FOOD STANDARDS
Australia New Zealand
Te Mana Kounga Kai – Ahitereiria me Aotearoa

Assessment of Trans Fatty Acids in Imported Oils

1 November 2017

Executive summary

In 2015, FSANZ presented a technical evaluation in response to Recommendation 13 from the Review of Food Labelling Law and Policy (mandatory declaration of trans-fatty acids (TFA) in the nutrition information panel) to the Australia and New Zealand Ministerial Forum on Food Regulation (Forum). The technical evaluation reported results from an analytical survey of TFA levels in 500 foods purchased in Australia and New Zealand which found that TFA levels were generally low. A dietary intake assessment of TFAs found that intakes were below the World Health Organization's recommended level of 1% dietary energy in both Australia and New Zealand. Based on the outcomes of the technical evaluation FSANZ advised that mandatory labelling of TFAs did not appear warranted. The Forum agreed that that no further work should be undertaken.

The Forum noted that FSANZ would continue to maintain a watching brief on TFAs and requested an assessment of TFAs in imported oils to be provided to the Forum in early 2017.

In response to the Forum request, FSANZ and NZMPI have undertaken the following activities:

- developed a detailed survey proposal in 2016 to assess TFAs in imported fats and oils. The proposal was accepted by ISFR at the August 2016 meeting and incorporated onto the Coordinated Food Survey Plan
- analysed Customs import data for Australia and New Zealand to identify manufacturers, products and country of origin of imported vegetable fats and oils;
- undertaken a survey of New Zealand importers to identify products with TFA specifications above 2%; and
- performed an on-line and in-store retail product survey of TFA levels reported on nutrition information labels of products in Australia and New Zealand.

The key findings are as follows:

- The majority of imported vegetable fats and oils come from relatively few countries. For Australia the majority of imports are from Malaysia, United States of America and Singapore. The majority of New Zealand imports are from Australia, Malaysia and Indonesia.
- Import volumes of liquid vegetable fats and oils most likely to contain TFAs (tariff codes 1516) have decreased for Australia and New Zealand, by 53% (2012-2015) and 33% (2012-2016), respectively.
- Import volumes of margarines (tariff code 1517) have decreased for Australia and New Zealand, by 7.5% (2012-2015) and 23% (2012-2016), respectively.
- Import volumes of all vegetable fats and oils increased by 9% in Australia (2012-2015) and 13% in New Zealand (2012-2016).
- The NZMPI survey of importer product specifications did not identify any liquid vegetable oils with TFA levels above 2%. The majority of solid products had TFA levels below 5% while the highest level of TFA reported was 9% for a

single product (described as margarine). These results are consistent with previous analytical surveys.
- An intelligence gathering exercise to examine labelled TFA levels in retail products and manufacturing fats and oils indicated they are consistent with previous analytical surveys.

In conclusion:

- In recent years there has been a significant decline in the importation of vegetable fats and oils with potential to contain TFAs into Australia and New Zealand.
- Reported levels of TFA from product specifications and the nutrition information labels of fats and oils are consistent with results from the recent (2006-2013) analytical surveys.
- Analytical survey activity from 2006-2013 and the current assessment of imported vegetable fats and oils indicate that dietary intakes of manufactured TFAs in Australian and New Zealand foods have continued to reduce over time.
- Further analytical survey work for imported fats and oils does not appear to be warranted at this time.

Contents

1. Purpose

The purpose of the document is to provide an update to ISFR on trans-fatty acid (TFA) levels in imported fats and oils. FSANZ has maintained a watching brief on TFAs in fats and oils in response to the request from the Australia and New Zealand Ministerial Forum on Food Regulation (the Forum) on 30 January 2015.

2. Background

2.1 Forum request

At the Forum meeting in January 2015, FSANZ presented a technical evaluation on the Recommendation 13 of the Review of Food Labelling Law and Policy (Mandatory declaration of TFAs in the nutrition information panel). The technical evaluation reported on an analytical survey of TFA levels in 500 foods purchased in Australia and New Zealand which found that TFA levels were generally low. A dietary intake assessment of TFAs found that intakes were below the World Health Organization's recommended level of 1% dietary energy in both Australia and New Zealand. Based on the outcomes of the technical evaluation FSANZ advised that mandatory labelling of TFAs did not appear warranted. The Forum agreed that the work on Recommendation 13 was complete and that no further work should be undertaken.

