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Supporting document 4

Update of nutrition content claims literature review – Application
A1090

Voluntary Addition of Vitamin D to Breakfast Cereals

Executive summary

This Supporting Document provides a general update of the 2012 nutrition content claims literature review written for Proposal P293 – Nutrition, Health & Related Claims. It compares and contrasts the findings of newer studies with those included in the original literature review.

FSANZ drew on the findings of the original literature review in the Approval Report and the July 2016 consultation paper during the review of FSANZ's decision arising from A1090. The Review Report draws on the findings of this update.

The update of the original nutrition content claims review has found that the results from some of the newer research are consistent with the original review whereas others are inconsistent.

The update finds that, in contrast to the original literature review, some newer studies find that nutrition content claims can increase perceptions of the overall nutritional value of a food. The mixed findings in the literature regarding this question suggest that the effects of nutrition content claims are likely to depend on the specific food-claim combination.

Only one new study was found which examined the effects of nutrition content claims on the health effects consumers perceive foods to have. In contrast to the findings of the original review, this study found that perceptions of the health benefits of food products were increased by the presence of a nutrition content claim.

Consistent with the original literature review, nutrition content claims appear to influence consumers' choices. The effect tends to depend on the specific food-claim combination.

There was some evidence from newer studies that nutrition content claims may increase consumers' purchase intentions. No new experimental evidence was found on the effect of nutrition content claims on actual purchases. The shortage of evidence for this particular question leads FSANZ to make no firm conclusion regarding this issue.

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1 Background

Nutrition content claims are one of the main ways that consumers learn about added vitamins and minerals in food products (Food Standards Australia New Zealand 2013). In 2012, FSANZ reviewed the literature on the impacts of nutrition content claims on consumers for P293 – Nutrition, Health & Related Claims¹. This document reports on the findings of an update to the literature review and compares and contrasts these with the findings from the original nutrition content claims literature review.

2 Updating the literature review

2.1 Scope

As with the original nutrition content claims literature review, this update attempts to answer the following questions:

- Are consumers' nutrition perceptions of products influenced by nutrition content claims?
- Are consumers' health perceptions of products influenced by nutrition content claims?
- Do nutrition content claims influence consumers' purchase intentions or choices?
- Do nutrition content claims influence consumers' food purchases or consumption?

2.2 Inclusion and exclusion criteria

2.2.1 Study method

The original literature review included findings from a variety of different study designs, but the conclusions focused on the findings from studies which used experiments. For the literature review update only studies that used experiments to examine the effects of nutrition content claims were used.

Other study designs, such as focus groups and surveys, can be useful for understanding consumers' beliefs and perceptions. However, a wide range of consumer behaviours are influenced by factors outside of consumers' conscious awareness (Chartrand and Fitzsimons 2011). Many food choices are likely to fall within this range of consumer behaviours, as these decisions are generally made quickly and with relatively little cognitive effort devoted to the decision (Wansink and Sobal 2007). Consequently, consumers' insights (from direct questioning) into the factors causing their food choices (e.g. the presence of claims) may not accurately reflect the impact of these factors (Klepacz et al. 2016). Asking consumers directly about what they infer from particular claims could lead to misleading results by either:

- a) prompting consumers to pay greater attention to and process claims using more cognitive effort than they normally would. The effect of the claim (or lack thereof) on perceptions of the product may, as a result, be an artefact of the study rather than an accurate representation of what happens in real life, or
- b) finding that consumers report not being influenced by the claims (when this may be untrue) as consumers are not conscious of the influence the claims have had on their perceptions or behaviour.

¹ http://www.foodstandards.gov.au/code/proposals/documents/P293_SD4.pdf

2.2.2 Stimuli

Food labels

The research needed to examine the effects of nutrition content claims located on food labels. The effects of nutrition content claims displayed in other media (e.g. advertisements, websites) were not examined in this update.

