components usually outweigh positive components 2:1.

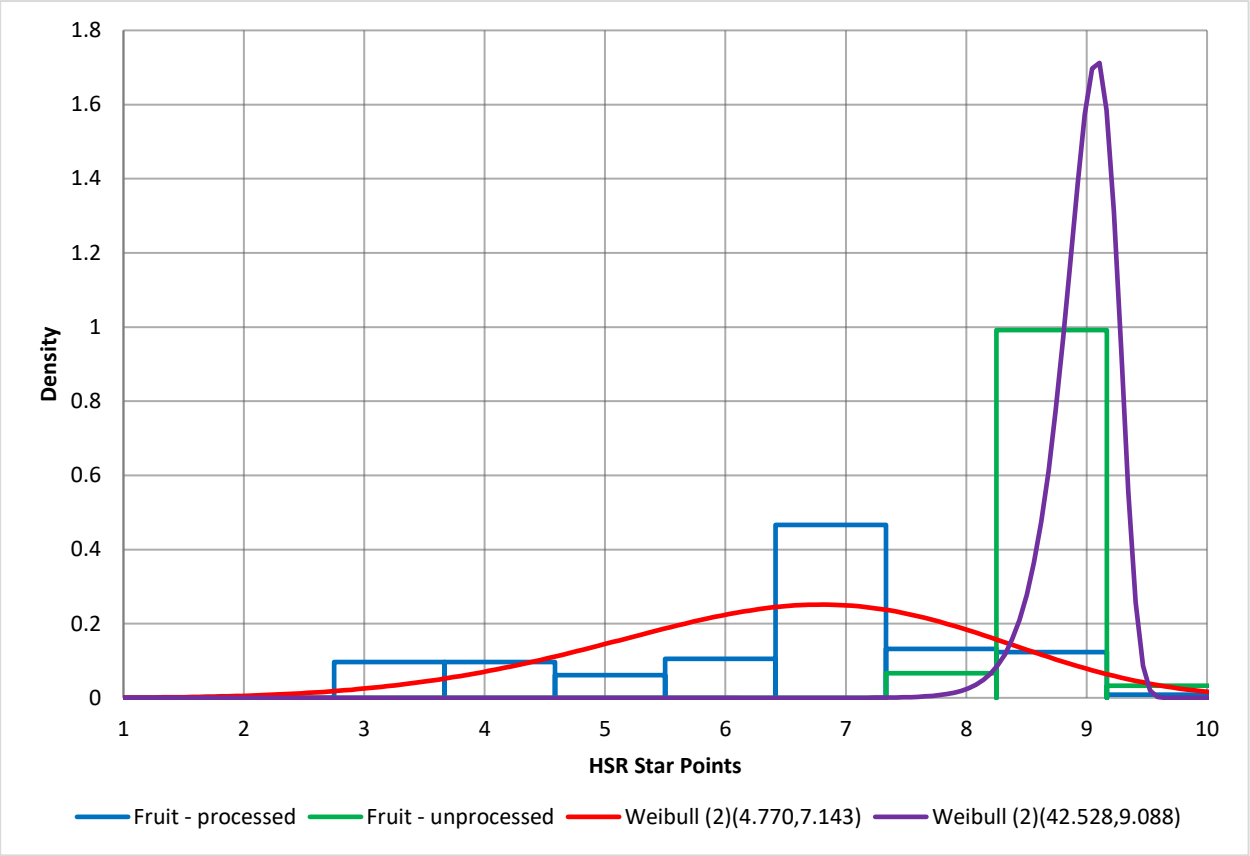

Figure 2: Current distribution of Star Points for processed and unprocessed fruit products, TAG database (n=157)