The Forum noted that FSANZ should continue to maintain a watching brief on TFAs and requested an assessment of TFAs in imported oils to be provided to the Forum in early 2017.

2.2 ISFR CFSP Survey Proposal

In order to respond to the Forum request FSANZ has worked jointly with the New Zealand Ministry for Primary Industries (NZMPI) and jurisdictions through the Implementation Subcommittee for Food Regulation (ISFR) Surveillance and Monitoring Working Group.

FSANZ and NZMPI developed a detailed survey proposal in 2016 to assess TFAs in imported fats and oils. The proposal was accepted by ISFR at the August 2016 meeting and incorporated onto the Coordinated Food Survey Plan. The aim of the survey was to build on the evidence base for TFAs in imported fats and oils used in Australia and New Zealand.

It was proposed that the survey could be undertaken using a two-stage approach. The first stage would identify and consolidate available information on the levels of TFAs in imported fats and oils (imported as foods or raw materials for

manufacturing). The findings of the first stage would help inform a decision on whether a second stage analytical survey is required and the scope of such a survey if it were to proceed.

This paper reports on the first stage.

2.3 What are trans-fatty acids?

Unsaturated fatty acids can occur in the common cis structure, or the rarer trans configuration. The different structures of cis and trans fatty acids lead to different chemical and physical properties and may also explain the differences in their biological activity. TFAs are unsaturated fatty acids which contain at least one double bond in the trans configuration.

Sources of dietary intake of TFAs include naturally occurring TFAs found in meat and milk from ruminant animals (referred to as ruminant TFAs) and TFAs formed from manufacturing processes such as hydrogenation (referred to as manufactured TFAs). Manufactured TFAs (also known as artificial TFAs) are formed when liquid vegetable oils are partially hydrogenated or 'hardened' during processing to create spreads such as margarine, cooking fats for deep-frying and shortening for baking. Some TFAs are also formed during high temperature cooking. TFAs can also be formed in food through other manufacturing processes including deodorisation of oils to remove aromatic impurities and heating of oils at excessive temperatures.

Total TFAs refers to the sum of ruminant plus manufactured TFAs. The range of individual TFAs is the same in ruminant and manufactured trans fatty acid (TFA) sources, but the proportions of these individual acids differ. Unless the term manufactured or ruminant TFAs is specified, it should be assumed that the use of TFAs in the report refers to total TFAs.

3. Data sources

In order to complete stage one of the survey of TFAs in imported fats and oils, the following information was collated and assessed:

- Australian and New Zealand import statistics for vegetable fats and oils, including country of origin
- Existing evidence for the current TFA levels in fats and oils in Australia and New Zealand from analytical surveys
- A NZMPI industry survey of product specifications of vegetable fats and oils likely to contain TFAs
- A comparison of current retail labelled levels of TFAs in vegetable fats and oils to those found in earlier analytical surveys undertaken in Australia and New Zealand.

3.1 Imported fats and oils

Two distinct sources of information are available to investigate the importation of fats and oils into Australia and New Zealand. The first source is Customs data which provides information such as product description, tariff code, exporter name and country of export for individual entries of products entering the country[1]. The second source is aggregated importation data for each tariff code[2]. These data also includes information on the total volume (in kilograms or litres) by country of origin, month and year.

3.2 TFA intelligence gathering

The Forum request specifically related to TFA levels in imported oils. These types of products might be imported and sold as ready to purchase products (eg canola oil) or as ingredients used for manufacturing (eg canola oil in microwave popcorn, vegetable shortening used in pastries and baked goods). This focus is different to previous Australia and New Zealand analytical surveys of the food supply which sampled foods from retail sources.

Due to the differences in the detail of the data available to NZMPI and FSANZ, different approaches were taken to gather information on specifications of TFA levels in imported vegetable fats and oils.

NZMPI methodology

- From the New Zealand Customs Services data, NZMPI identified and made contact with 52 importers who were asked to supply information on any imported/purchased fats and oils (as listed in section 4.1.1 below) that had TFA levels above 2%.
- The NZMPI survey only gathered information on the imported fats and oils used as raw materials in the manufacture of processed foods and foods sold by caterers.

FSANZ methodology

- In order to gather intelligence on TFA levels in a broader range of imported (and exported) products it was decided to explore both retail and manufacturer information sources.
- On-line supermarket websites from Australia and New Zealand were assessed to identify those which included Nutrient Information Panel (NIP) for foods.