Nutrition information

One of the findings of the original nutrition content claims review was that the availability of nutrition information in rating experiments appeared to be important. Whereas rating experiments in which participants *did not* have access to nutrition information (e.g. the nutrition information panel) tended to find that nutrition content claims influenced outcomes such as purchase intention and perceptions of nutritiousness, these effects tended to disappear when nutrition information was available. Consequently, where rating experiments are included in this literature review they are limited to experiments in which participants had access to nutrition information. This could be visible by default (without the participant needing to click anything) or visible when the participant clicked to access the nutrition information.

Control

To be eligible for inclusion in this literature review update, experiments needed to include a control against which nutrition content claims were compared. This could be a label with no claim or a label with a claim that would not be expected to influence perceptions of nutritiousness (e.g. taste claims).

2.2.3 Outcome measures

To be eligible for inclusion in this literature review update, experiments needed to include one or more of the following outcome measures:

- perceptions of the overall nutritional value or healthiness of the food
- perceptions of the health benefits of consuming the food, or the types of people who might benefit from consuming the food
- purchase intentions for or choices of the food
- actual purchases or consumption of the food

2.2.4 Other criteria

Articles need to be available in English and published in a peer-reviewed journal.

2.3 Literature searching

Searching was conducted for articles published from 2011 onwards². The searching was conducted in September 2016. The search string “nutrition content claim” was used in the following databases via the EBSCOhost platform:

² The original 2012 nutrition content claims literature review included studies published between January 2007 and October 2011. Any articles published in 2011 and already included in the 2012 literature review were excluded from the update.

- EconLit
- Food Science Source
- Food Science and Technology Abstracts
- MEDLINE
- SocINDEX

In addition, an internal FSANZ database of social science literature was searched for articles using the keyword 'nutrition content claims'. Articles cited by submitters to the July 2016 consultation paper were also examined.

Articles were first screened on title and abstract using the inclusion and exclusion criteria above. The full text of the remaining articles was then retrieved for full text screening.

2.3.1 Relevant articles for update

Nine articles were eligible for inclusion in the literature review update (McLean et al. 2012; Wong et al. 2013; Dixon et al. 2014; Maubach et al. 2014; Van Wezemaal et al. 2014; Wong et al. 2014; Zank and Kemp 2014; Sutterlin and Siegrist 2015; Ares et al. 2016). The articles looked at the effects of a range of nutrition content claims on a range of different foods. Two of the articles included nutrition content claims relating to vitamin or minerals content (Dixon et al. 2014; Van Wezemaal et al. 2014). In one of these, the analysis examines the effect of nutrition content claims in general on consumers' perceptions and preferences (i.e. the effects of different nutrition content claims are not compared) (Dixon et al. 2014). The second article does include separate analysis of an iron nutrition content claim compared to protein and saturated fat claims (Van Wezemaal et al. 2014).

3 Findings

3.1 Are consumers' nutrition perceptions of products influenced by nutrition content claims?

Concerns have previously been raised that consumers may make inappropriate assumptions based on the presence of a nutrition content claim. These could include assumptions about the overall nutritiousness of the food, or of other nutrients not mentioned in the nutrition content claim. An example would be a consumer seeing a 'no added sugar' claim on a muesli product and assuming that the product with the claim had lower levels of sugar than other mueslis.

The original literature review found that in experiments where participants had access to nutrition information (e.g. a nutrition information panel) for the products they were examining, nutrition content claims *did not* alter participants' perceptions about the overall nutritional value of the products. These studies were typical rating experiments in which participants were shown a range of products (some with nutrition content claims and some without) and asked to rate the nutritional value of each product. The average rating for products with and without nutrition content claims was then compared. This finding was consistent with the experiments commissioned by FSANZ for P293³.

Some studies did find that perceptions of the level of the target nutrient in a claim were influenced by the presence of nutrition content claims. For example, people's perceptions of the level of carbohydrates in a production may be influenced by the presence of a 'low carb' claim.