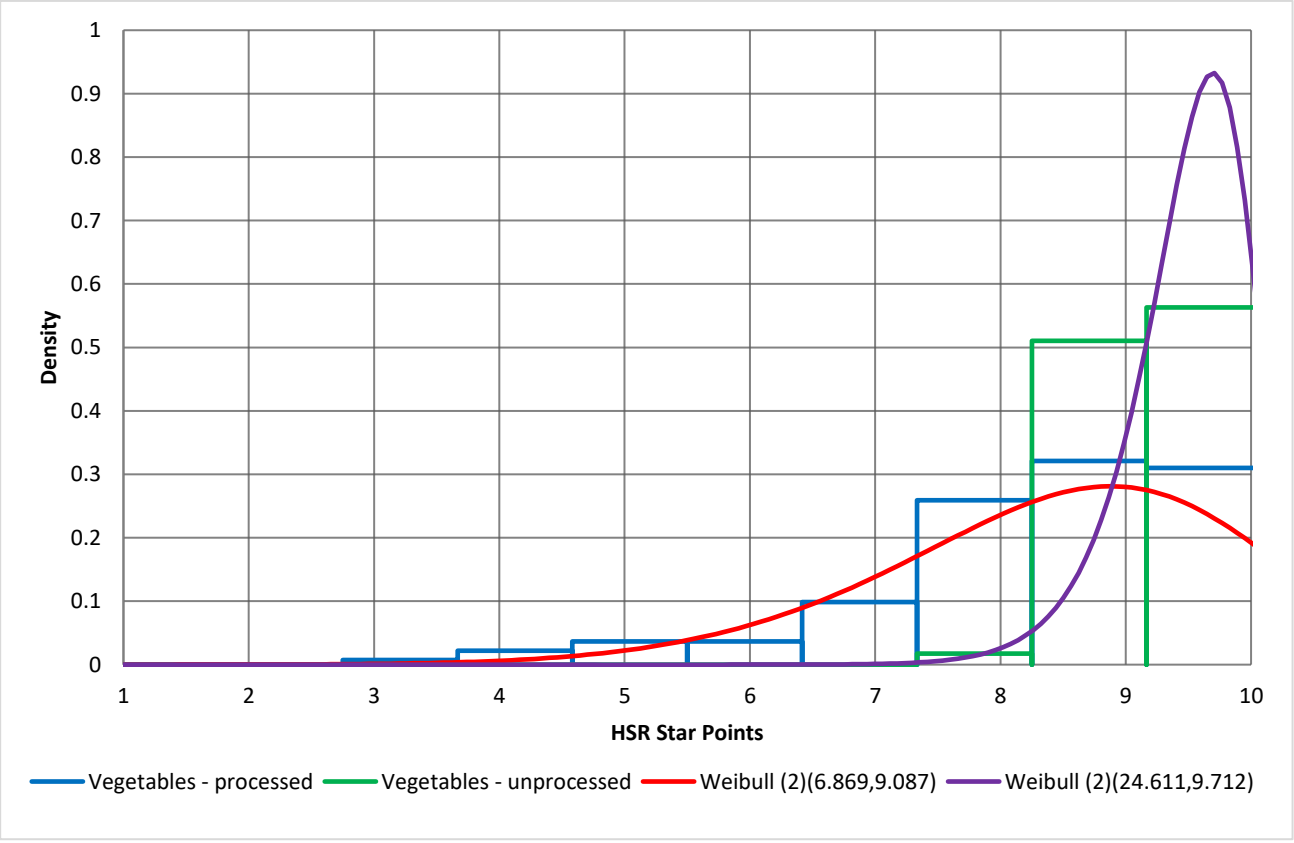

Figure 3: Current distribution of Star Points for processed and unprocessed vegetable products, TAG database (n=361)

Consumption data – fruit and vegetables

Australia

In Australia, in 2011-12:[1]

- Less than 4% of the population aged 2 years and older met the minimum recommended number of serves of vegetables and legumes/beans (5 serves per day) on a regular basis, with <1% of children aged 18 years and below consuming adequate vegetables and those aged 51 and over most likely to meet recommendations (e.g. 7.5% of females aged 51-70, 8.3% of males aged 71+).
- Nearly one-third (31%) of the Australian population consumed the recommended serves of fruit (2 serves per day), with the youngest age groups most likely to meet recommendations (78% of 2-3 year olds, 59% of 4-8 year olds).