[1] For Australia, these data were kindly provided by the Department of Agriculture and Water Resources via the Department of Immigration and Border Protection and New Zealand data was accessed via NZ Customs Services.
[2] For Australia these data were sourced from the Australian Bureau for Statistics. For New Zealand these was sourced from Statistics New Zealand website: http://www.stats.govt.nz/infoshare/

- Australian supermarkets and smaller shops were also visited to identify and gather information from products with TFA levels on products NIPs.
- Websites of Australian manufacturers were identified using NZ Customs and examined for product TFA specifications.

3.3 Previous analytical surveys

FSANZ in collaboration with New Zealand and the jurisdictions undertook TFA surveys of the food supply in 2006-7, 2009 and 2013. Analytical data (Total fat and %TFA) from these surveys were obtained and collated for relevant food groups such as “Blended edible oil”, “Vegetable oil” and “Edible oil spread”.

4. 4 Results

4.1 Imported food information

4.1.1 Product types

Two relevant tariff codes for fats and oils most likely to contain TFAs were identified:

> *1516 Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinised, whether or not refined, but not further prepared*
>
> *1517 Margarine; edible mixtures or preparations of animal or vegetable fats or oils or of fractions of different fats or oils of this Chapter, other than edible fats or oils or their fractions of 1516*

Examples of the types of products covered by these tariff codes include:

- partly hydrogenated vegetable oil
- bakery fats (butter substitutes, margarines)
- table spreads
- vegetable based shortening
- vegetable ghee
- specialist fats for confectionary and ready to eat food production
- frying oils
- confectionary fats.

4.1.2 Exporting country

Customs data were analysed using individual entries of imported products under the 1516 and 1517 tariff codes by country of origin. Many countries were identified with the top 5 countries for Australia and New Zealand presented in Table 1 below. The top two countries exporting to Australia were Malaysia and Singapore with New

Zealand ranked fourth. Australia was identified as the country with the most import entries into New Zealand, followed by Malaysia and Indonesia.

Table 1: Top 5 source importing countries for Australian and New Zealand for 1516 and 1517 tariff code fats and oils

Australia	New Zealand
Malaysia	Australia
Singapore	Malaysia
United States	Indonesia
New Zealand	United States
Indonesia	Singapore

Malaysia is the main source of imported hydrogenated, inter-esterified, re-esterified or elaidinised vegetable oils (tariff code 1516) into Australia (55% in 2016) and New Zealand (64% in 2016).

The main source of imported margarine (tariff code 1517) into Australia is Malaysia (79% in 2016) whereas the main source of imported margarine into New Zealand is Australia (91% in 2016).

Although the Customs data does not provide sufficient detail to determine volumes it does suggest that there is a substantial Trans-Tasman trade in fats and oils between Australia and New Zealand. Additionally, the NZ import data also suggest the possibility of trans-shipment of products from third countries via Australia.

4.1.3 Import volumes and trends for Australia and New Zealand

Imported food statistics were accessed to determine the volume and trends for the importation of fats and oils into Australia and New Zealand from ABS and New Zealand Statistics respectively. Data were analysed for hydrogenated, inter-esterified, re-esterified or elaidinised vegetable oils (tariff code 1516) and margarines (tariff code 1517) between 2012-2016).

Overall, import volumes for hydrogenated, inter-esterified, re-esterified or elaidinised vegetable oils and margarines have declined substantially over recent years in both Australia and New Zealand (Figure 1 below).