³ <http://www.foodstandards.gov.au/code/proposals/Documents/P293-RMR%20Report-Attach10.2.pdf>
http://www.foodstandards.gov.au/code/proposals/documents/P293_SD2%20Roy%20Morgan%20study.pdf

Standard 1.2.7 – Nutrition, health and related claims includes criteria that must be met regarding the levels of nutrients included in nutrition content claims.

More recent experiments have found that some nutrition content claims *do* appear to increase consumers' perceptions of the overall nutritional value of a product, even when nutrition information is available to study participants. These findings are in contrast to those of the original literature review.

Of the newer studies identified in the literature searching, five examined whether nutrition content claims influenced consumers' perceptions of the overall nutritional value of foods (Wong et al. 2013; Dixon et al. 2014; Wong et al. 2014; Zank and Kemp 2014; Sutterlin and Siegrist 2015). All five found that the nutrition content claims influenced perceptions of the overall nutritional value or healthiness of the food products. One study (Sutterlin and Siegrist 2015) found that a nutrition content claim influenced perceptions of 'healthiness' but not 'nutritiousness'.

3.2 Are consumers' health perceptions of products influenced by nutrition content claims?

Another concern is that consumers may make inappropriate assumptions about the health benefits of a food when it carries a nutrition content claim, for example, that consuming a food labelled as 'low in fat' will help them lose weight.

Similarly to the findings on nutrition perceptions, the original literature review found that experiments only tended to find effects from nutrition content claims on health perceptions where nutrition information was not available. For example, a study by Labiner-Wolfe et al. (2010) found that low carbohydrate claims increased participants ratings for how helpful products would be for weight management when nutrition information was absent. However, when nutrition information (a nutrition facts panel) was available on the products, the effect of the claims disappeared.

Only one more recent study (Dixon et al. 2014) was found which examined the effects of nutrition content claims on the health benefits of food products. Dixon et al. (2014) found that the presence of nutrition content claims on products tended to increase the perception among participants that the products would make them feel healthy or fit. Participants had access to nutrition information for the products they were rating. This is in contrast to the findings of the original literature review.

3.3 Do nutrition content claims influence consumers' purchase intentions or choices?

Both rating studies and choice experiments have been used to examine the effects of nutrition content claims on consumers' purchase intentions and choices. The original literature review found that these two designs tended to find different results. The rating studies tended to find no effect from nutrition content claims on purchase intentions when nutrition information was available. This is consistent with the findings of FSANZ's P293 experiments. In contrast, the choice experiments tended to find that nutrition content claims affected participants' choices, generally (but not always) increasing the likelihood of them choosing a product carrying a claim.

In the rating experiments, participants were shown a mixture of products with and without claims. They rated their purchase intention or preference for each product. The studies were designed to examine whether two products which are otherwise the same (e.g. same brand, same nutritional profile) would receive different ratings for people's purchase intentions if one carried a nutrition content claim and the other did not.

The original literature review found that when people were able to access nutrition information their purchase intentions for products with and without nutrition content claims did not differ.

In choice experiments participants are asked to choose their preferred option from a series of 'choice sets' consisting of two or more options or products side by side. As noted above, nutrition content claims tended to have an effect in choice experiments. The effect was not consistent among all product and claim combinations, with one product and claim combination finding no effect (yoghurt and a '0% fat' claim). However, nutrition content claims generally increased the likelihood of the product carrying the claim being chosen.

The difference in findings between rating studies and choice studies appears to be due to the difference in methodology. Two studies (Maubach 2010; Dixon et al. 2011) incorporated both methods and found the same pattern – no effect from claims in the rating component, but an effect detected in the choice component.

