

Asparagus nutrient and health claims

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1 Objective

To provide the New Zealand Asparagus Council with nutrient content and pre-approved health claims permissible under New Zealand regulations for asparagus.

2 Background

Food Standards Australia New Zealand (FSANZ) regulations dictate what nutrient content and health claims can be made on food in New Zealand. There are three important schedules under the Australia New Zealand Food Standards Code:

- Schedule 1 — RDIs and ESADDIs (Food Standards Australia New Zealand 2018a),
- Schedule 4 — Nutrition, health and related claims (Food Standards Australia New Zealand 2017a), and
- Schedule 12 — Nutrition information panels (Food Standards Australia New Zealand 2017b).

To determine the significance of nutrients and apply pre-approved health claims it is important that they are expressed on a percent recommended dietary intake (RDI) basis. Vitamins and minerals can be claimed as a source at 10% RDI and a good source at 25% RDI per serve (as specified by FSANZ 2017a). The exception is potassium where 200 mg must be present in a serve to claim. Dietary fibre is claimable as a source at 2 g per serve. When nutrients meet the prescribed concentrations, a list of pre-approved health claims can be used. To use pre-approved health claims, foods must also meet the Nutrient Profiling Scoring Criterion (NPSC). The NPSC is a nutrient profiling system used to determine whether a food is suitable to make a health claim based on its nutrient profile. The NPSC takes into account the energy, saturated fat, sodium and sugars content of the food along with certain ingredients such as fruit and vegetables and, in some instances, dietary fibre and protein. Taking these components into account, points are allocated based on 100 g or 100 mL of the food (based on the units used in the nutrition information panel, NIP). Asparagus easily meets the NPSC criteria and thus health claims can be made.

To make health claims (either on pack or on associated promotional material, including websites), the law requires certain information as follows:

- NIP displaying the nutrient content of the vegetable, including any nutrients for which claims are made (although not always mandatory for fresh vegetables, this must be included if claims are made), and
- Appropriately worded nutrient content and health benefit claims that link the nutrient(s) present in the vegetable (e.g. vitamin C) at relevant levels ($\geq 10\%$ RDI/serve) with a health benefit (e.g. immunity). So for example, x is a good source of vitamin C to support a healthy immune system.

3 Nutrient composition of asparagus

To determine those nutrients present in asparagus at concentrations of nutritional significance, data have been taken from the New Zealand Food Composition Database (NZFCD). The entry X1107 for steamed, fresh asparagus was chosen because asparagus is most frequently consumed cooked rather than raw and steaming is the recommended cooking method as boiling usually results in lower concentrations of water-soluble nutrients (New Zealand Food Composition Database 2019). A serving size of 80 g (~5 stalks) has been used (although FSANZ does not legislate serving sizes this is in line with general recommendations). The data for a possible NIP are given in Table 1.

Table 1. Nutritional composition of steamed, fresh asparagus (data from New Zealand Food Composition Database 2019; FoodID X1107).

	Quantity per Serving	Daily intake per serve	Quantity per 100 g
Energy	80 kJ	1%	100 kJ
Protein	2.3 g	5%	2.9 g
Fat, total	0.2 g	0%	0.2 g
– saturated	0.05 g	0%	0.06 g
Carbohydrate, available	1.4 g	0%	1.7 g
– sugars	1.4 g	2%	1.7 g
Dietary fibre	1.5 g	5%	1.9 g
Sodium	0 mg	0%	0 mg
Folate	101 µg	51% RDI	126 µg
Niacin (vitamin B3)	1.43 mg	14% RDI	1.79 mg
Pantothenic acid	0.51 mg	10% ESADDI	0.64 mg
Riboflavin (vitamin B2)	0.20 mg	12% RDI	0.25 mg
Thiamin (vitamin B1)	0.15 mg	14% RDI	0.19 mg
Vitamin C	6 mg	16% RDI	7.9 mg
Potassium	212 mg	-	265 mg

% Daily intakes are based on an average adult diet of 8700 kJ. Your daily intakes may be higher or lower depending on your energy needs

RDI = Recommended Dietary Intake

ESADDI = Estimated Safe and Adequate Daily Dietary Intake

Based on the nutrient content of asparagus, possible nutrient content claims are:

- Asparagus is a good source of folate
- Asparagus is a source of niacin
- Asparagus is a source of pantothenic acid
- Asparagus is a source of riboflavin (vitamin B2)
- Asparagus is a source of thiamin (vitamin B1)
- Asparagus is a source of vitamin C
- Asparagus contains potassium.

Any number of these claims could be used, but usually it is best to focus on 2–3 nutrients on promotional material rather than including them all. Associated website and/or associated social media content can provide additional information. It may be best to focus on those nutrients that have the greatest percentage RDI (e.g. folate) and/or have possible common pre-approved health claims in an area that may make a good marketing story (see below).

4 Potential health claims

For the nutrients in asparagus that can have content claims, there is a large number of possible pre-approved health claims detailed in Schedule 4 of the Food Standards Code (Food Standards Australia New Zealand 2017a). These general level health claims are all outlined in Table 2. Note that under the regulations the wording of the claims can be modified to more consumer friendly language, but the intent of the claim must not be changed. Note that the FSANZ Code prohibits use of terms that could indicate enhancement of function (e.g. improve, boost, enhance, increase).

Table 2. Possible pre-approved general level health claims that could be made for the claimable nutrients in asparagus (Food Standards Australia New Zealand 2017a).