New Zealand

In New Zealand, in 2008-09:[2]

- 62% of people aged 15 years and over consumed the recommended serves of vegetables (3 serves per day)
- 60.4% of people aged 15 years and over ate the recommended serves of fruit (2 serves per day)
- More females met the recommendations than men (vegetables – females 72.2%, males 59.3%; fruit – females 65.8%, males 54.6%).

Issues identified in five year review

Issues raised through the five year review are summarised below:

- HSRs for unprocessed fruit are too low and all unprocessed and minimally processed (e.g. frozen fruits with no added ingredients) should gain 5 stars, to align with dietary advice to eat more fruits and vegetables. It was also suggested that when fresh or minimally-processed fruits and vegetables receive less than 5 stars, this sends a confusing message to consumers about the importance of eating fruits and vegetables, which may undermine trust in the HSR system.
- The HSR should also be extended to unpackaged fruits and vegetables, with products to receive either 5 stars or a special 6 star to indicate that they are the healthiest option, outside of the scope of the HSR system and a preferred choice to packaged foods.
- All products that are 100% FVNL should receive 5 stars.
- HSRs for unprocessed fruits and vegetables are appropriate as they do have varying nutrient contents. Scoring all unprocessed fruits and vegetables 5 stars would undermine dietary guidance on recommended number of vegetables and fruits serves per day.
- A blanket 5 star for all unprocessed fruits and vegetables would move the HSR system away from its original intention (i.e. objective, scientific basis of the algorithm) and into the realm of dietary guidelines.

[1] Australian Bureau of Statistics, 2016, Australian Health Survey: Consumption of Food Groups from the Australian Dietary Guidelines, 2011-12, available at http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/4364.0.55.012~2011-12~Main%20Features~Key%20Findings~1

[2] University of Otago and Ministry of Health, 2011, A Focus on Nutrition: Key findings of the 2008/09 New Zealand Adult Nutrition Survey, pp. 218-220, available at https://www.health.govt.nz/publication/focus-nutrition-key-findings-2008-09-nz-adult-nutrition-survey

Alignment with system objectives and policy

Linkages with other TAG work

The issues identified in submissions regarding fruit and vegetables are linked with a number of others that have been raised for consideration in the 5 year review and are being considered by TAG separately:

- 100% fruit juices, as non-dairy beverages - whether it is appropriate that some juices receive equal or higher HSRs to their unprocessed fruit equivalent
- The application of FVNL points - whether it is appropriate for products with fruit, vegetable, nut and legume content to offset negative nutrients
- Treatment of sugars - whether the HSR system should consider only added sugars and/or whether sugar content should be more heavily penalised.

Dietary guidelines

Both the Australian Dietary Guidelines (ADG) and New Zealand Eating and Activity Guidelines (NZEAG) recommend the regular (i.e. every day) consumption of "plenty" of fruit and vegetables. [3,4]

The ADG recommend that adults and children aged nine years and older consume a minimum of 5 servings of vegetables and 2 servings of fruit per day, with recommended intakes for children eight years and younger slightly decreased. According to the ADG, minimally processed fruits and vegetables without added sugar are "nutritious alternatives to raw produce."[5]

The NZEAG recommend that adults consume a minimum of 3 servings of vegetables and a minimum of 2 servings of fruit per day, which can include minimally processed products.[6] In addition, the NZEAG recommend that people should consume products that are "mostly 'whole' and less processed".[7]

Nutrient Profiling Scoring Criterion (NPSC)

In translating the binary NPSC into a continuous scale for the HSR and in order to accommodate a wider range of nutrient content than the NPSC covers, modifications were made to the NPSC tables for some nutrients during the development of the HSR Calculator.

