



Awareness and Knowledge of Folate and Folic Acid

A survey of New Zealand women of child-bearing age

MAF Technical Paper No: 2011/8.

Prepared for FSA by Research New Zealand
Authors: Kalafatelia E and Fryer K

ISBN 978-0-478-37558-9 (online)
ISSN 2230-2794 (online)

March 2011



Ministry of Agriculture and Forestry
Te Manatū Ahuwhenua, Ngāherehere



Disclaimer

The information in this publication is not government policy. While every effort has been made to ensure the information is accurate, the Ministry of Agriculture and Forestry does not accept any responsibility or liability for error of fact, omission, interpretation or opinion that may be present, nor for the consequences of any decisions based on this information. Any view or opinion expressed does not necessarily represent the view of the Ministry of Agriculture and Forestry.

Publisher

Ministry of Agriculture and Forestry
PO Box 2526
Pastoral House, 25 The Terrace
Wellington 6140
www.maf.govt.nz

Telephone: 0800 00 83 33

Facsimile: +64 4 894 0300

© Crown Copyright March 2011 – Ministry of Agriculture and Forestry



Awareness and Knowledge of Folate and Folic Acid
A Survey of New Zealand Women of Child-bearing Age

07 February 2011

Scientific Interpretive Summary

Awareness and Knowledge of Folate and Folic Acid – A Survey of New Zealand women of child-bearing age

This survey was commissioned by the New Zealand Food Safety Authority to inform a broad review of risk management options that aim to improve the blood folate status of women of child-bearing age. Inadequate intakes of folate and folic acid are associated with an increased risk of a woman having a child with a neural tube defect (NTD). A standard requiring the mandatory addition of folic acid to bread was to come into force in September 2009, but this has been deferred until May 2012 and voluntary provisions for the addition of folic acid to bread remain in place.

The overall objectives of the survey were to: measure women's current knowledge of folate and folic acid; its importance and use particularly in the period in which women become pregnant; and their opinions with regard to the addition of folic acid in bread.

To meet these objectives a telephone administered survey was undertaken by the authors. A random sample of 1,000 New Zealand women (+/- 3.1% margin of error) aged 16-44 years were interviewed using a pre-tested, piloted questionnaire. The overall response rate was 49%.

Although many respondents had heard of folate and folic acid (in particular), most admitted that their understanding of these terms was limited. What knowledge they did have, had either come from the media, or through various health providers they had encountered during pregnancy.

Over half of respondents mentioned (on an unprompted basis) that folate and/or folic acid was needed before or during pregnancy, this increased to 90% with prompting. However few were aware of its specific benefits with most stating they just knew/assumed that it had to be good for you and/or the baby because it was something that was recommended by doctors and other health providers to pregnant women.

Although awareness of dietary supplements as a source of folic acid was good, awareness of specific food sources of folate or folic acid was low. Eighty percent of women who had been (or were) pregnant had taken a dietary supplement containing folic acid during their pregnancy. Of these, approximately equal numbers reported beginning this before they became pregnant and when they found out they were pregnant. Outside of pregnancy, however, little thought was given to folate or folic acid intake with respondents neither choosing nor avoiding products based on their folic acid content.

There were mixed views as to whether or not folic acid should be added to all bread products, with the same number agreeing with this concept as disagreeing while a third held a 'neutral' view.

Updated 2 March 2011





Confidential

Awareness and Knowledge of Folate and Folic Acid
A Survey of New Zealand Women of Child-bearing Age

| | |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| PREPARED FOR | Phillippa Hawthorne New Zealand Food Safety Authority |
| PREPARED BY | Emanuel Kalafatelis and Katrina Fryer |
| CONTACT DETAILS | Emanuel Kalafatelis Research New Zealand Phone 04 499 3088 www.researchnz.com |
| PROJECT NUMBER | #4131 |



Contents

| | | |
|------------|--------------------------|-----------|
| 1.0 | Executive summary | 4 |
| 2.0 | Introduction | 6 |
| 3.0 | Methodology | 7 |
| 4.0 | Results | 18 |

Appendix A: Pre-notification letter & questionnaire

Appendix B: Weighting and margin of error

Appendix C: Correlation Analysis

Appendix D: Tabular results



1.0 Executive summary

Inadequate intakes of folate and folic acid are associated with an increased risk of a woman having a child with a neural tube defect. A standard requiring the mandatory addition of folic acid to bread was to come into force in September 2009, but this has been deferred until May 2012. At the time this decision was made there was significant media focus on folic acid and much debate about both positive and negative outcomes from folic acid fortification.

This survey was commissioned by the New Zealand Food Safety Authority to inform a broader review of risk management options that aim to improve the blood folate status of women of child-bearing age. The survey has focused on measuring women's current knowledge of folate and folic acid, its importance and use particularly in the period in which women become pregnant, and opinions with regard to the addition of folic acid in bread. As such, the survey has established a baseline which can be used for future monitoring purposes.

One thousand New Zealand women age 16-44 years were interviewed by telephone between 15 September and 1 October 2010. Booster samples were used to obtain the correct proportion of Māori, Pacific and Asian peoples. The overall response rate was 49%. The data has been weighted by age and ethnicity to reflect the correct proportions in the population. A questionnaire was designed and pre-tested by Research New Zealand based on the key information that the New Zealand Food Safety Authority wanted to obtain.

Two-thirds (68%) of respondents reported having heard of folate and in comparison, almost all (95%) had heard of folic acid. However, most rated their actual knowledge of folate and folic acid as being relatively low. What knowledge they did have, had either come from the media, or through various health providers they had encountered during pregnancy.

Just over half (54%) of the total sample mentioned (on an unprompted basis) that folate and/or folic acid was needed before or during pregnancy. Two-thirds (68%) of those who believed that pregnant women needed to ensure they are getting the right amount of folate or folic acid, reported that it was recommended that they increase their folate or folic acid intake before they became pregnant. This equates to 50% of the total sample. Less than half of those who knew that folate or folic acid was important during (or before) pregnancy, were aware of its specific benefits. The rest just knew/assumed that it had to be good for you and/or the baby because it was something that was recommended by doctors and other health providers to pregnant women.

Although generally aware that women could receive folic acid through supplements or vitamins, one-quarter of the total sample were unable to identify any specific food or drinks that could be naturally good sources of folate. With regard to personal behaviour in terms of folate or folic acid intake, 80% of the respondents who were (or had been) pregnant, reported having taken vitamins or supplements containing folic acid during their pregnancy (this represents 46% of the total sample). Forty-one percent of those who took folic acid supplements during pregnancy said they started taking them before they became pregnant, while a similar proportion (38%) reported doing so when they found out they were pregnant.



Outside of pregnancy, little thought is given to folate or folic acid intake. Only 3% of all respondents were intentionally purchasing food or drink because they knew it contained folate or folic acid. It is important to note however, that only 1% of these respondents were consciously avoiding these products because of the folic acid. In the majority of cases, they were simply buying against other criteria and whether or not something contained folic acid appeared inconsequential.

There were mixed views as to whether or not folic acid should be added to all bread products. Identical numbers agreed with this concept as disagreed (15% rated their agreement as an '8' or more out of '10' and 15% rated their agreement with a '3' or less), while one third (37%) held a 'neutral' view. The key perceived benefits of adding folic acid into all bread products were that it would make folic acid more accessible to the wider population (20%), and in particular to women who become pregnant (including those on low incomes, or with unplanned pregnancies) (8%). Those against mandatory inclusion of folic acid in bread products mainly objected to the fact that this would remove the element of choice. This was identified as an issue by 19% of all respondents.



2.0 Introduction

A standard requiring the mandatory addition of folic acid to bread was to come into force in September 2009, but this has been deferred until May 2012. In the interim, bread manufacturers can continue to voluntarily add folic acid to bread. At the time the decision to defer mandatory fortification was made there was significant media focus on folic acid and much debate about both positive and negative outcomes from folic acid fortification.

There is no baseline data on current attitudes and behaviour of women of child-bearing age (16-44 years) regarding folic acid, particularly with regard to their knowledge and understanding of the necessity for increased consumption of folic acid in foods and the need for women in this age group to take folic acid supplements.

Against this background, a survey was commissioned by the New Zealand Food Safety Authority (NZFSA) to inform a broader review of risk management options that aim to improve the blood folate status of women of child-bearing age. It focused on measuring women's current knowledge of folate and folic acid, its importance and use particularly in the period in which women become pregnant, and their opinions with regard to the addition of folic acid to bread. As such, the survey has established a baseline which can be used for future monitoring purposes.



3.0 Methodology

3.1 Overview

In order to benchmark awareness, knowledge and opinions of folate and folic acid, a telephone survey was conducted between 15 September and 1 October 2010, with a nationally representative sample of 1,000 women of child-bearing age. This section describes the survey and sampling design, the interviewing methodology, the approach used to analyse the survey data and the accuracy of the results.

3.1.1 Target population

The target population for this particular survey was the usually resident female population aged 16-44 years, living in private dwellings in New Zealand. The target population consists of approximately 840,000 individuals.

3.1.2 Survey population

Some households and, therefore, individuals living in these households, were excluded from the survey population. These included:

- ◆ Those not registered as eligible electors (the sample was selected from the General and Māori Electoral Rolls).
- ◆ Households for which a tele-match was not possible. This includes households which had no fixed (land) line.

It is not possible to calculate the bias that may have resulted because of the exclusions of these households/individuals from the survey.

3.1.3 Sample frame

The sample was sourced through the current General and Māori Electoral Rolls. These account for over 95% of eligible electors. As eligible electors are 18+ years, the sample was drawn on the basis that each elector was 18-50 years. In doing so, we were not only able to focus on those 18-44 years, but also increased the chances of selecting an elector who was a parent of a child aged 16 or 17 years.



3.2 Sample design

3.2.1 Objectives

The sample design was developed based on the following objectives:

- ◆ To enable high coverage and therefore reliable results to be reported for the total sample and the various sub-groups of interest (with minimal design effect) based on the respondents' demographic characteristics.
- ◆ To complete the survey on a cost-effective basis.

3.2.2 Sample selection

The sample design for the survey used a multi-stage random sampling approach:

- ◆ The primary sampling unit were the households of eligible electors, selected at random from the General and Māori Electoral Rolls, on the basis that they were aged 18-50 years. Once selected, a tele-matching exercise was conducted in order to match household addresses with a contact telephone number. Thirty-four percent were successfully matched.
- ◆ Respondents were then randomly selected from all those people usually living in these households, providing they were eligible to complete the survey (i.e. were females aged 16-44 years).

Quotas were set by age to ensure that a sufficient number of younger women aged 16-29 years were interviewed.

3.2.3 Rationale for the sample design

The simplest possible sample design would have been a simple random sample of all women living in New Zealand, so that everyone had an equal and independent chance of being selected in the survey sample. However, a design of this type was not feasible because of the need to specifically interview women of child-bearing age, and to ensure a sufficient number of those in the younger age groups were included for analysis purposes.



Because of these requirements, the design effect for NZFSAs survey was 1.09 meaning that the margins of error for the survey increase by 1.09 times¹. For example, the maximum margin of error for the total sample increased from plus or minus 3.1% at the 95% confidence level (had the survey been a purely random sample) to plus or minus 3.4%.

3.3 Data collection instruments

3.3.1 Questionnaire content

The information objectives of the survey were reflected in the content of the survey questionnaire (refer Appendix 1), which was developed in consultation with NZFSA. Questions were included covering five key subject topics: (i) Awareness and understanding of folate and folic acid; (ii) The importance of folate/folic acid for pregnant women or those planning to become pregnant; (iii) Knowledge of sources of folate/folic acid; (iv); Folate/folic acid-related behaviour of women of child-bearing age; and (v) Opinions with regard to the mandatory addition of folic acid to bread.