Nutrient	Pre-approved health claim
Folate	Necessary for normal blood formation
	Necessary for normal cell division
	Contributes to normal growth and development in children
	Contributes to maternal tissue growth during pregnancy
	Contributes to normal amino acid synthesis
	Contributes to normal homocysteine metabolism
	Contributes to normal psychological function
	Contributes to normal immune system function
	Contributes to the reduction of tiredness and fatigue
	Niacin (B3)
Necessary for normal energy release from food	
Necessary for normal structure and function of skin and mucous membranes	
Contributes to normal growth and development in children	
Contributes to normal psychological function	
Contributes to the reduction of tiredness and fatigue	
Pantothenic acid	Necessary for normal fat metabolism
	Contributes to normal growth and development in children
	Contributes to normal energy production
	Contributes to normal mental performance

Nutrient	Pre-approved health claim
	Contributes to normal synthesis and metabolism of steroid hormones, vitamin D and some neurotransmitters
	Contributes to the reduction of tiredness and fatigue
Riboflavin (B2)	Contributes to normal iron transport and metabolism
	Contributes to normal energy release from food
	Contributes to normal skin and mucous membrane structure and function
	Contributes to normal growth and development in children
	Contributes to normal functioning of the nervous system
	Contributes to the maintenance of normal red blood cells
	Contributes to the maintenance of normal vision
	Contributes to the protection of cells from oxidative stress
	Contributes to the reduction of tiredness and fatigue
Thiamin (B1)	Necessary for normal carbohydrate metabolism
	Necessary for normal neurological and cardiac function
	Contributes to normal growth and development in children
	Contributes to normal energy production
	Contributes to normal psychological function
Vitamin C	Contributes to iron absorption from food
	Necessary for normal connective tissue structure and function
	Necessary for normal blood vessel structure and function
	Contributes to cell protection from free radical damage
	Necessary for normal neurological function
	Contributes to normal growth and development in children
	Contributes to normal collagen formation for the normal structure of cartilage
	Contributes to normal collagen formation for the normal structure of bones
	Contributes to normal collagen formation for the normal function of teeth
	Contributes to normal collagen formation for the normal function of gums
	Contributes to normal collagen formation for the normal function of skin
	Contributes to normal energy metabolism
	Contributes to normal psychological function
	Contributes to the normal immune system function
	Contributes to the reduction of tiredness and fatigue
Potassium	Necessary for normal water and electrolyte balance
	Contributes to normal growth and development in children
	Contributes to normal functioning of the nervous system
	Contributes to normal muscle function

Clearly there is a large number of possible claims and, based on consumer work, it is best to focus on one or two. There are several approaches that could be taken. Firstly, the claims associated with folate could be selected because it has the highest percentage RDI. Alternatively, claims that are supported by more than one nutrient could be selected. For example, folate, niacin (B3), pantothenic acid, riboflavin (B2) and vitamin C all have a role in reduction of tiredness and fatigue. Folate and vitamin C both contribute to a healthy immune system so a claim could be made around that. Another approach is to classify the claims into more general health areas that are covered by the specific claims. For example, all the following claims relate to the brain and nervous system:

- Contributes to normal psychological function
- Necessary for normal neurological function
- Contributes to normal mental performance
- Contributes to normal functioning of the nervous system.

A proposition based on 'brain health' could be created, ensuring on pack that one or more of the pre-approved claims is specified. If such an approach is taken, care will be needed with the wording of any claims so they are understandable to the consumer without breaching the regulations.

Although there is research in the literature indicating other health benefits for asparagus, this cannot be used for the basis of health claims. A new general level health claim (a claim that does not relate to diseases or serious illnesses), other than those specified in Table 2, would require self-substantiation, or provision of evidence, for the food-health relationship of the food product. The following is needed to self-substantiate a health claim:

- (i) carry out base research into the food-health relationship;
- (ii) undertake a systematic review of the scientific evidence base; and
- (iii) prepare a systematic review dossier. This is a significant undertaking so it is easier to use pre-approved claims.

FSANZ have written a guide to assist companies making nutrient content and health claims (Food Standards Australia New Zealand 2018b). This provides some useful checklists that may help with finalising possible claims.

5 References

Food Standards Australia New Zealand 2017a. Australia New Zealand Food Standards Code – Schedule 4 — Nutrition, health and related claims. [accessed 9 January 2020].
<https://www.legislation.gov.au/Series/F2015L00474>

Food Standards Australia New Zealand 2017b. Australia New Zealand Food Standards Code – Schedule 12 — Nutrition information panels. [accessed 9 January 2020].
<https://www.legislation.gov.au/Details/F2017C00342>

Food Standards Australia New Zealand 2018a. Australia New Zealand Food Standards Code – Schedule 1 — RDIs and ESADDIs. [accessed 9 January 2020].
<https://www.legislation.gov.au/Series/F2015L00491>

Food Standards Australia New Zealand 2018b. Getting your claims right: A guide to complying with the Nutrition, Health and Related Claims Standard of the Australia New Zealand Food Standards Code. [accessed 9 January 2020].

[https://foodregulation.gov.au/internet/fr/publishing.nsf/Content/31BDC68CEC4A1964CA25801B00166C1F/\\$File/Getting-Your-Claims-Right-2018.pdf](https://foodregulation.gov.au/internet/fr/publishing.nsf/Content/31BDC68CEC4A1964CA25801B00166C1F/$File/Getting-Your-Claims-Right-2018.pdf)

New Zealand Food Composition Database 2019. New Zealand Food Composition Database Online Search. The New Zealand Institute for Plant and Food Research Limited and Ministry of Health. [accessed 8 January 2020]. <https://www.foodcomposition.co.nz/search>

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