For FVNL and concentrated FVNL, gaps in the existing NPSC tables were filled in at the intermediate to higher FVNL content levels, allowing greater discrimination by the HSR for foods with FVNL at these intermediate levels. The definitions for what can be counted as FVNL remain the same as for the NPSC.

[3] National Health and Medical Research Council, 2013, Australian Dietary Guidelines, p. v, available at https://www.nhmrc.gov.au/_files_nhmrc/file/publications/n55_australian_dietary_guidelines1.pdf
[4] Ministry of Health, 2015, Eating and Activity Guidelines for New Zealand Adults, p. 12, available at https://www.health.govt.nz/system/files/documents/publications/eating-activity-guidelines-for-new-zealand-adults-oct15_0.pdf
[5] National Health and Medical Research Council, 2013, pp. 42-43
[6] Ministry of Health, 2015, Eating and Activity Guidelines for New Zealand Adults, pp. 12-13
[7] Ministry of Health, 2015, Eating and Activity Guidelines for New Zealand Adults, p. 23

Consideration of issues raised in submissions

Additional analysis undertaken

Methods

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 over 5,885 food products across 42 food categories based on the Australian Guide to Health Eating (AGHE) (e.g. fats and oils, cereals, dairy, processed and unprocessed fruits and vegetables, animal protein etc.). Data cover the range of HSR component levels found in Australian and New Zealand foods, including FVNL and fibre content data for all foods where applicable. The data are not independently verified.

The TAG database contains data for 62 unprocessed vegetables and 33 unprocessed fruits.

All data analysis was conducted on the most recent active version of this database using the current version of the HSR algorithm obtainable from the HSR website, or otherwise as defined in the current Guide for Industry[8].

The analysis was undertaken using the most recent version of Microsoft Excel for Mac (version 16.11.1) and the Microsoft software partner add-in application XLSTAT 2017: Data Analysis and Statistical Solution for Microsoft Excel[9]. XLSTAT provides modelling tools that help to predict general trends from limited data. This includes:

- use of Weibull curves (a graphical method of portraying a distribution of malleable shape determined by the underlying data) for predicting the "maximum likelihood" distribution of expected star ratings from limited though high quality data
- standard food modelling techniques for predicting dilution effects on component content
- standardised residuals from linear regression to predict the sensitivity of star ratings to the different components, for example within food categories. When regression is used, 95% confidence intervals or 95% confidence ellipses are used to provide readers with an estimate of the predictive reliability of the underlying data.

Further details of all analysis types and techniques may be obtained from TAG.

Results

See Appendix 1 for a table outlining actual and hypothetical HSRs for unprocessed fruits and vegetables under each option. The findings are discussed in the next section in conjunction with consideration of identified options.

Note that results are often reported by 'Star Points.' These are the raw outputs of the HSR algorithm, corresponding 2:1 to HSRs e.g. 6 Star Points = HSR 3, 5 Star Points = HSR 2.5.

Options to address identified issues

Several options have been identified through submissions or by the TAG:

1. Status quo
2. Separate fruits from Category 2 and re-scale upper end of fruits category
3. Assign all unprocessed vegetables and fruits an automatic 5 stars.

A summary of these options is available at Table 1.

[8] FoPL Secretariat, 2018, Guide for Industry to the Health Star Rating Calculator, v. 6, available at www.healthstarrating.gov.au/internet/healthstarrating/publishing.nsf/Content/guide-for-industry-document
[9] Addinsoft, 2017, XLSTAT 2017: Data Analysis and Statistical Solution for Microsoft Excel

Option 1 – No change/status quo

As noted previously, most unprocessed vegetables receive HSRs of 5 and most unprocessed fruits receive 4.5, with several receiving either 4.0 or 5. Histograms are provided at Figures 2 and 3.

Option 2 – Separate fruits from Category 2 and re-scale upper end of fruits category

A separate fruit category is built into the HSR algorithm but is currently aligned with HSR Category 2 (all foods other than dairy). This fruit category was separated from Category 2 and re-scaled at the upper end.