3.3.2 Constraints on content

The following constraints influenced the content of the survey questionnaire:

- ◆ Limitations associated with survey questionnaire – the survey was not able to gather complex, detailed information (i.e. knowledge of what the actual recommended daily intake of folate/folic for pregnant women is).
- ◆ Respondent burden – the survey questionnaire was designed to optimise respondent participation and therefore its length was limited so that it would take no more than 15 minutes on average to complete. Furthermore, in order to avoid offence or embarrassment, some questions were not asked of respondents who clearly had no understanding or knowledge of what folate or folic acid was.

3.3.3 Questionnaire testing

The survey questionnaire was piloted prior to its administration with a random sample of 27 women of child-bearing age (i.e. aged 16-44 years). As with the survey proper, pre-notification letters were sent to all pilot respondents prior to interviewing. The purpose of the pilot was to check the respondent recruitment process, that the survey script had been correctly programmed and that the average length of the interviews was within the intended 15 minute timeframe.

¹ The net effect of a complex design can be measured by the 'design effect' (or DEFF). The DEFF is the ratio of the variance (a measure of precision) of an estimate achieved by a complex design, relative to the variance of the same estimate that would be achieved by a simple random sample of the same size. The closer the DEFF is to 1, the closer the design is to simple random sampling.



All pilot interviews were conducted by a small group of our most experienced interviewers, each of whom was personally briefed by the Research Director responsible for the survey. Following the pilot, a debrief was held with the interviewers to discuss any potential issues or improvements that might be needed. This feedback was then reported back to the NZFSA, along with a few minor suggestions as to how the questionnaire could be improved.

These changes mainly involved simplifying the wording to a few of the questions and inserting additional coding response options to some of the closed questions.

As there were no significant changes made to the questionnaire following the pilot, the data from all 27 interviews was able to be included in the final analysis. That is, they were included in the final sample of 1,000 women.

3.4 Data collection

3.4.1 Collection method

All interviewing was conducted from Research New Zealand's purpose-built call centre between 15 September and 1 October 2010. This call centre operates on a state-of-the-art Computer Assisted Telephone Interview (CATI) platform, five days a week, from 9.00 AM to 9.00 PM (and weekends as required).

The interviewers were personally briefed by the Research Director responsible for the survey.

Interviewers were supervised at all times and a minimum of 5% of each interviewer's work intercepted for quality improvement purposes, as required by the Interviewer Qualification Standard (IQS)². Research New Zealand has held its IQS accreditation for 11 consecutive years.

Another 5% of all completed interviews were verified by re-contacting respondents.

² The Interviewer Qualification Standard (IQS) was developed by the Association of Market Research Organisations of New Zealand. It covers all aspects considered important in successfully operating a research call centre, including the recruitment and training of interviewers, their supervision, their ongoing training and the use and storage of data provided by both clients and respondents. IQS is independently audited every two years.



3.4.2 Response rate

The response rate (as shown in the table below) is defined as the number of completed interviews divided by the number of eligible cases. The contact rate is defined as the proportion of contacted addresses based on the number of eligible addresses. The co-operation rate is the number of successful interviews based on the number of contacted addresses.

Table 1: Response summary

| | | |
|-------------------|-------|------------------------------------------------------------|
| Response rate | 49.2% | (n=1,000 completed interviews/n=2,031 eligible cases) |
| Contact rate | 69.7% | (n=4,159 contacted addresses/n=5,968 eligible addresses) |
| Co-operation rate | 24.0% | (n=1,000 completed interviews/n=4,159 contacted addresses) |

3.5 Data processing

3.5.1 Capture

Research New Zealand's CATI system immediately captures respondents' answers to questions into our computer system as they are entered by interviewers.

3.5.2 Coding

Nearly all of the survey questionnaire contained pre-coded or closed questions. However, these questions recorded (as 'other specified') any answers not able to be coded into the pre-coded categories by the interviewers. The 'other specified' answers were subsequently edited and coded after the interviewing for the survey had been completed.

Code frames for any open-ended questions were developed and used to edit and code these questions. Code frames were developed by the researchers responsible for the survey in consultation with NZFSA.

3.5.3 Creation of derived variables

The main variable, created from other variables in the survey, was developed in order to categorise respondents into one of three segments based on their reported knowledge or understanding of folate and folic acid. Each of these segments is described in more detail in Section 5.0.

Another derived variable created for analysis purposes was based on the respondents' location/region. Table 2 shows which specific areas made up each of the three general locations.



Table 2: Location variable counts

| | Total sample n=1,000 | Upper North Island n=770 | Lower/Central North Island n=220 | South Island n=310 |
|----------------------|----------------------------|--------------------------------|----------------------------------------|--------------------------|
| Northland | 30 | 330 | 0 | 0 |
| Auckland | 300 | 300 | 0 | 0 |
| Waikato | 74 | 74 | 0 | 0 |
| Bay of Plenty | 56 | 56 | 0 | 0 |
| Gisborne | 10 | 10 | 0 | 0 |
| Hawke's Bay | 25 | 0 | 25 | 0 |
| Taranaki | 28 | 0 | 28 | 0 |
| Manawatu-Wanganui | 42 | 0 | 42 | 0 |
| Wellington-Wairarapa | 125 | 0 | 125 | 0 |
| Tasman | 11 | 0 | 0 | 11 |
| Nelson | 16 | 0 | 0 | 16 |
| Marlborough | 12 | 0 | 0 | 12 |
| West Coast | 10 | 0 | 0 | 10 |
| Canterbury | 164 | 0 | 0 | 164 |
| Otago | 64 | 0 | 0 | 64 |
| Southland | 33 | 0 | 0 | 33 |

A prioritised ethnicity variable was also created, reflecting the extent to which respondents self-identified as being of Pacific, Māori or other ethnicity (including New Zealand European). Although this data was originally captured as a multiple response variable (reflecting that which is used in the Census), it was necessary to collapse this into a single response in order to calculate the weightings. Where a respondent identified as being of Pacific ethnicity only, or in combination with another ethnicity, they were prioritised as Pacific (n=29). Those who identified as being Māori only, or in combination with New Zealand European/Other, were classified as Māori (n=99). All other respondents were classified as 'Other'. Of the n=872 respondents prioritised into the 'Other' ethnic group, the majority (86%, or n=746) identified themselves as being New Zealand European. Note that this prioritised ethnicity variable was not used to analyse the survey results, it was only used to help weight the data to better reflect the ethnic proportions of the New Zealand population. The specific variables that were used to analyse the survey results are listed below in section 2.1.6.

It should be noted that, as the decision was made by the NZSFA to not examine the survey results by ethnicity, no over-sampling of particular ethnic groups was undertaken.

3.6 Data analysis

As mentioned above, the survey data was weighted at the processing stage. This ensures that any result based on the total sample or a particular sub-group is truly representative of the target population. In other words, if any sub-group is over- or under-represented in the sample, the weighting process takes this into account by "re-balancing" the data to ensure that this group is correctly represented in the calculation of results (that is, consistent with their representation in the population).



The survey data was weighted by age and, as noted, ethnicity. In order to calculate the weightings, the demographic profile of the sample is examined and compared against that of the target population. For example, 6.0% of the sample data were Māori women aged 30-44 years, whereas this particular demographic group actually accounts for 7.4% of all women in New Zealand who are of child-bearing age. To account for this difference a weighting factor of 1.23 is applied to everyone in the sample data who is Māori and aged 30-44. This gives this particular sub-group more of a 'voice' in the data to the extent that they will represent 7.4% of the total sample when the analysis is run (as opposed to only 6.0 on an unweighted basis).

The population data for these categories were sourced from Statistics New Zealand and based on the 2006 Census of Population and Dwellings³. A breakdown of the sample, population and weighting figures is provided in Appendix B.

The results of this survey have been analysed using Pearson's Chi Squared test (see Appendix B) and reported by the following specific groups of interest:

- ◆ Women who are pregnant or have given birth in the past (compared to those who have not).
- ◆ Age (16-29 years, 30-44 years).
- ◆ Location (Upper North Island, Lower/Central North Island, South Island).
- ◆ Income (annual household income of less than \$70,000, household income of \$70,000 or more).
- ◆ Highest educational qualification (Secondary school qualifications or less, Tertiary qualifications).
- ◆ Rural/urban (Rural area/small town with a population of less than about 10,000 people. Urban area/large town/city with a population greater than 10,000).

In the segmentation section (Section 5.0), results have been presented by respondents' level of knowledge and understanding of what folate or folic acid is and for whom (and when) it is most important.

Table 3 presents the size of each of the key analysis sub-groups, before and after weighting. The associated maximum (weighted) margins of error for each sub-group are also provided (based on a 95% confidence level).

³ Statistics New Zealand. (2006). *2006 Census population and dwellings tables*. Wellington: The author.



Table 3: Key analysis sub-groups

| | Count of respondents n=1,000 | Unweighted % | Weighted % | Maximum margin of error +/-% |
|----------------------------------------|------------------------------------|-----------------|---------------|---------------------------------------|
| Children | | | | |
| Currently pregnant/have children | 632 | 63 | 58 | 4.2 |
| Have not had children | 368 | 37 | 42 | 5.6 |
| Age | | | | |
| 16-29 years | 376 | 37 | 47 | 5.5 |
| 30-44 years | 624 | 62 | 53 | 4.3 |
| Location | | | | |
| Upper North Island | 470 | 47 | 50 | 4.9 |
| Lower/Central North Island | 220 | 22 | 22 | 7.2 |
| South Island | 310 | 31 | 29 | 6.1 |
| Household income | | | | |
| Less than \$70,000 | 394 | 39 | 40 | 5.4 |
| \$70,000 plus | 499 | 50 | 47 | 4.8 |
| Don't know/Refused | 107 | 11 | 12 | 10.3 |
| Educational qualifications | | | | |
| Secondary school (or no) qualification | 417 | 42 | 45 | 5.2 |
| Tertiary qualification | 583 | 58 | 55 | 4.4 |
| Rural/Urban | | | | |
| Rural | 263 | 26 | 26 | 6.6 |
| Urban | 712 | 71 | 71 | 4.0 |
| Don't know | 25 | 3 | 3 | 21.4 |
| Segment | | | | |
| Informed | 552 | 55 | 50 | 4.5 |
| Somewhat informed | 175 | 18 | 17 | 8.1 |
| Uninformed | 273 | 27 | 33 | 6.5 |
| Total sample | 1,000 | 100 | 100 | 3.4 |



3.7 Constraints and limitations

1. **Sampling approach:** In addition to those aged 18-44, the survey also required interviews to be completed with 16-17 year olds. As there is no such register of 16-17 year olds, the decision was made to randomly select and then contact people aged between 18 and 50 from the General and Māori Electoral Rolls. This decision was made on the basis that it would not only cover the 18-44 year old target audience, but also because these people are more likely than other age groups to have a 16-17 year old child in their household. While random, this process potentially affects the research by excluding 16-17 year old females whose parents are over 50 years of age (e.g. older parents).
2. **Interviewing methodology:** While a relatively effective interviewing methodology, telephone interviewing potentially affected the research in a number of ways. As telephone numbers are not available from the General and Māori Rolls, it was necessary to obtain telephone numbers using a tele-matching process. This process involves matching name and address details contained on the rolls with similar information held on the Telecom White Pages⁴. Where an acceptable match is made, the telephone number is provided for the purposes of the telephone interviewing. In the case of most surveys, including this survey for NZFSA, successful matches are made in up to 30% of cases. While it may be argued that the mismatches are evenly distributed across all other potential respondents, this process may introduce a degree of bias. As a matter of course, the process excludes those with unlisted telephone numbers.