Other more recent studies have found mixed effects. Some are consistent with the findings of the original literature review, while others are not. Of the more recent studies, five included a choice experiment component (McLean et al. 2012; Dixon et al. 2014; Maubach et al. 2014; Van Wezemaal et al. 2014; Ares et al. 2016). Three found that nutrition content claims increased the likelihood of a consumer choosing a product (Dixon et al. 2014; Van Wezemaal et al. 2014; Ares et al. 2016). One found mixed results, with claims sometimes influencing choices and other times not (McLean et al. 2012). One study found no effect from a nutrition content claim on choices (Maubach et al. 2014). These findings from choice experiments are consistent with those from the original literature review, which found that nutrition content claims often (but not always) increased the chances of a consumer choosing a product. This effect appears to depend on the specific food-claim combination being tested.

Three studies included a rating experiment component to examine the effect of nutrition content claims on purchase intentions (Wong et al. 2013; Wong et al. 2014; Ares et al. 2016). Two of these found (contrary to the original literature review) that nutrition content claims increased participants' purchase intentions in a rating experiment (Wong et al. 2013; Wong et al. 2014). One study (Ares et al. 2016) found that in a rating experiment nutrition content claims did not increase preferences for a food product. This is consistent with the findings of the original literature review.

3.4 Do nutrition content claims influence consumers' food purchases or consumption?

The original literature review found one study which used an experiment to examine the effects of nutrition content claims on purchases of food products (using sales data). This experiment found support for a causal relationship between nutrition content claims and sales.

The experiment tested whether nutrition content claims influenced sales of microwave popcorn in a supermarket (Kiesel and Villas-Boas 2013)⁴. This was the only study in the review which was able to demonstrate that nutrition content claims may influence consumers' real life food purchases within a particular food category. There were a number of differences between the study and real life, however. In particular, the nutrition content claims were displayed as shelf tags on all eligible products, which is very different to the ad hoc way in which food manufacturers choose to display nutrition content claims on their products.

⁴ The article was available in press from 2010 and so was able to be included in the 2012 literature review.

The 'No trans fats' and 'low calorie' claims were associated with increases in sales. In contrast, 'low fat' labels were associated with reductions in sales.

No new studies were found which used an experimental design to examine whether nutrition content claims influenced food purchases or consumption.

4 Conclusion

This update of the original nutrition content claims review has found that the results from some of the newer research are consistent with the original review. Others are inconsistent.

The main area of divergence from the original literature review relates to whether consumers' perceptions of the nutritional value of food products are influenced by nutrition content claims. The original literature review found that, where consumers had access to nutrition information, nutrition content claims *did not* increase their perceptions of the overall nutritional value of food products. In contrast to this, five newer studies found that nutrition content claims *did* increase perceptions of the nutritional value of food products carrying them. The mixed findings in the literature regarding this question suggest that the effects of nutrition content claims are likely to depend on the specific food-claim combination.

With regard to the perceived health benefits of products carrying nutrition content claims, only one new study was identified. Contrary to the findings of the original nutrition content claims review, this found that perceptions of the health benefits of products *were* increased by the presence of a nutrition content claim. It's not clear why the results of this study diverged from the previous literature. This divergence could be due to specific food-claim combinations having different effects. Alternatively, it could be due to differences in research methods used.

The original literature review found that the effect of nutrition content claims on choices and purchase intentions depended on the study design. Rating studies tended to find that nutrition content claims did not influence consumers' purchase intentions when nutrition information was available. In contrast, choice experiments tended to find that nutrition content claims did influence consumers' choices. The newer literature finds some support for the effect of nutrition content claims on choices. Findings with regards to newer ratings studies are mixed, with some finding an effect on purchase intention. FSANZ concludes that nutrition content claims may influence consumers' choices. This effect is likely to depend on the specific food-claim combination.

No new sales data experiments were identified in the literature review update. The one sales data experiment (from the original literature review) found nutrition content claims influenced purchases. However, the shortage of evidence for this particular research question leads FSANZ to make no firm conclusion regarding this issue.

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