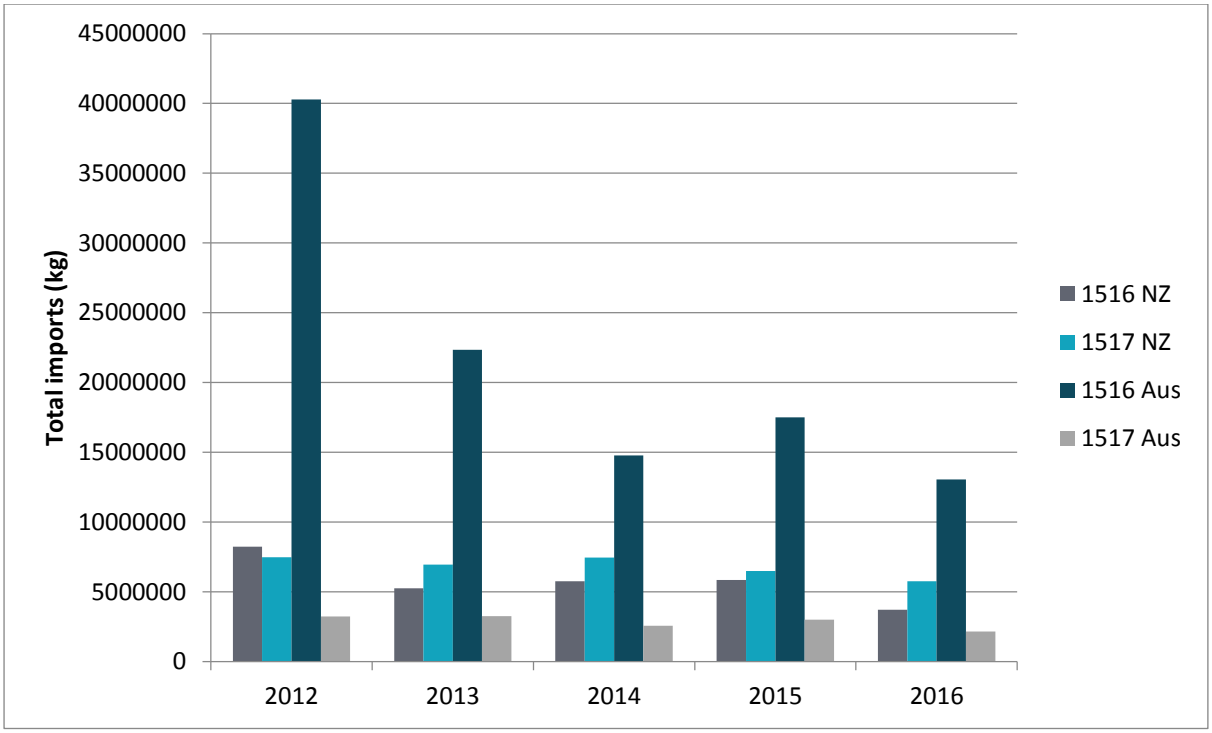

Figure 1: Imports of fats and oils with tariff codes beginning with 1516 and 1517 into Australia and New Zealand between 2012 and 2016[3]

The trend of import volumes for vegetable fats and oils into Australia and New Zealand reveals a substantial drop in recent years. Hydrogenated, inter-esterified, re-esterified or elaidinised vegetable oil imports in Australia dropped by 53% from 2012 to 2015 and margarines by 7.5% from 2012 to 2015.

Likewise, the import of hydrogenated, inter-esterified, re-esterified or elaidinised vegetable oils in New Zealand decreased by 33% from 2012 to 2016, while the import of margarine decreased by 23% from 2012 - 2016.

4.2 Retail, importer and manufacturer reported TFA levels

New Zealand importer specifications

At total of 26 products were reported to NZMPI as having TFA levels above 2%. The highest level of TFA reported was 9% for a single product (described as margarine), while the majority (23 products out of 26) had TFA levels below 5%. The fats and oils that contained more than 2% manufactured TFAs originated from Australia, Indonesia and Malaysia or were manufactured in New Zealand.

[3] Note that the data included the whole calendar year for each year reported except for the Australian data for 2016 which was only from January to October (i.e. did not include the data for November and December 2016).

Based on the product name or product description provided by the respondents, all of the fats and oils that contained more than 2% TFA were in solid form and most of them were shortening and pastry or cake margarines. It is considered that these likely contained manufactured TFA based on the product description and specification provided by the industry respondents.

Retail label and manufacturer specifications

A total of 105 products (36 vegetable oils and 69 margarines) were identified as having TFA levels on nutrient information labels or from manufacturer specifications. Many of products had country of origin statements that they were made from a mixture of imported and local ingredients. Exceptions included examples of canola oils which were made and bottled in Australia.

A graphical summary of the stated %TFA (TFA as a percentage of total fat) by product type and similar products from the three previous analytical surveys (2006, 2009 and 2013) are presented in Figure 2. The horizontal line represents the 2% (2 g/100g fat) limit adopted for manufactured TFAs in Danish legislation in 2003.