The telephone interviewing process also potentially affected the research given that the tele-matching is based on fixed telephone lines. There is concern that this might have adversely affected those sub-groups of the population that are below average in terms of their use of fixed telephone lines (i.e. young people). We note, however, that the ownership of fixed telephone lines is still relatively high in New Zealand. In fact, the average New Zealand ownership of fixed telephone lines is currently 98%.

3. **Non-response bias:** The objective of any sampling scheme is to obtain a body of data that can be interpreted as representative of the population of interest. Unfortunately, some sample members become non-respondents because they:
 - ◆ Refuse to respond.
 - ◆ Lack the ability to respond.
 - ◆ Are not at home, or are otherwise inaccessible.

⁴ Yellow Pages Group. *White pages*. Auckland: The author.



The seriousness of non-response bias depends upon the extent of the non-response as well as how the non-respondents differ from the respondents, particularly on the key questions of interest.

The effects of non-response upon the results have not been estimated for the purposes of analysis and reporting. However, Research New Zealand has taken all feasible steps to minimise the extent of non-response bias through:

- ◆ The use of pre-notification letters – personalised letters were sent to all prospective respondents (on the NZFSAs letterhead) explaining the purpose of the survey, what participation would involve and the use of incentives, etc.
- ◆ Testing the design and placement of survey questions through peer reviews and survey piloting.
- ◆ Call backs – five attempts to contact each household selected were made at different times and on different days before the attempt to obtain an interview was abandoned and a different household from the sample was substituted in its place.
- ◆ Providing respondents with the option of scheduled appointment times to be interviewed.
- ◆ The use of skilled and well trained interviewers to better generate rapport with the respondent.

A related issue is the presence of small sample numbers for sub-groups of interest. Small sample numbers (less than $n=30$) adversely effect the reliability of results, because the sample is too small to accurately represent the sub-group in question. In these cases, the assumptions that underlie the calculation of margins of error no longer apply. Consequently, results for such samples must be treated with caution, as they are indicative only. For this reason, no such results have been reported on in the body of this report, and footnotes stating this caution (where it applies) are provided in the tabular data as a reference for the reader.



3.8 Report structure

The results section 4.0 of the report is structured into three main sections:

1. Sub-section 4.1 covers respondents' knowledge, understanding and views on folate and folic acid and includes:
 - ◆ Awareness and understanding of the terms, 'folate' and 'folic acid'. Self-rated knowledge of folate and folic acid, and how they came about that knowledge.
 - ◆ Perceptions of who folate and folic acid is most important for, when they need to increase their intake and why.
 - ◆ Knowledge of folate and folic acid sources.
 - ◆ Opinions with regard to the addition of folic acid in bread products.
2. Sub-section 4.2 focuses on respondents' folate and folic acid-related uptake and purchasing behaviour and includes:
 - ◆ The extent to which respondents who are/have been pregnant, took folic acid supplements or vitamins and at what stage of their pregnancy.
 - ◆ The extent to which respondents check or purchase food or drinks that contain folate or folic acid.
 - ◆ Barriers or inhibitors for those who are not currently buying food or drinks that contain folate or folic acid.
3. Sub-section 4.3 provides a summary of the results based on a knowledge-based segmentation analysis. This includes:
 - ◆ A demographic profile of each segment and a description of the results for each segment, with a particular focus on the specific factors that set them apart.

Each section begins with a general overview of the key findings that relate to that particular section, followed by a more detailed discussion of each of the questions covered based on the total sample of respondents and/or the specific sub-group for whom each question applied. This is then followed by a list of any statistically significant differences that were found within each of the key sub-groups of interest. Please note that each of these sub-groups have been analysed independently of each other.



4.0 Results

4.1 Knowledge, understanding and perceptions

This section of the findings explores the extent to which women of child-bearing age are not only familiar with the terms 'folate' and 'folic acid', but also how well they understand what folate and folic acid are, its importance to particular groups of the population, and whether or not they believe folic acid should be added to all bread products.

In the following sub-sections, results are first presented on the total sample interviewed. Statistically significant differences are then noted for sub-groups of interest defined on the basis of age, location, rural/urban, household income, education and whether or not the respondent had children (or was currently pregnant).

4.1.1 Awareness and understanding of the terms, 'folate' and 'folic acid'

Key findings

- ◆ Two-thirds (68%) of all respondents had heard of folate.
- ◆ Almost all (95%) reported having heard of folic acid.
- ◆ However, most rated their actual knowledge of folate and folic acid as being low. What knowledge they did have, had either come from the media, or through various health providers they had encountered during pregnancy.
- ◆ Just over half (54%) of the total sample mentioned (on an unprompted basis) that folate and/or folic acid was needed before or during pregnancy. For example, 21% of those who had heard of folate and/or folic acid described it as something that minimised the risk of children being born with neural tube defects, while 24% simply stated that folate and/or folic acid was something you are 'supposed to take before/during pregnancy'.
- ◆ No respondents described folate or folic acid in negative terms.



Awareness and understanding of folate and folic acid

Two thirds (68%) of all the women interviewed for this survey reported having heard of folate, while 95% reported having heard of folic acid.

However, when asked to describe in their own words what folate or folic acid was, one-in-three were unable to (35% of those who had heard of folate, did not actually know what it was, as did 30% of those who had heard of folic acid).

Descriptions of what folate is

Those who did offer an explanation as to what folate was, most commonly mentioned the following:

- ◆ Twenty-four percent of those who had heard of folate, described it as a vitamin, mineral or micro-nutrient.

Something to do with vitamin B.

I just know that it is a vitamin or a mineral and found in some vegetables.

It's a micro-nutrient which is probably found in fruits and vegetables.

- ◆ Fourteen percent were aware that folate was something that was needed before/during pregnancy as it specifically helps to minimise the risk of neural tube defects (i.e. spina bifida).

It was an essential nutrient especially for women who are contemplating, or in the early stages of pregnancy. It helps to prevent neural tube defects in babies - spina bifida in babies.

It's something you take to prevent neural defects during pregnancy, good for blood circulation.

What I do know is it helps in pregnancy, it helps with development of the baby, and it's got something to do with reducing the risk of baby being born with spina bifida.

- ◆ Seven percent were more general in their description of folate, describing it as something that helps with the general development of unborn children/decreases the risk of birth defects.

It just helps with the development of the baby when you're pregnant.



It's something to prevent birth defects. It's that stuff you have when trying to conceive a child.

Folate is something that females need when they are pregnant, helps increase the chance of healthy baby and healthy mum.

- ◆ Another 14% knew that folate was something you need/take before/during pregnancy, but they either did not know (or did not elaborate) on why this was the case.

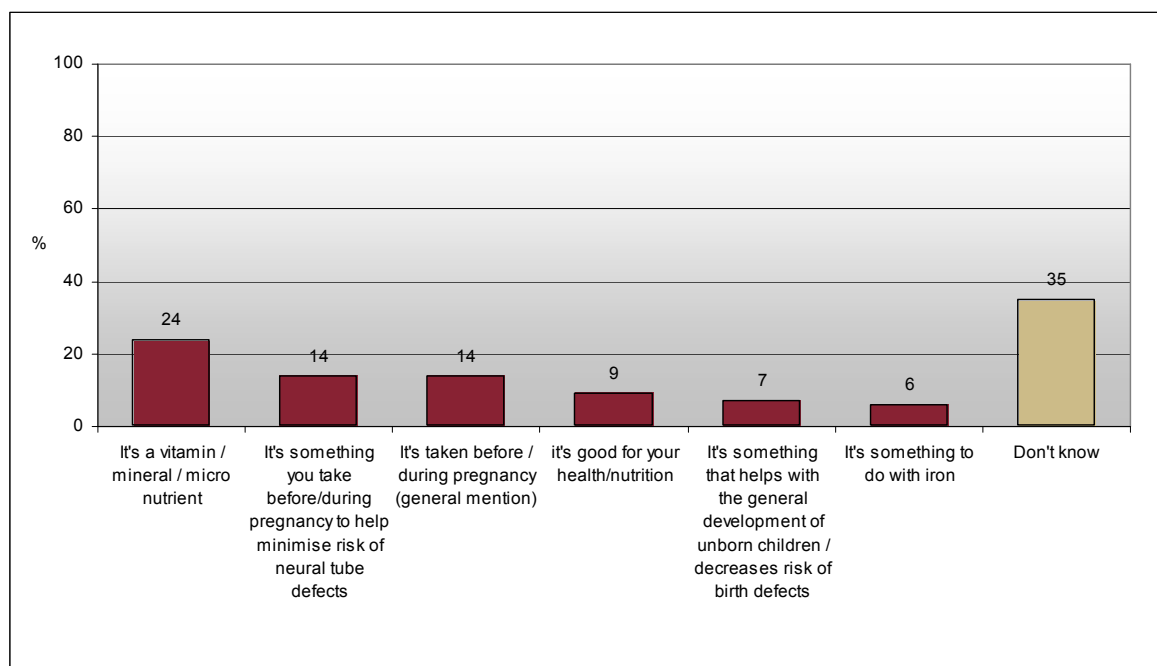
The only thing I know is that it was important to take while I was pregnant. I don't really know more than that.

It's something you need lots of when you're pregnant.

Pregnant women need to have it. It's something to do with pregnant women.

- ◆ No respondents described folate or folic acid in negative terms.

Figure 1: Unprompted description of what 'folate' is (n=728*)



*Sub-sample excludes those who had not heard of folate.



Descriptions of what folic acid is

Similar descriptions were provided with regard to folic acid:

- ◆ Thirteen percent of those who had heard of folic acid described it as something that was needed before/during pregnancy to specifically help minimise the risk of neural tube defects (i.e. spina bifida).

Something that you need when you have children, it's a nutrient. It prevents spina bifida.

The thing for spina bifida when you're pregnant.

I know it is something that you need while trying to get pregnant to prevent neural tube defects.

- ◆ Another 6% described folic acid as something that helps with the general development of unborn children/prevents general 'birth defects'.

You take it when you're pregnant to prevent diseases and deformities in babies.

Essential for child's development in the womb.

Is a supplement that you take before and during pregnancy for the baby to grow normally.

- ◆ Seventeen percent reported that folic acid was something you need/take before/during pregnancy, but they either did not know (or did not elaborate) on why this was the case.

You take folic acid when you are pregnant.

Again, I don't know what it is, but I do know that you should increase your intake when you are pregnant.

I don't know, it's good when you're pregnant. Got to have it for some reason, it's important.



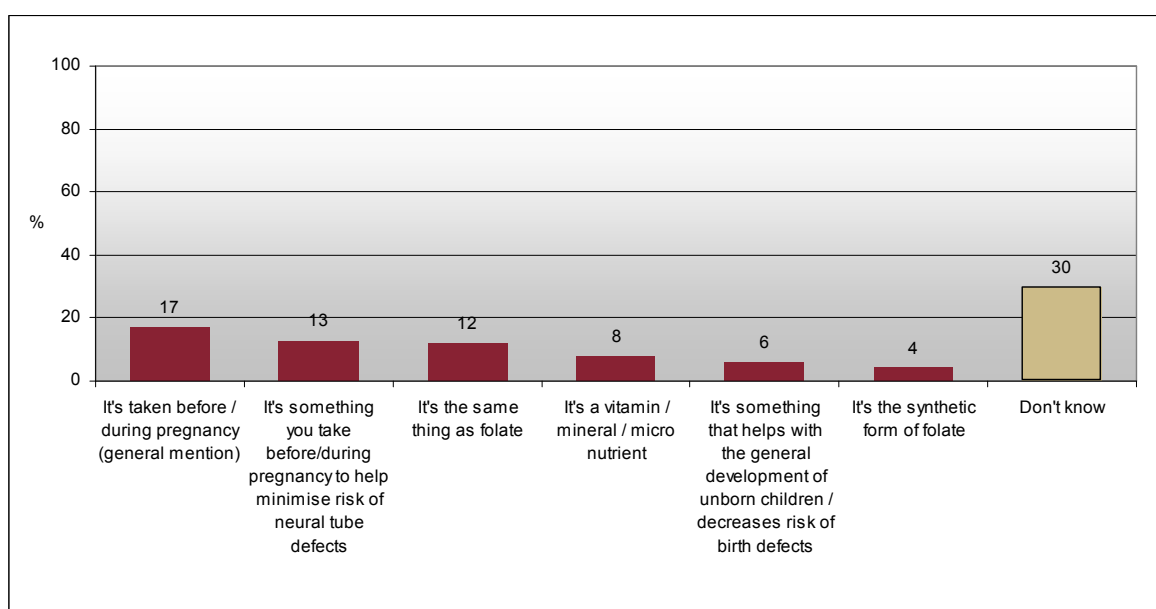
- ◆ Twelve percent said that folic acid and folate were the same thing, while another 4% went one step further by describing folic acid as the synthetic form of folate.