This brought most unprocessed fruit up to HSRs ≥4.5, as per unprocessed and minimally processed vegetables. Minimally processed fruits were not able to be distinguished from other processed fruits in the TAG database and therefore were not able to be specifically identified in the modelling for this option.

This separation of the fruit category and rescaling of the upper end resulted in the predicted distribution at Figure 4.

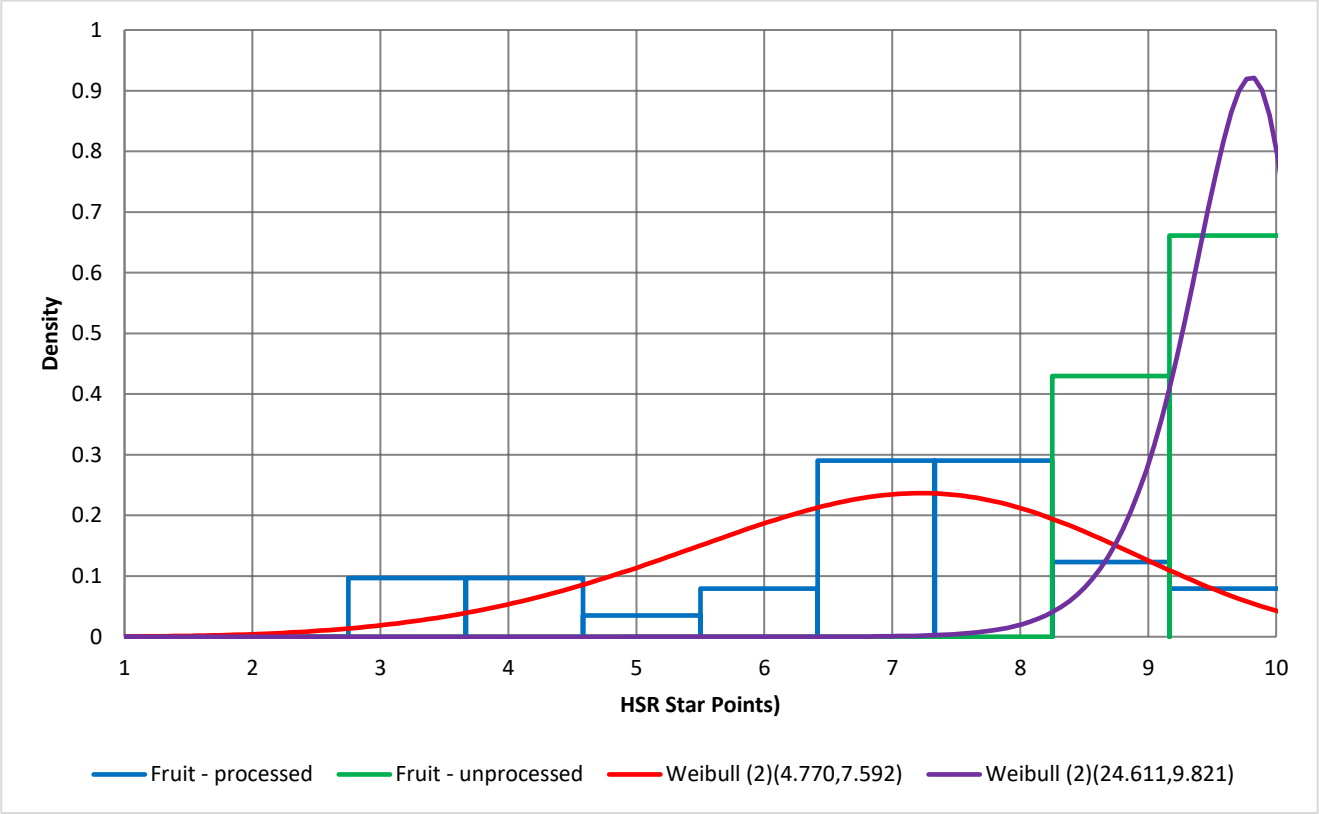

Figure 4: Predicted distribution of Star Points for fruits under option 2, using TAG database (n=157)

This option resulted in minimal change in ratings of processed fruits receiving ≥2 HSRs. Above this, ratings increase so that the majority of unprocessed fruit receives HSRs of 4.5 or 5.