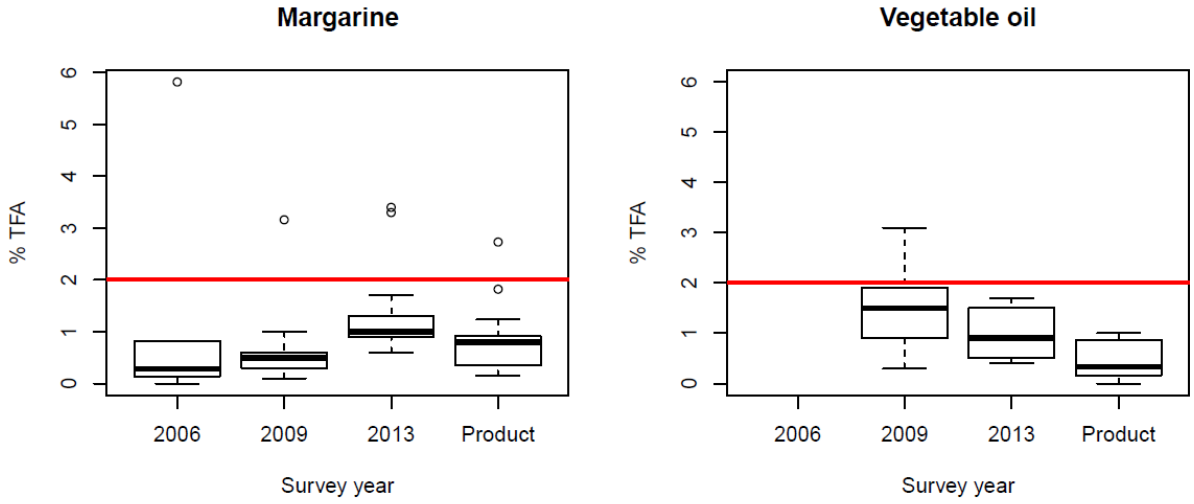

Figure 2: %TFA in Margarine (left) and Vegetable oils (right) for survey foods, retail products and manufacturer specifications

For both the margarine and vegetable oils the %TFA values are consistent with or lower than the previous analytical surveys. Few values exceed the 2% limit.

The results of the NZ importer survey of imported oil specifications and the retail label and manufacturer specifications are similar. No vegetable oils were identified as having TFA levels above 2%. This finding is supported by the analytical survey results. A small number of sample foods had more 2% TFAs in the 2009 survey and none in the 2013 survey.

Solid margarine-type foods were found to have a small number of products with greater than 2% TFAs in the NZ importer survey, retail products and manufacturer

specifications. This finding is not unexpected since a greater degree of hydrogenation is required to form solid products such as margarines from liquid vegetable oils.

5. Discussion

Analysis of Customs data for the relevant 1516 (Hydrogenated, inter-esterified, re-esterified or elaidinised vegetable oil) and 1517 (Margarine) tariff codes revealed that the number of major exporters to Australia and New Zealand is restricted to a few countries, namely Malaysia, United States of America, Singapore and Indonesia. The data also suggests significant trade between Australia and New Zealand.

The trend of import volumes for vegetable fats and oils into Australia and New Zealand reveals a substantial drop in recent years. Hydrogenated, inter-esterified, re-esterified or elaidinised vegetable oil imports in Australia dropped by 53% from 2012 to 2015 and margarines by 7.5% from 2012 to 2015.

Likewise, the import of hydrogenated, inter-esterified, re-esterified or elaidinised vegetable oils in New Zealand decreased by 33% from 2012 to 2016, while the import of margarine decreased by 23% from 2012 to 2016.

The label TFA levels for retail products and manufacturer specifications for vegetable oils and margarines were consistently below the 2% TFA, and consistent with earlier analytical surveys. In many cases the TFA levels reported on the product labels were reported as maximum values. The maximum values were used to calculate the %TFA, which represents a “worst case” estimate.

6. Overall conclusion

Based on an analysis of importation volumes and an intelligence gathering exercise from supermarket products and importer/manufacturer specifications it appears that vegetable fats and oils, including a broad range of imported products, do not contain high levels of TFAs.

The decreases in the amount of imported hydrogenated, inter-esterified, re-esterified or elaidinised vegetable oils and margarines in New Zealand were in contrast to the general trend for total vegetable fats and oils which had an overall increase of 13% between 2012 and 2016. Similarly there was a slight increase of 9% overall in the import of total vegetable fats and oils between 2012 and 2015 in Australia This suggests that in general, the food industry is responding to increased consumer awareness regarding TFAs and are importing or manufacturing and using vegetable fats and oils with lower levels of TFAs.

These findings, when combined with previous analytical survey activity suggest that the dietary intake of TFAs from vegetable fats and oils have continued to decline over time.

Further analytical survey work for imported fats and oils does not appear to be warranted at this time.