That's the actual supplement that you can take, it's kind of the same. I think folate would be the raw one and folic acid would be the supplement that you take. Folate you would get naturally in some food.

Supplement you can take to increase levels of folate in your blood.

The chemical of folate that's added to food products.

Figure 2: Unprompted description of what 'folic acid' is (n=959*)



*Sub-sample excludes those who had not heard of folic acid.

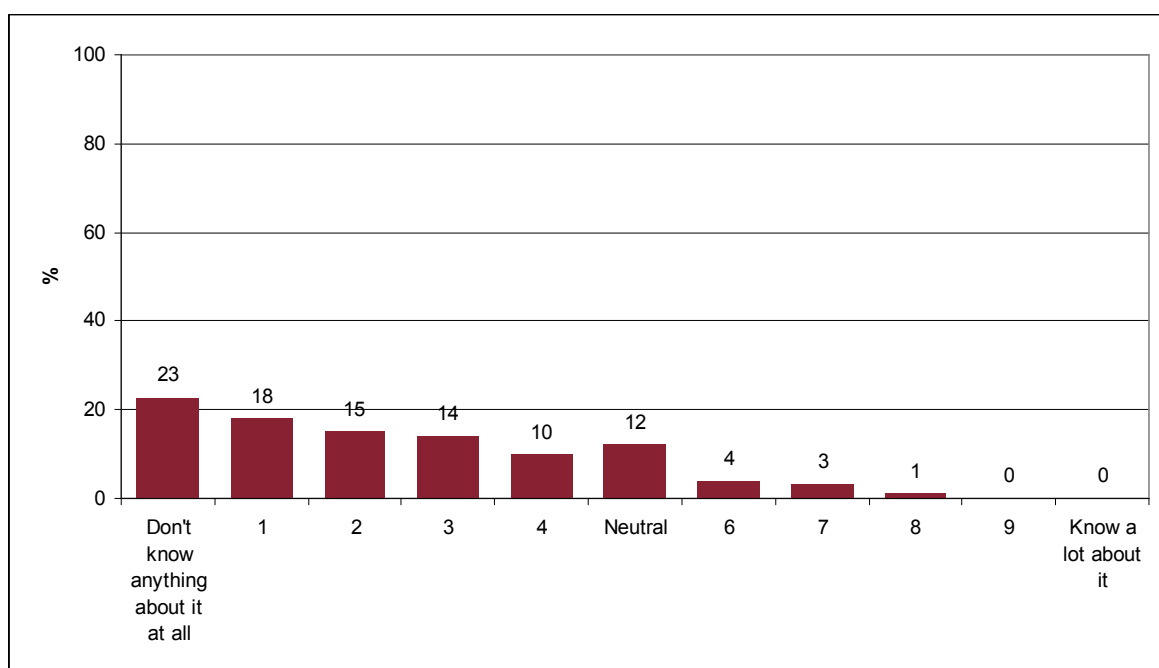


Self-reported level of knowledge about folate or folic acid

When asked to rate their level of knowledge about folate or folic acid on a scale of 0-10 (where '0' means *Don't know anything about it at all* and '10' means *Know a lot about it*), most respondents placed themselves on the lower end of the scale.

- ◆ More than half (57%) of all respondents rated their knowledge of folate/folic acid as a '0', '1' or '2'. In fact, 23% reported that they did not know anything about it at all (by rating their knowledge as '0') (Figure 3):
- ◆ At the other extreme, only 1% rated their knowledge as an '8' or higher.

Figure 3: Self-reported level of knowledge about folate or folic acid (n=1,000)



Sources of knowledge

Those who said they knew something about folate or folic acid (i.e. did not rate their level of knowledge as a '0') were asked to identify where/how they had obtained that knowledge or information. While 43% mentioned the media (i.e. television, press or radio), 24% said they found out about folate/folic acid through their midwife or other pregnancy-related health professional, while 19% mentioned their GP. Nineteen percent reported learning about folate/folic acid through friends and family, while 13% had read about it in books or magazines for pregnant women.



4.1.1 Statistically significant differences with regard to awareness and knowledge of folate and folic acid by sub-groups

Currently pregnant/already had children

Fifty-nine percent of the total sample had either had children (57%) or were currently pregnant (2%). Forty-two percent reported never having had children.

Compared to those who had never had children, those who were pregnant at the time of the survey or reported having had children in the past were significantly:

- ◆ More likely to have heard of folate (77%, cf. 56% of those without children).
- ◆ More likely to have heard of folic acid (98%, cf. 90% of those without children).
- ◆ Better able to describe what folate was (71% of those aware of the term 'folate' were able to provide some form of description as to what folate was, cf. 53% of those who had also heard of 'folate' but did not have children).
- ◆ Better able to describe what folic acid was (82% of those aware of the term 'folic acid' were able to provide some form of description as to what folic acid was, cf. 52% of those who had also heard of 'folate' but did not have children).
- ◆ Less likely to rate their knowledge of folate or folic acid as a '0' out of '10' (where '0' meant that they didn't know anything about it at all) (13%, cf. 38% of those without children).
- ◆ Less likely to report having gained their knowledge of folate and folic acid through the media (36% of those who reported knowing at least something about folate and folic acid, cf. 58% of those with no children who also claimed to know at least something about folate and folic acid).
- ◆ More likely to report having gained their knowledge about folate and folic acid through a medical/health professional (24% gained their knowledge via a GP, and 36% through a midwife or obstetrician, cf. 8% and 2%, respectively, for those with no children).



Age

Forty-seven percent of the total sample were under 30 years of age. The remaining 53% were aged between 30 and 44 years.

Compared to those in the younger age cohort, respondents aged 30+ were significantly:

- ◆ More likely to have heard of folate (81%, cf. 54% of those aged 16-29).
- ◆ Better able to describe what folate is (71% of those who had heard of folate were able to provide a description of folate, cf. to 54% of those aged 16-29 who had also heard of folate).
- ◆ Less likely to rate their overall level of knowledge of folate or folic acid a '0' out of '10' (42%, cf. 73% of those aged 16-29).
- ◆ More likely to describe folate as something that is needed before or during pregnancy to minimise the risk of neural tube defects (16% of those who had heard of folate, cf. 10% of those aged 16-29 who had also heard of folate).
- ◆ More likely to cite a General Practitioner (24% cf. 8% of those aged 16-29) or a Midwife or other pregnancy health professional (29% of those who reported having some knowledge of folate or folic acid, cf. 17% of those aged 16-29 who also reported having some knowledge) as a main source of knowledge of folate and folic acid.
- ◆ Less likely to mention high school or university as the main way that they got to know about folate or folic acid (4%, cf. 18% of those aged 16-29).

Location

Half (50%) of the total sample lived in the Upper North Island (Northland down to the Waikato), 22% lived in the Lower/Central North Island (Hawke's Bay down through to Wellington), while the remaining 29% lived in the South Island.

There were no statistically significant differences with regard to awareness of knowledge of folate and folic acid by location.



Household income

Forty-one percent of the total sample described their household income as being less than \$70,000 per annum. Forty-seven percent reported their household income as being \$70,000 or more.

Compared to those in the low/medium income bracket, respondents with a household income of \$70,000+ were significantly:

- ◆ More likely to have heard of folate (75%, cf. 67% of those with a household income of less than \$70,000).
- ◆ More likely to have heard about folate and/or folic acid through the media (TV, the press, and radio) (47% of those who knew something about folate/folic acid, cf. 38% of those on less than \$70,000).
- ◆ Less likely to report not knowing anything at all about folate or folic acid (16%, cf. 27% of those on less than \$70,000).
- ◆ More likely to describe folate as something that you need to take before/during pregnancy to minimise risk of neural tube defects such as spina bifida (18% of those who had heard of folate, cf. 11% of those on less than \$70,000 who had also heard of folate).

Educational status

Forty-four percent of the total sample reported either having no educational qualifications or that their highest qualification was at secondary school level. Fifty percent were tertiary qualified (either holding a polytechnic or trade certificate (23%) or a university degree (32%)).

Compared to those with low or no qualifications, respondents with a tertiary level education were significantly:

- ◆ More likely to have heard of folate (79%, cf. 55% of those with low/no qualifications).
- ◆ More likely to have heard of folic acid (98%, cf. 90% of those with low/no qualifications).
- ◆ Less likely to rate their overall level of knowledge of folate or folic acid as a '0' out of '10' (45%, cf. 70% of those with low/no qualifications).



- ◆ Better able to describe what folic acid is (78% of those who had heard of folic acid were able to provide a description as to what folic acid was, cf. 59% of those with low/no qualifications who had also heard of folic acid).
- ◆ More likely to believe that folic acid is something needed or taken, before or during pregnancy, to help with the baby's nerve development, or to minimise the risk of neural tube defects (16% of those who had heard of folic acid, cf. 10% of those qualified at or below high school level who had also heard of folic acid).
- ◆ More likely to describe folate as a vitamin, mineral or micro-nutrient (29% of those who had heard of folate, cf. 15% of those qualified at or below high school level who had also heard of folate).
- ◆ More likely to believe that folate and folic acid are similar or the same (14%, cf. 8%), or to describe folic acid as the synthetic form of folate, (6%, cf. 1%).
- ◆ More likely to have learnt about folate and folic acid through a midwife or other pregnancy health professional (27% of those who reported having at least some knowledge of folate or folic acid, cf. 19% of those with low/no qualifications who also reported having at least some knowledge of folate or folic acid), through specific literature for pregnant women (17%, cf. 7%) or the Internet (7%, cf. 1%).
- ◆ Less likely to identify their friends and/or family as one of their key sources of information on folate or folic acid (11%, cf. 18% of those with low/no qualifications).

Rural/urban

Twenty-six percent of the total sample reported living in a rural area or small town with a population of less than about 10,000 people. Seventy-one percent reported living in a large town or city with a population greater than 10,000. The remaining 3% were unsure how to classify the area in which in they lived.

Compared to those living in urban areas, those from rural New Zealand were significantly:

- ◆ Less likely to describe folic acid as being 'the same thing as folate' (7% of those who reported knowing at least something about folate or folic acid, cf. 13% of those who lived in an urban area and also possessed some knowledge of folate or folic acid).
- ◆ Less likely to report having gained their knowledge of folate and/or folic acid through the media (35% of those who reported knowing at least something about folate or folic acid, cf. 46% of those who lived in an urban area and also knew something on this topic).