Option 3 – Assign all unprocessed vegetables and fruits an automatic 5 stars

This option did not necessitate any changes to the algorithm and hence no modelling was undertaken. To implement this option guidance on the policy decision, including definitions of "fruit", "vegetable" and variations on "processed," would need be added to HSR system guidance documents. A proposed amendment to the Guide for Industry is at Appendix 2; potential definitions of "fruit" and "vegetables" are provided, however "unprocessed" and "minimally processed" are left blank.

Options summary

Table 1: Outline of options to address issues with the HSRs for fruits and vegetables

Option number	Option	Benefits	Disadvantages	Comments
1	Status quo (no change to ratings for unprocessed fruits)	• Both fruits and vegetables currently receive high HSRs • Preserves intent of HSR system to objectively rate products on nutrient content • Consistent with dietary advice that vegetable intake should be higher than fruit	• Inconsistent with dietary advice recommending high intake of fruit • Some fruit juices currently receive equal or higher HSRs	• Fruits currently rate on average 4.5 (with some receiving 4.0 or 5), vegetables 5
2	Separate fruits from Category 2 and re-scale upper end of fruits category	• Most fruits would be seen to be equal to vegetables, i.e. as "best choices" • Consistent with dietary advice on both fruit and vegetable intake	• May complicate calculation of HSRs	• Most fruits would receive a HSR of 5 • Requires amendment to HSR algorithm (technically feasible) and guidance documents • Sets a precedent for separate treatment of categories in HSR system
3	Assign all unprocessed vegetables and fruits an automatic 5 stars	• All fruits and vegetables clearly seen as "best choices" • Consistent with dietary advice on both fruit and vegetable intake	• Deviates from intent of HSR system to objectively rate products on nutrient content	• Requires amendment to HSR guidance documents • Requires definitions of "fruit," "vegetables" and variations on "processed"/"processing"

Discussion and conclusions

Fruits and vegetables are recommended as an essential part of a healthy diet in both Australia and New Zealand, with both countries' guidelines recommending adults eat a greater number of servings of vegetables than of fruit. Both guidelines also allow products with minimal processing (e.g. freezing, canning) to be included (noting that the NZEAG also emphasise the importance of whole, less processed foods). Fruits and vegetables subject to no or low levels of processing tend to have low amounts of added sugars, salts and saturated fats.

Three options to address issues raised by stakeholders were considered. All three options provide valid outcomes.

Currently both unprocessed fruits and vegetables rate well within the HSR system. However, unprocessed fruits rate on average half a star less than unprocessed vegetables, mainly due to their naturally higher sugar content than most unprocessed vegetables. Given the recommended servings for vegetables per day is greater than the recommended number of servings of fruit per day for both countries, it might be considered that the variance of half a star is warranted, is in alignment with dietary guidance and that consumers would consider both HSRs to indicate the "most healthy" products.

A separate fruit category is built into the HSR algorithm but is currently aligned with HSR Category 2 (all foods other than dairy). This fruit category may be separated from Category 2 and re-scaled at the upper end, resulting in most fruits receiving HSRs of 5 without impacting processed fruits, higher in added sugar, at the lower end of the distribution. There is also no impact on other Category 2 products and objectivity is maintained due to continued use of the HSR Calculator to assess and compare nutrient content. This option is technically feasible but requires significant changes to the HSR Calculator and guidance documents to create the separate "fruit" category, while also setting a precedent to remove other product categories from the broad "food" category. Separating categories and re-scaling (option 2) requires fruits to be treated differently to other HSR Category 2 products.

A policy decision to assign a HSR of 5 to all unprocessed and minimally processed fruits and vegetables advantages all such products equally, while avoiding the need to create a separate category or to alter the HSR Calculator. This would require a change to HSR guidance documents only. This would, however, move the HSR system further from its objective of providing a summary of the balance of nutrient content. Such a policy decision would require a clear definition of "processing" and/or "processed" in order to provide clear guidance.

APPENDIX 1: Ratings for unprocessed fruit and vegetables, options 1-3

Key: HSR = 5.0 = ★★★★★

HSR = 4.5 = ★★★★✧

HSR = 4.0 = ★★★★

HSR Category	FoPL Evaluation Categories (AGHE-based)	Food	HSR Option 1 Status quo	HSR Option 2 Re-scaled	HSR Option 3 Policy 5 stars
Fruit	Fruit - unprocessed	Raspberry, raw	★★★★★	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Rockmelon, raw	★★★★✧	★★★★✧	★★★★★
Fruit	Fruit - unprocessed	Apple, pink lady, unpeeled, raw	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Apricot, raw	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Banana, cavendish, peeled, raw	★★★★✧	★★★★✧	★★★★★
Fruit	Fruit - unprocessed	Blueberry, raw	★★★★✧	★★★★✧	★★★★★
Fruit	Fruit - unprocessed	Cherry, raw	★★★★✧	★★★★✧	★★★★★
Fruit	Fruit - unprocessed	Grape, thompson seedless or sultana, raw	★★★★✧	★★★★✧	★★★★★
Fruit	Fruit - unprocessed	Grapefruit, peeled, raw	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Kiwifruit, hayward, peeled, raw	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Lemon, peeled, raw	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Mandarin (imperial), peeled, raw	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Mango, peeled, raw	★★★★✧	★★★★✧	★★★★★
Fruit	Fruit - unprocessed	Melon, rockmelon (cantaloupe), peeled, raw	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Melon, watermelon, peeled, raw	★★★★✧	★★★★✧	★★★★★
Fruit	Fruit - unprocessed	Nectarine, unpeeled, raw	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Orange, navel (all varieties), peeled, raw	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Peach, unpeeled, raw	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Pear, unpeeled, raw	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Pineapple (cayenne), peeled, raw	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Plum, unpeeled, raw	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Strawberry, raw	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Apple red delicious, raw	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Peach, raw, unpeeled	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Banana, Cavendish raw	★★★★✧	★★★★✧	★★★★★
Fruit	Fruit - unprocessed	Grape, green, raw	★★★★✧	★★★★✧	★★★★★
Fruit	Fruit - unprocessed	Apple red skinned, unpeeled, raw	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Orange, navel raw peeled	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Strawberry, raw	★★★★✧	★★★★★	★★★★★
Fruit	Fruit - unprocessed	Blueberry, raw	★★★★✧	★★★★✧	★★★★★
Fruit	Fruit - unprocessed	Mango, raw	★★★★✧	★★★★✧	★★★★★
Fruit	Fruit - unprocessed	Pineapple, raw	★★★★	★★★★✧	★★★★★
Fruit	Fruit - unprocessed	Lychee, peeled, peeled, raw	★★★★	★★★★✧	★★★★★