4.1.2 Opinions with regard to the importance of folate and folic acid

Key findings

- ◆ Seventy-three percent of those who reported knowing something about folate or folic acid identified (on an unprompted basis) pregnant women as a group of the population who need to make sure that they are getting the right amount of folate or folic acid.
- ◆ After prompting, 74% of the total sample agreed that pregnant women and/or those who are trying to become pregnant, need to make sure they are getting the right amount of folate/folic acid.
- ◆ Those who agreed that women who were pregnant/trying to become pregnant needed to make sure they were getting the right amount of folate or folic acid, were asked to rate how important they believed this was on a scale of '0' to '10' where 10 meant that it was 'extremely important'. Most of these respondents (87%) rated it as very important (by rating it as at least an '8' out of '10'). This represents 64% of the total sample.
- ◆ Two-thirds (68%) of those who agreed that pregnant women needed to ensure they are getting the right amount of folate or folic acid, reported that it was recommended that they increase their folate and folic acid intake before they become pregnant. This equates to 50% of the total sample.

Perceived importance of pregnant women and those trying to become pregnant, making sure they are getting the right daily amount of folate or folic acid

Those who knew something about folate or folic acid were asked to identify which if any particular types of people need to make sure they are getting the right amount of it. Sixty-two percent immediately thought of pregnant women, while 10% identified women planning to become pregnant. This represents 47% and 7% of the total sample.

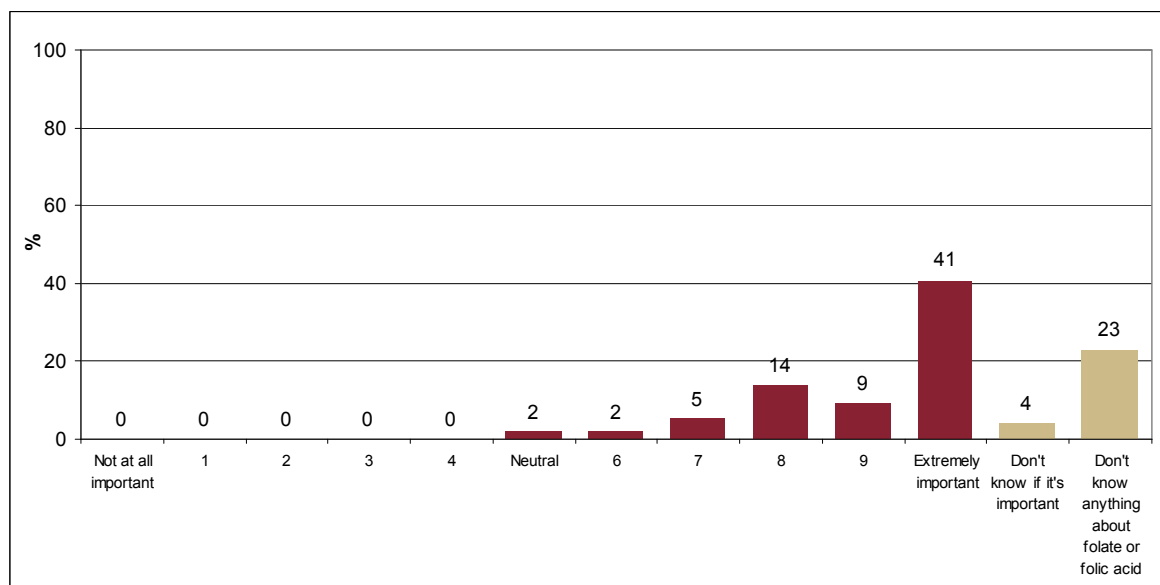
When asked if they could think of any other specific groups, mention of pregnant women increased to 73%, and women planning to become pregnant to 20% (on a total sample basis, this represents 56% and 16%, respectively). Seventeen percent reported that folate or folic acid intake was important for 'everyone', while 14% believed it was important for children. On a total sample basis, this represents 13% and 11%, respectively.

After prompting, 97% of those who knew something about folate or folic acid agreed that pregnant women and/or those who were planning to become pregnant need to make sure they get the right amount. This represents 74% of the total sample.



Those who agreed that pregnant women/women planning to become pregnant needed to make sure they were getting the right amount of folate, were asked to rate how important they believed this was on a scale of 0 to 10 (where 0=not at all important and 10=extremely important). On this basis, 87% provided a rating of 8 or higher (this represents 64% of the total sample) (Figure 4).

Figure 4: Importance of pregnant women/women planning to conceive making sure they are getting the right daily amount of folate (n=1,000)



When and why pregnant women should increase their folate or folic acid intake

Two-thirds (68%) of those who agreed that pregnant women/women planning to become pregnant need to increase their folate intake, reported that it was recommended that these women increase their folate and folic acid intake before they become pregnant (this equates to 50% of the total sample). Seven percent believed that this should happen when they discovered they were pregnant, while another 14% reported that pregnant women needed to increase their folate/folic acid intake within the first trimester. On a total sample basis, this represents 5% and 11%, respectively.

When asked to describe why it is recommended that pregnant women in particular, or women who are planning to get pregnant, increase their folate or folic acid intake, half (51% of those who agreed that pregnant women/those trying to conceive need to make sure they are getting the right amount of folate/folic acid) said that it was important for babies nerve development or to minimise the risk of neural tube defects. Twenty-four percent said it was recommended because folate/folic acid helps with babies' general development and the avoidance of (unspecified) birth defects. This equates to 38% and 18% of the total sample.

Prevents brain or nerve damage, spina bifida or cerebral palsy.

It helps stop nerve and brain problems.



I think it was to do with the brain. To reduce the likelihood of complications or problems associated with pregnancy.

Something to do with the development of the baby.

Another third (32%, or 24% of the total sample) reported that the increased folate/folic acid intake was recommended in order to improve babies' (or the mothers') general health and nutrition.

To ensure your health levels are up.

The baby may need it to grow and be healthy.

4.1.3 Statistically significant differences with regard to the perceived importance of folate and folic acid by sub-groups

Currently pregnant/already had children

Those who were pregnant at the time of the interview or already had children were significantly:

- ◆ More likely to identify pregnant women (on an unprompted basis) as a specific group of the population that needs to make sure they are getting the right amount of folate or folic acid (81% of those who reported knowing at least something about folate or folic acid, cf. 58% of those without children who also had some knowledge of folate or folic acid).
- ◆ More likely to report (on an unprompted basis) that women planning to become pregnant also need to make sure they are getting the right amount of folate or folic acid (25% of those who reported knowing at least something about folate or folic acid, cf. 12% of those who also had some knowledge but did not have any children).
- ◆ More likely to rate getting the right amount of folate or folic acid as being extremely important (54% of those who agreed that pregnant women/women planning to become pregnant need to make sure they get the right daily amount of folate or folic acid rated this as a '10' out of '10' in terms of importance, cf. 25% of those who agreed also, but did not have children of their own).
- ◆ More likely to know that women are supposed to increase their folate and folic acid intake before they become pregnant (75% of those who agreed that pregnant women/women planning to become pregnant need to make sure they get the right daily amount of folate or folic acid, cf. 54% of those with no children who also agreed).



- ◆ More likely to know why it is recommended that pregnant women/women planning to get pregnant increase their folate or folic acid intake (58% of those who agreed that pregnant women/women planning to become pregnant need to make sure they get the right daily amount of folate or folic acid reported that this was to minimise risk of neural tube defects, cf. 37% of those with no children). 21% of those with no children (who knew that pregnant women were supposed to monitor their folate/folic acid intake), did not know why this was recommended.

Age

Those in the older age cohort (30-44 years) were significantly:

- ◆ More likely to identify pregnant women (on an unprompted basis) as a specific group of the population that needs to make sure they are getting the right amount of folate or folic acid (78% of those who reported knowing at least something about folate or folic acid, cf. 65% of those aged 16-29 who also reported having some knowledge about folate or folic acid).
- ◆ More likely to report (on an unprompted basis) that women planning to become pregnant also need to make sure they are getting the right amount of folate or folic acid (27% of those who reported knowing at least something about folate or folic acid, cf. 10% of those aged 16-29).
- ◆ More likely to rate the above as being extremely important (54% of those who agreed that pregnant women/women planning to become pregnant need to make sure they get the right daily amount of folate or folic acid rated the importance of this as a '10' out of '10', cf. 27% of those aged 16-29 who also agreed).
- ◆ More likely to know that it is recommended that women increase their folate and folic acid intake before they become pregnant (75% of those who agreed that pregnant women/women planning to become pregnant need to make sure they get the right daily amount of folate or folic acid, cf. 56% of those aged 16-29).
- ◆ More likely to know why it is recommended that pregnant women/women planning to get pregnant increase their folate or folic acid intake (46% of those who agreed that pregnant women/women planning to become pregnant need to make sure they get the right daily amount of folate or folic acid reported that this was to minimise risk of neural tube defects, cf. 37% of those aged 16-29). 20% of those aged 16-29 (who knew that pregnant women were supposed to monitor their folate/folic acid intake), did not know why this was recommended.



Location

Those in the Upper North Island were significantly:

- ◆ Less likely to mention baby's nerve development, or reduced risk of neural tube defects, as a reason for women who are pregnant (or planning to be) to increase their folate or folic acid intake (39% of those who agreed that pregnant women/women planning to become pregnant need to make sure they get the right daily amount of folate or folic acid, compared to 48% of those in the South Island).

Household income

There were no notable differences in this regard when examined by household income levels.

Educational status

Those with tertiary level qualifications were significantly:

- ◆ More likely to identify pregnant women (on an unprompted basis) as a specific group of the population that needs to make sure they are getting the right amount of folate or folic acid (79% of those who reported knowing at least something about folate or folic acid, cf. 63% of those with low/no qualifications).
- ◆ More likely to report (on an unprompted basis) that women planning to become pregnant also need to make sure they are getting the right amount of folate or folic acid (25% of those who reported knowing at least something about folate or folic acid, cf. 13% of those with low/no qualifications).
- ◆ More likely to rate the above as being extremely important (52% of those who agreed that pregnant women/women planning to become pregnant need to make sure they get the right daily amount of folate or folic acid rated this as a '10' out of '10' in terms of importance of, cf. 29% of those with low/no qualifications).
- ◆ More likely to know that women are supposed to increase their folate and folic acid intake before they become pregnant (72% of those who agreed that pregnant women/women planning to become pregnant need to make sure they get the right daily amount of folate or folic acid, cf. 61% of those with low/no qualifications).



- ◆ More likely to know why it is recommended that pregnant women/women planning to get pregnant increase their folate or folic acid intake (59% of those who agreed that pregnant women/women planning to become pregnant need to make sure they get the right daily amount of folate or folic acid reported that this was to minimise risk of neural tube defects, cf. 37% of those with low/no qualifications). One-fifth (19%) of those with low/no qualifications (who knew that pregnant women were supposed to monitor their folate/folic acid intake), did not know why this was recommended.

Rural/urban

There were no notable differences in this regard when examined by rural and urban-based respondents.



4.1.4 Knowledge of sources of folate or folic acid

Key findings

- ◆ Three quarters (74%) of all respondents agreed that pregnant women and/or women planning to conceive needed to make sure they were getting the right amount of folate or folic acid.
- ◆ While most of these respondents (88%) were aware that folic acid was available through supplements, 30% believed that pregnant women could get enough folate and folic acid through food and drink alone. This represents 65% and 22% of the total sample.
- ◆ However, 39% of all respondents were unable to identify any foods or drinks that contained folic acid. Similarly, 25% were unable to identify any foods or drinks that they believed would be naturally good sources of folate.

Knowledge that folate levels can be increased through supplements

Despite acknowledging the fact that pregnant women/women planning to become pregnant needed to make sure they were getting the right amount of folate or folic acid, one-third (30%) of these respondents believed that pregnant women (or those planning to conceive) could get enough folate and folic acid through their diet alone (this represents 22% of all respondents). Another 10% were unsure.

However, most of these respondents (88% of those who agreed that pregnant women/women planning to become pregnant needed to make sure they were getting the right amount of folate or folic acid, or 65% of the total sample) were aware that they could obtain folic acid through supplements (50%), multi-vitamins (14%) or 'pills' (35%).

Knowledge of specific foods and drinks that contain folate or folic acid

When asked to identify which types of foods and drinks were naturally good sources of folate, 22% of those who knew that pregnant women need to make sure they are getting the right amount of folate identified vegetables (in general) as a good natural source of folate, one-third specifically mentioned green vegetables (33%), 17% mentioned fruit, 14% bread. However, another third (33%, or 25% of the total sample) were unable to identify any foods or drinks that were naturally good sources of folate.

Similarly, 39% of all respondents did not know which types of food or drinks have folic acid added to them. 30% mentioned bread. The next most commonly mentioned products were breakfast cereals (13%), orange/fruit juice (19%) and milk/dairy products (14%).



4.1.5 Statistically significant differences with regard to knowledge of sources of folate and folic acid by sub-groups

Currently pregnant/already had children

Compared to those who had never had children, those who were pregnant at the time of the survey or reported having had children in the past were significantly:

- ◆ More likely to know that women who are pregnant or planning to conceive cannot get enough folate and folic acid through diet alone (64% of those who agreed that pregnant women/women planning to conceive need to make sure they are getting the right amount of folate or folic acid, cf. 51% of those who also agreed but had no children).
- ◆ More likely to identify green vegetables (38% of those who agreed that pregnant women/women planning to conceive need to make sure they are getting the right amount of folate or folic acid, cf. 23% who also agreed but had no children) and red meat (5%, cf. 1%) as naturally good sources of folate.
- ◆ More likely to identify breakfast cereals (15%, cf. 10%), bread (35%, cf. 22%) and orange juice (11%, cf. 6%) as food or drink that has folic acid added to it.
- ◆ Less likely to identify supplements, vitamins or pills as a way in which pregnant women can source folic acid (87% of those who agreed that pregnant women/women planning to conceive need to make sure they are getting the right amount of folate or folic acid, cf. 92% of those who also agreed but had no children).

Age

Compared to those in the younger age cohort, respondents aged 30+ were significantly:

- ◆ More likely to know that women who are pregnant or planning to become pregnant are not able to get enough folate and folic acid through their diet alone (64% of those who agreed that pregnant women/women planning to conceive need to make sure they are getting the right amount of folate or folic acid, cf. 54% of those who also agreed but were aged 16-29 years).
- ◆ More likely to identify green vegetables (39% of those who agreed that pregnant women/women planning to conceive need to make sure they are getting the right amount of folate or folic acid, cf. 25%), red meat (5%, cf. 1%) and grains (9%, cf. 4%) as naturally good sources of folate.



- ◆ More likely to identify specific types of food or drink that has folic acid added to it (66%, cf. 57% of those aged 16-29).
- ◆ More likely to identify breakfast cereals (16%, cf. 9%) and bread (37%, cf. 22%) as products that have folic acid added to them.

Location

There were no statistically significant differences in this regard by location.

Household income

Compared to those in the low/medium income bracket, respondents with a household income of \$70,000+ were significantly:

- ◆ More likely to be able to identify at least one type of food or drink that has folic acid added to it (65%, cf. 57% of those on lower incomes).
- ◆ More likely to report that breakfast cereals have folic acid added to them (17%, cf. 9%).

Educational status

Compared to those with low or no qualifications, respondents with a tertiary level education were significantly:

- ◆ Less likely to say that women who are pregnant or planning to get pregnant can get enough folate and folic acid through diet alone (27% of those who agreed that pregnant women/women planning to conceive need to make sure they are getting the right amount of folate or folic acid, cf. 36% of those with low/no qualifications who also agreed).
- ◆ More likely to identify specific types of food or drinks that are naturally good sources of folate (70% of those who agreed that pregnant women/women planning to conceive need to make sure they are getting the right amount of folate or folic acid, cf. 61% of those with no/low qualifications who also agreed).
- ◆ More likely to identify green vegetables (38% of those who agreed that pregnant women/women planning to conceive need to make sure they are getting the right amount of folate or folic acid, cf. 26%), breakfast cereals (9%, cf. 2%) and bread (16%, cf. 10%) as good sources of folate.



- ◆ More likely to identify specific types of food or drinks that have folic acid added to them (67%, cf. 54% of those with no/low qualifications).
- ◆ More likely to identify breakfast cereals (16%, cf. 9%) and bread (37%, cf. 20%) as foods that have folic acid added to them.
- ◆ More likely to report that women who are pregnant, or who are planning to become pregnant, can also get folic acid by taking supplements (54% of those who agreed that pregnant women/women planning to conceive need to make sure they are getting the right amount of folate or folic acid, cf. 44%).

Rural/urban

There were no notable differences in this regard when examined by rural and urban-based respondents.



4.1.6 Opinions with regard to the addition of folic acid in bread

Key findings

- ◆ Opinions as to whether or not folic acid should be added to all bread products varied across the board. Almost identical numbers agreed with this concept as disagreed, while another third (37%) held a 'neutral' view.
- ◆ The key perceived benefits of adding folic acid into all bread products were that it would make folic acid more accessible to the wider population (20%), and in particular to women who become pregnant (including those on low incomes, or with unplanned pregnancies) (8%).
- ◆ Those against mandatory inclusion of folic acid in bread products, mainly objected to the fact that this would remove the element of choice. This was identified as an issue for 19% of all respondents.

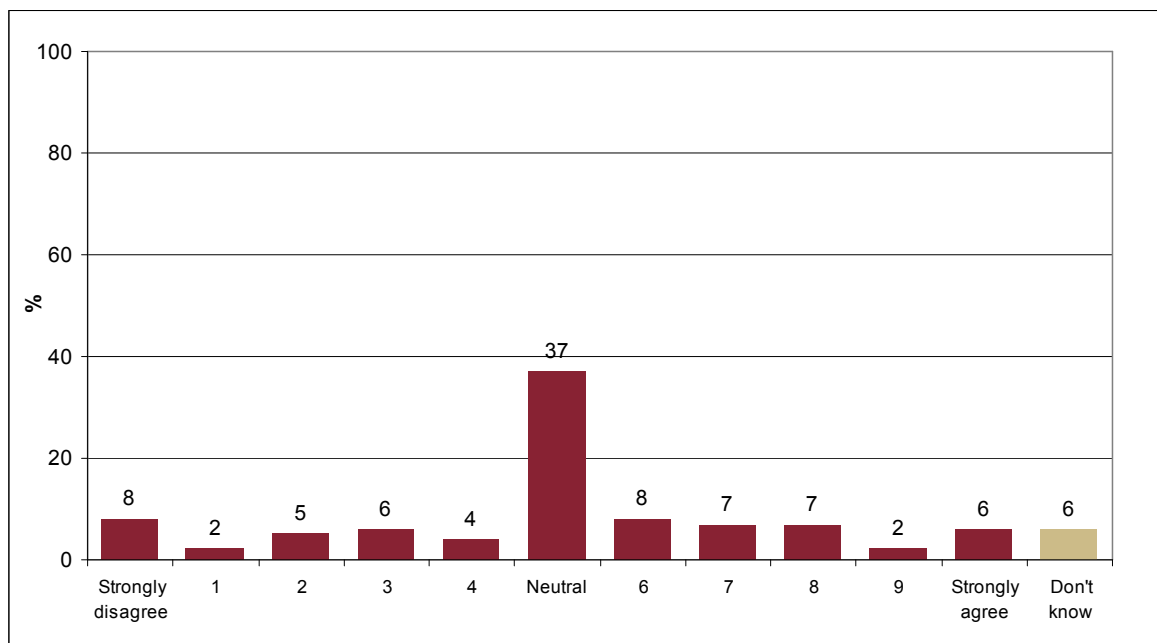
Level of agreement with the mandatory addition of folic acid into bread products

All respondents were asked if they agreed or disagreed that all bread products should have folic acid added to them. Agreement was measured on a scale of 0 to 10 where 0=strongly disagree and 10=strongly agree.

As clearly illustrated in Figure 5, views in this regard were evenly spread, with 15% agreeing (rating of '8' or higher), 15% disagreeing (rating of '2' or lower) and 37% rating their view as 'neutral'.



Figure 5: Agreement that all bread products should have folic acid added (n=1,000)



Reasons for supporting the addition of folic acid into all bread products

Those who agreed that folic acid should be added to all bread products felt it was a good idea because:

- ◆ It would make folic acid/folate more accessible to all/everyone who needs it (this was mentioned by 20% of all respondents).

I think a lot of people are unaware of how important folic acid is, especially women.

Everyone needs it, and it's difficult to get through their diet.

If it's good for you then why not?

- ◆ Women who are pregnant or planning to do so, will get the daily intake they need (regardless of their knowledge or understanding of what folate/folic acid is and why it is important for them) (this was mentioned by 8% of all respondents).

I agree, because often people don't plan to get pregnant, and they don't know they need to increase their folic acid. And if it was in our food, it would help them anyway.

Some people just don't get that pre-natal care, so that might help.



Most women eat bread, so it would be a means of having them get sufficient folate without having to buy supplements - useful for lower socio-economic groups.

Reasons against the addition of folic acid into all bread products

In contrast, those who held a more neutral or negative view of making folic acid mandatory in bread, mainly objected to the fact that it would remove the element of choice (this was mentioned by 19% of all respondents).

I think it is up to the consumer to purchase and eat fortified foods as they will - it is their choice.

I don't like other people deciding what should be in my diet.

If you needed to take it when you are pregnant, you can take it in a tablet, they don't need to put in bread.

Seven percent of all respondents reported being concerned about any potentially negative health impacts associated with the mandatory addition of folic acid into bread products.

I did hear that there could be health risks for men if they have too much folic acid.

I heard there was some research that found that too much folate can result in prostate problems for men.

Folic acid is good for women - I am not sure it's good for children or elderly people.

I would be concerned about the dosage - the risk of over-ingesting folic acid.

Current bread consumption levels

On average, respondents reported consuming two to three slices of bread a day. The most common types of bread consumed was multi-grain (41%), brown or wholemeal (31%), and white bread (22%).



4.1.7 Statistically significant differences with regard to the addition of folic acid into all bread products by sub-groups

Currently pregnant/already had children

Although they were no more likely to agree or disagree that bread products should have folic acid added to them, women who were currently pregnant or planning to become pregnant were significantly:

- ◆ More likely to have based their view on a particular factor or argument (only 7% were unable to explain the basis for their opinion on folic acid being added to all bread products, cf. 12% of those with no children).

Age

Compared to those in the younger age cohort, respondents aged 30+ were significantly:

- ◆ More likely to disagree that all bread products should have folic acid added (18% rated their agreement as a '0-2' out of '10', cf. 13% of those aged 16-29).
- ◆ Less likely to provide a 'neutral' response (33% rated their level of agreement as a '5' out of '10', cf. 42% of those aged 16-29).
- ◆ More likely to be able to explain the reasons behind their ratings (when asked to explain their views on the mandatory addition of folic acid in bread products, 17% of those aged 16-29 years said they did not know enough about the topic to make an informed decision, 12% could not explain their rating, and another 10% didn't care, cf. 11%, 6% and 5%, respectively, of those aged 30+).

Location

There were no notable differences in this regard by location.

Household income

There were no notable differences in this regard by household income levels.



Educational status

Although they were no more likely to agree or disagree that bread products should have folic acid added to them, those with a tertiary level education were significantly:

- ◆ More likely to report that the mandatory addition of folic acid would limit consumer choice (26%, cf. 16% of those with no/low qualifications), and that not everyone needs it (13%, cf. 7%).
- ◆ Less likely to say that they did not know why they rated their views on this topic as they did (5%, cf. 13% of those with no/low qualifications), or that they didn't care (5%, cf. 10%).