HSR Category	FoPL Evaluation Categories (AGHE-based)	Food	HSR Option 1 Status quo	HSR Option 2 Re-scaled	HSR Option 3 Policy 5 stars
Vegetables	Vegetables - unprocessed	Asparagus, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Bean, green, fresh, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Beetroot, fresh, peeled, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Broccoli, fresh, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Brussels sprout, fresh, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Cabbage, bok choy, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Cabbage, red, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Carrot, mature, peeled, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Cassava, peeled, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Cauliflower, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Celeriac, peeled, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Chilli (chili), red, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Chives, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Coriander, fresh, leaves & stems	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Garlic, peeled, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Kohlrabi, peeled, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Leek, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Mushroom, common, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Onion, mature, brown skinned, peeled, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Parsley, continental, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Parsnip, peeled, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Pea, green, fresh, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Snowpea, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Spinach, English, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Sprout, alfalfa, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Sweet potato, orange flesh, peeled, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Green Bean, fresh, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	English spinach	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Mushroom, common raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Carrot, peeled raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Onion, mature brown, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Asparagus, raw	★★★★★	★★★★★	★★★★★
Vegetables	Vegetables - unprocessed	Cabbage, white, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Capsicum, green, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Capsicum, red, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Carrot, baby, peeled, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Celery, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Choko, peeled, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Cucumber, Lebanese, unpeeled, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Eggplant, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Endive, raw	★★★★✧	★★★★✧	★★★★★

HSR Category	FoPL Evaluation Categories (AGHE-based)	Food	HSR Option 1 Status quo	HSR Option 2 Re-scaled	HSR Option 3 Policy 5 stars
Vegetables	Vegetables - unprocessed	Fennel, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Ginger, peeled, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Lettuce, cos, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Lettuce, iceberg, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Lettuce, mignonette, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Onion, spring, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Potato, desiree, peeled, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Pumpkin, butternut, peeled, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Pumpkin, peeled, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Radish, red skinned, unpeeled, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Silverbeet, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Squash, button, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Sweetcorn, fresh on cob, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Tomato, cherry, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Tomato, common, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Zucchini, green skin, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Capsicum, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Tomato, common, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Tomato common raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Lettuce, iceberg, raw	★★★★✧	★★★★✧	★★★★★
Vegetables	Vegetables - unprocessed	Avocado, hass, raw	★★★★	★★★★	★★★★★

APPENDIX 2: Option 3: proposed amendment to the Guide for Industry[10]

Note that the TAG paper on non-dairy beverages includes a proposal to amend this section of the Guide for Industry to more clearly highlight the automatic rating for plain water.

Suggested new text is shown in red below.

Step 1: Determine the HSR category of the food

There are two major categories in the HSRC, i.e. non-dairy food and dairy foods with three categories under each of them, where specific criteria (e.g. calcium content of the food product) is used to determine if a food product is classified as a dairy food. The category of the food product determines which steps are to be followed to determine its HSR.

The six categories of foods in the HSRC are:

- Category 1 Beverages other than dairy beverages
- Category 1D Dairy beverages
- Category 2 All foods other than those included in Category 1, 1D, 2D, 3 or 3D
- Category 2D Dairy foods other than those included in Category 1D or 3D
- Category 3 Oils and spreads, defined as follows
    - edible oil as defined in Standard 2.4.1
    - edible oil spreads as defined in Standard 2.4.2
    - margarine as defined in Standard 2.4.2
    - butter as defined in Standard 2.5.5
- Category 3D Cheese and processed cheese as defined in Standard 2.5.4 (with calcium content >320 mg/100 g)

An automatic five star rating applies to *unprocessed* or *minimally processed* fruit or vegetables (as defined in Australian New Zealand Food Standards Code Standard 1.2.7 and Standard 1.2.8)[1] or mixtures of these (e.g. mixed berries, mixed vegetables).

For the purposes of the above, ***unprocessed*** means… and ***minimally processed*** means…

Note 1:

> ***fruit*** means the edible portion of a plant or constituents of the edible portion that are present in the typical proportion of the whole fruit (with or without the peel or water); and does not include nuts, spices, herbs, fungi, legumes and seeds.
>
> ***vegetable*** means the edible portion of a plant or constituents of the edible portion that are present in the typical proportion of the whole vegetable (with or without the peel or water) and does not include nuts, spices, herbs, fungi, dried legumes (including dried legumes that have been cooked or rehydrated) and seeds.

[10] FoPL Secretariat, 2018, Guide for Industry to the Health Star Rating Calculator, v. 6, p. 5