Rural/urban

Compared to those living in urban areas, those from rural New Zealand were significantly:

- ◆ Less likely to object to the mandatory addition of folic acid into bread products on the basis that it would limit consumer choice (17%, cf. 24% of those living in urban areas).
- ◆ More likely to mainly consume white bread (31% of those who have at least one slice of bread in an average day, cf. 18% of those who also eat bread but live in urban-based areas).



4.2 Behaviour

This section of the report examines the extent which respondents have personally taken folic supplements before or during pregnancy, and whether or not they intentionally purchase (or look for) food or drink that has folic acid added to it.

4.2.1 Personal intake/use of folate or folic acid

Key findings

- ◆ Eighty percent of the respondents who were (or had been) pregnant reported having taken vitamins or supplements containing folic acid during their pregnancy. This represents 46% of the total sample.
- ◆ Forty-one percent of these women started taking folic acid supplements before they became pregnant, while a similar proportion (38%) reported doing so when they found out they were pregnant. This equates to 19% and 18% respectively of the total sample.
- ◆ However, outside of pregnancy, little (if any) thought is given to their folate or folic acid intake. Three percent of all respondents were intentionally purchasing food or drink because they knew it contained folate or folic acid.

Use of vitamins and supplements during pregnancy

Fifty-nine percent of all the women interviewed for this survey were either currently pregnant, or had previously given birth. The majority of whom (80%) reported having taken vitamins or supplements containing folic acid while they were pregnant. This represents 46% of the total sample.

Forty-one percent of respondents who had taken vitamins or supplements reported taking these before they became pregnant, 38% started when they discovered they were pregnant, while 18% started within the first trimester. This equates to 19%, 18% and 8% respectively, on a total sample basis.

Purchasing behaviour with regard to food and drink that contain folate or folic acid

However, at the time of the survey, 3% of all respondents said they were currently buying particular foods or drink specifically because they contained folate or folic acid. Two percent of all respondents (or n=45) were actively checking to see if the food or drink they buy has folic acid added to it. This was typically done by checking the ingredients label (76%), or nutrition information panels (36%).



Ninety-seven percent of respondents were not currently checking to see if their products contained folic acid. These respondents said that if they were going to do so, they would also check the ingredients label (73%) or the nutrition information panel (37%).

Thirty-seven percent of all respondents were aware that folic acid is sometimes labelled on food products as folate.

It is also important to note that whilst the majority of respondents (97%) were not intentionally buying food or drink that contained folic acid, nor were they intentionally avoiding these products. One percent of all respondents said that they specifically avoid certain products because of the folic acid content.

Of the 3% (n=31) who were currently purchasing food and drinks for their folate or folic acid content, most (81%) were buying these products for their own personal consumption while the remainder were purchasing them for other family members.

Seventy percent (or n=22) of these respondents believed that they (and their families) were getting 'enough' folate and folic acid. The specific types of products they were buying included fruit juice (n=6), milk/dairy products (n=5), bread (n=5) and cereals (n=4). Due to the small base numbers, these results are indicative only, and have not been analysed by specific sub-groups.

4.2.1 Statistically significant differences with regard to personal intake of folate and folic acid by sub-groups

Currently pregnant/already had children

Those who were pregnant at the time of the survey or reported having had children in the past were significantly:

- ◆ More likely to know that folic acid is sometimes labelled on food products as folate (44%, cf. 27% of those with no children).

Age

Those aged 30+ were significantly:

- ◆ More likely to report that they started to take folic acid supplements / vitamins before they became pregnant (46% of those who took folic acid supplements / vitamins when pregnant, cf. 26% of those aged 16-29 who also reported having taken folic acid supplements / vitamins during pregnancy).



- ◆ Less likely to have reported having started taking folic acid supplements / vitamins within the first trimester (i.e. the first 3 months) of their pregnancy (15%, cf. 26% of those aged 16-29 who also reported having taken folic acid supplements / vitamins during pregnancy)).
- ◆ More likely to know that folic acid is sometimes labelled on food products as folate (44%, cf. 29% of those aged 16-29).
- ◆ More likely to check to see if the drinks or food they buy have folic acid added to them (9% check at least occasionally, cf. 4% of those aged 16-29).

Location

Those in the Upper North Island were significantly:

- ◆ Less likely to know that folic acid is sometimes labelled on food products as folate (33%, compared to 43% of those in the South Island).
- ◆ Less likely to report that they took vitamins or supplements containing folic acid while they were pregnant (76% of those who were or had been pregnant in the past, compared to 87% of those in the Lower/Central North Island who had also experienced pregnancy).
- ◆ More likely to report they started taking these vitamins or supplements when they discovered they were pregnant (46%, compared to 34% of those in the Lower/Central North Island who also reported having taken folic acid supplements / vitamins during pregnancy)).

Household income

Those with a household income of \$70,000+ were significantly:

- ◆ More likely to know that folic acid is sometimes labelled on food products as folate (45%, cf. 30% of those on lower incomes).

Educational status

Those with a tertiary level education were significantly:

- ◆ More likely to have taken folic acid supplements / vitamins when they were pregnant (86%, cf. 69% of those with low/no qualifications who were or had been pregnant in the past).



- ◆ More likely to have started taking folic acid supplements / vitamins before they became pregnant (45%, cf. 32% of those with no/low qualifications who also reported having taken folic acid supplements / vitamins during pregnancy) and less likely to have started when they discovered they were pregnant (35%, cf. 46%).
- ◆ More likely to know that folic acid is sometimes labelled on food products as folate (44%, cf. 28%).
- ◆ More likely to say that if they wanted to see if a product had folic acid in it, they would check the nutrition information panel (41%, cf. 32% of those with low/no qualifications who do not currently check to see if their food or drink contains folic acid).

Rural/urban

Compared to those living in urban areas, those from rural New Zealand were significantly:

- ◆ More likely to report having had at least two children (47%, cf. 39% of those living in the city).
- ◆ Less likely to report having taken any vitamins or supplements containing folic acid when they were pregnant (71% of those who had children, cf. 83% of urban-based mothers).



4.3 Market Segments

In this section of the report, the results are presented based on a three-way segmentation, grouping respondents on the basis of their knowledge (correct or incorrect) of when it is important for a women to increase her intake of folate.

4.3.1 The segmentation explained

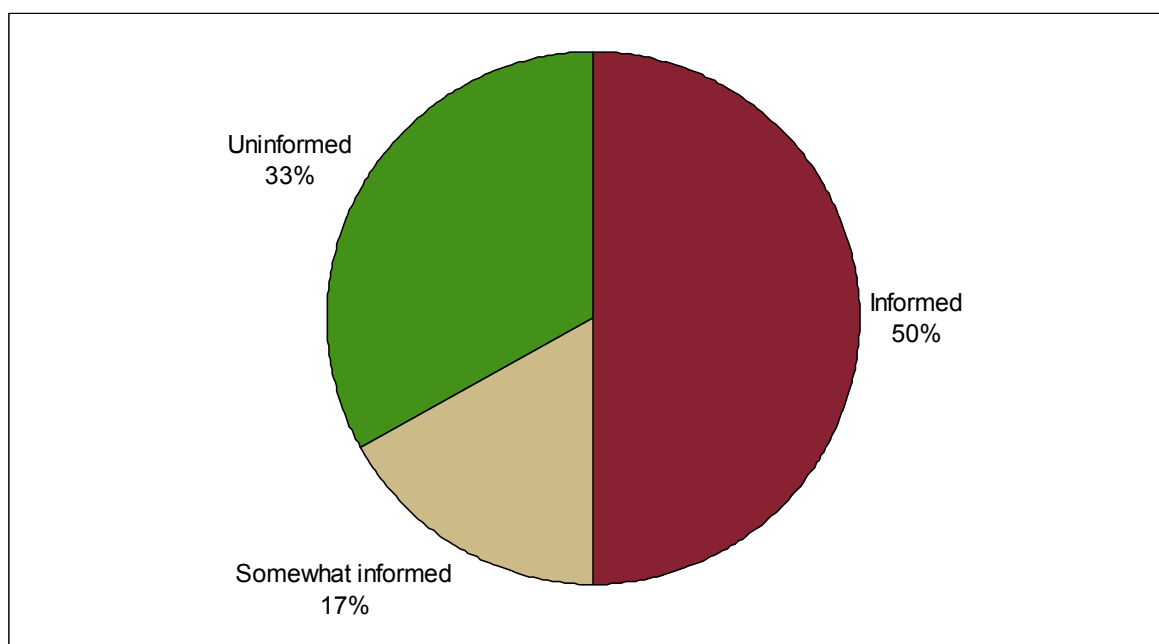
Respondents were segmented into three groups, on the basis of their knowledge (correct or incorrect) of when it is important for women to increase their daily intake of folate or folic acid. Each group has been given a name so that they can be easily referred to in this report.

The 'Informed' segment (which comprises 50% of the total sample), is based on those who were aware that women should increase their daily intake of folate or folic acid prior to becoming pregnant.

The 'Somewhat informed' segment (which comprises 17% of the total sample) is based on those who believed that women should increase their daily intake of folate or folic acid when they become pregnant.

The segment of 'Uninformed' respondents (who comprise one third of the total sample), either did not know when women were supposed to increase their daily intake of folate or folic acid, did not believe an increase was necessary at all, or reported not knowing anything at all about folate or folic acid.

Figure 6: Segmentation (n=1,000)





Segment profile

As shown in Table 4 below, each of the three segment groups had a distinct demographic profile.

Compared with the total sample, those in the 'Informed' segment were significantly more likely to be:

- ◆ At least 30 years of age (69% were aged between 30 and 44 years, cf. 52% of the total sample).
- ◆ A parent of two or more children (53%, cf. 41% of the total sample).
- ◆ Had recently had a child (42% had at least one child in their household under five years of age, cf. 31% of the total sample).
- ◆ NZ European (85%, cf. 76% of the total sample).
- ◆ Have a tertiary level qualification (67%, cf. 55% of the total sample).

The demographic profile of those in the 'Somewhat informed' segment generally reflected that of the total sample:

- ◆ Just under half (43%) were aged between 16 and 29, whilst the other half were 30 or older.
- ◆ Forty-seven percent had two or more children, while one-third (34%) had none.
- ◆ One-third (32%) had at least one child in their household who was under five years of age.
- ◆ Two-thirds (68%) were NZ European, 19% were Māori.
- ◆ One-third (35%) had a secondary school qualification, while another third (37%) had at least a bachelors degree.

In contrast, those in the 'Uninformed' segment were significantly more likely to be:

- ◆ Young (57% were aged between 16 and 24 years, cf. 30% of the total sample).
- ◆ To not have any children (71%, cf. 42% of the total sample).



- ◆ In a household where the youngest child was at least 15 years of age (43%, cf. 25% of the total sample).
- ◆ Māori (24%), or Pacific (13%) and less likely to be New Zealand European (67%, cf. 76% of the total sample).
- ◆ Have no qualifications or a secondary school qualification (66%, cf. 45% of the total sample).

Table 4: Segmentation profile

| | Base= Total sample 1,000 % | Informed 552 % | Somewhat informed 175 % | Uninformed 273 % |
|---------------------------------------------|----------------------------------------|----------------------|----------------------------------|------------------------|
| Children in household | | | | |
| No children | 18 | 17 | 17 | 21 |
| Youngest child under 5 | 31 | 42 | 32 | 15 |
| Youngest child 5 to 14 | 26 | 28 | 25 | 21 |
| Youngest child 15+ | 25 | 12 | 27 | 43 |
| Number of children had by respondent | | | | |
| None | 42 | 26 | 34 | 71 |
| Currently pregnant | 2 | 3 | 3 | 0 |
| One | 16 | 19 | 17 | 9 |
| Two or more | 41 | 53 | 47 | 20 |
| Age | | | | |
| 16–19 | 15 | 5 | 13 | 30 |
| 20–24 | 15 | 8 | 14 | 27 |
| 25–29 | 17 | 17 | 16 | 17 |
| 30–34 | 15 | 21 | 14 | 7 |
| 35–39 | 18 | 25 | 21 | 7 |
| 40–44 | 19 | 23 | 23 | 12 |
| Household income | | | | |
| Under \$40,000 | 15 | 12 | 12 | 20 |
| \$40,000 but less than \$70,000 | 26 | 28 | 25 | 23 |
| \$70,000 but less than \$100,000 | 24 | 25 | 28 | 20 |
| \$100,000 but less than \$120,000 | 12 | 15 | 11 | 10 |
| \$120,000 but less than \$150,000 | 6 | 7 | 5 | 5 |
| \$150,000 or more | 5 | 7 | 5 | 4 |
| Don't know/Refused | 12 | 8 | 14 | 18 |
| Location | | | | |
| Upper North Island | 50 | 46 | 53 | 54 |
| Lower/Central North Island | 22 | 23 | 22 | 19 |
| South Island | 29 | 30 | 25 | 28 |



Table 5: Segmentation profile (continued)

| | Base= Total sample 1,000 % | Informed 552 % | Somewhat informed 175 % | Uninformed 273 % |
|----------------------------------------|----------------------------------------|----------------------|----------------------------------|------------------------|
| Rural/urban | | | | |
| Rural | 26 | 25 | 30 | 26 |
| Urban | 71 | 73 | 67 | 71 |
| Don't know | 3 | 2 | 3 | 4 |
| Ethnicity | | | | |
| New Zealand European | 76 | 85 | 68 | 67 |
| Māori | 18 | 13 | 19 | 24 |
| Pacific | 7 | 4 | 7 | 13 |
| Asian | 4 | 3 | 6 | 6 |
| Other | 9 | 8 | 16 | 9 |
| Educational qualifications | | | | |
| Secondary school (or no) qualification | 45 | 33 | 41 | 66 |
| Tertiary qualification | 55 | 67 | 59 | 34 |



4.3.2 Correlation analysis

In order to understand the relationship between respondents' segment membership and their demographic characteristics, correlation analysis was undertaken using Kendall's Tau_b⁵.

As detailed in Table 1 overleaf, this analysis found that the demographic variables most strongly associated with correct knowledge of the importance of folate intake for women are, in descending order:

- ◆ Whether respondents have children and/or are currently pregnant (-0.365)⁶,
- ◆ Age group (-0.337),
- ◆ Education (-0.263), and
- ◆ Ethnicity (0.137).

Of note, the relationship between segment membership and whether respondents have children and/or are pregnant, their age and their educational status are all statistically significant at the 99% (or $p=0.01$) confidence level. In comparison, the relationship between segment membership and ethnicity is statistically significant at the 95% (or $p=0.05$) confidence level.

The correlation analysis also identified that the association between segment membership and whether respondents have children and/or are pregnant is more than 2.5 times stronger than that between segment membership and ethnicity. Similarly, age and educational status are also more strongly associated with segment membership than is ethnicity.

⁵ The Kendall tau_b correlation coefficient is a non-parametric measure of association based upon the number of concordances/discordances between two variables (i.e. paired observations) in a dataset. It is an appropriate statistical measure for identifying the strength of the relationship between two variables, where the data values for both are ordinal (i.e. the values are ordered or ranked in a particular manner, but the relative size, or degrees of difference between two values is not implied in the values themselves. between the items measured.

⁶ The directionality of the correlations is a function of how the values of variables are ordered, and does not have any bearing on the relative strength of the correlation. For example, the numeric data values of the three different segments are 1="informed", 2="somewhat informed" and 3="uninformed"; while the values for age are 1="16-29 years old" and 2="30 to 44 years old". The correlation between segment membership and age group is -0.337, which given the directionality of the two different variables indicate that older women (viz. those aged 30 to 44 years old) are significantly more likely to be in segment one.



4.3.3 The Informed segment

Key findings

- ◆ Representing 50% of all respondents, the 'Informed' segment is the largest of the three and has a distinct demographic profile (slightly older, with children, European and highly educated).
- ◆ This group is the most likely to have heard of folate and tend to have a much better understanding of what folic acid is.
- ◆ They also know that it is not only important for women who are already pregnant to increase their folate/folic acid intake, but that it is also important for those who are planning to become pregnant.
- ◆ They were also more aware of the fact that women who are pregnant (or planning to conceive) cannot get enough folate and folic acid through diet alone.
- ◆ Although most of the women in this segment reported taking folic acid supplements or vitamins when they themselves were pregnant, only half reported having started taking them before they became pregnant.
- ◆ They were also not particularly well-informed as to which specific foods and drinks were either naturally good sources of folate, or which contained folic acid. Nor did they appear to give this any consideration when purchasing food and drink for themselves or their families.
- ◆ Despite strongly acknowledging the importance of increasing folate and folic acid intake before pregnancy, the women in this segment were no more likely to support mandatory inclusion of folic acid in all bread products than anyone else. They too, tended to believe that it should be up to the individual as to whether or not they chose to consume products that contain folic acid.

Awareness and understanding of folate and folic acid

Although the majority of respondents (in all three segments) had heard of folic acid, those in the 'Informed' segment were significantly more likely to have heard of folate (84%, cf. 68% of the total sample).

More so than any other group, 83% of those in the 'Informed' segment who had heard of folic acid, were able to describe in their own words what it was (cf. 70% of all women who had heard of folic acid). This group most commonly described folic acid (on an unprompted basis) as something that minimises the risk of neural tube defects in newborns (21%, cf. 13% of all women who had heard of folic acid).



Perceptions of who folate and folic acid is most important for, when they need to increase their intake, why and how

Not only did all of the women in this segment know that women who are pregnant/planning to become pregnant need to make sure they are getting the right amount of folate/folic acid, they were also significantly more likely to say that this was extremely important (62%, cf. 41%). Reflecting the basis on which the segmentation was formed they were also all (100%) aware that it is recommended that women increase their folate and folic acid intake before they become pregnant.

When prompted on why it was recommended that women increase their folic acid intake when pregnant (or trying to become pregnant), 59% of the 'Informed' segment said this was because folic acid helps minimise the risk of neural tube defects (i.e. spina bifida), while 28% said it was important for the development of unborn children and to help prevent birth defects.

The 'Informed' segment were the least likely to agree that women who are pregnant (or planning to conceive) can get enough folate and folic acid through diet alone (24%), and the most likely to know that folic acid can be sourced through supplements or vitamin pills (91%).

Personal intake and purchasing behaviour with regard to folate and folic acid

Women in the 'Informed' segment were significantly more likely to report having taken folic acid supplements themselves when they were pregnant (88%, cf. 80% of all women who were/had been pregnant), half of whom started taking them before they became pregnant (49%).

Although the majority of women in this segment (87%) described themselves as the person mainly responsible for buying the household food and groceries, only 3% said that they currently buy particular food and drinks because it contains folate or folic acid. This was a consistent finding across all three segments.

Furthermore, while 40% of this segment reported that folic acid could be found in bread, 19% in breakfast cereals and 15% in milk/dairy products, one-third did not know of any food or drinks that had folic acid in them. Similarly, one-third of the 'Informed' segment did not know which food and drinks were naturally good sources of folate. Those in the 'Informed' segment were however, significantly more likely to know that folic acid is sometimes labelled on food products as folate (47%, cf. 37% of the total sample).



Opinions with regard to the addition of folic acid in bread products

As with the other segments, the 'Informed' segment were not consciously avoiding products that contained folic acid, they simply based their purchasing decisions on other criteria. It is interesting to note however, that this particular segment were also divided as to whether or not all bread products should contain folic acid. Those who were against the mandatory inclusion of folic acid in bread products, were generally opposed to the idea that it would remove the element of choice.



4.3.4 The 'Somewhat' informed segment

Key findings

- ◆ At 17%, the 'Somewhat informed' segment is the smallest of the three segments, but is the one whose demographic profile most closely resembles that of the total sample.
- ◆ Most of this segment had heard of folic acid and two-thirds had also heard of folate. Although they knew that folic acid was needed during pregnancy, they were more likely to mention this generally than to specifically mention neural tube defects.
- ◆ Reflecting the basis on which the segmentation was derived, these respondents were unaware that it was recommended that women increase their folate or folic acid intake before they became pregnant.
- ◆ Three-quarters of those who had been pregnant, had taken folic acid supplements during pregnancy, although most started taking them after finding out they were pregnant.
- ◆ Just under half believed that women who were pregnant or planning to get pregnant could get enough folate and folic acid through their diet alone, although one-third were unable to identify any specific foods or drinks that contained either of these things.
- ◆ Although they were the most likely to report that they check from time to time to see if their food or drink contains folate or folic acid, only 3% were intentionally buying products for their folic acid content.
- ◆ As with the other segments, those who were 'Somewhat informed', were evenly divided as to whether or not they would support the mandatory addition of folic acid into all bread products.

Awareness and understanding of folate and folic acid

Reflecting the overall result for the total sample, almost all of those in the 'Somewhat' informed segment (99%) had heard of folic acid and two-thirds (68%) had heard of folate.

When asked to describe what folic acid was, this segment was most likely to describe it as 'something you need to/are told to take when you are pregnant' (24%). One third (32%) of the women in this segment who had heard of folate were unable to describe what it was.



Perceptions of who folate and folic acid is most important for, when they need to increase their intake, why and how

Although all of the respondents in this segment agreed that pregnant women needed to make sure they were getting the right amount of folate/folic acid, only half (52%) of them believed it was extremely important. They were also not aware of the recommendation that women increase their folate and folic acid intake before they become pregnant. In fact, 61% reported that this was supposed to start within the first trimester (cf. 14% of the total sample). Note however, that this result reflects the basis on which the segmentation was formed.

When prompted on why it was recommended that women increase their folic acid intake when pregnant (or trying to become pregnant), 42% of the 'Somewhat informed' segment said it helped to minimise the risk of neural tube defects (i.e. spina bifida), another third (36%) said it had nutritional value for the mother and/or baby. Eighteen percent did not know why it was recommended.

The 'Somewhat informed' segment were significantly more likely to believe that women who are pregnant (or planning to conceive) can get enough folate and folic acid through diet alone (43%, cf. 30% of the total sample), but were also relatively familiar with the fact that folic acid can be sourced through supplements or vitamin pills (83%).

Personal intake and purchasing behaviour with regard to folate and folic acid

Approximately three-quarters (78%) of those in the 'Somewhat' informed segment (who were or had been pregnant) reported having taken folic acid supplements when they were pregnant (88%), although most started taking them either when they first discovered they were pregnant (39%), or at some stage within the first trimester (30%).

Three-quarters of the women in this segment (75%) described themselves as the person mainly responsible for buying the household food and groceries and while 11% said they currently check to see if the food or drink they buy has folic acid added to it, only 3% actually buy any food or drink because of its folic acid content.

Once again, the women in this segment were not consciously avoiding products that contained folic acid, they were simply basing their purchasing decisions on other criteria.

Opinions with regard to the addition of folic acid in bread products

The 'Somewhat' informed segment were also just as likely to be opposed to the idea of adding folic acid into all bread products as they were to be in support of the idea. One of the positives identified with this concept was that adding folic acid to all bread would make it more accessible to a wider audience to the benefit of all.



4.3.5 The 'Uninformed' segment

Key findings

- ◆ Representing 33% of all women of child-bearing age, the 'Uninformed' segment is the second largest of the three segments and also has a distinct demographic profile (young, unlikely to have children, low or no qualifications, over-represented by Māori and Pacific).
- ◆ This group was the least likely to have heard of folate or folic acid and those who did, had a poor understanding of what either actually was. Seventy-two percent of this group stated they knew 'nothing about folate or folic acid at all'.
- ◆ Reflecting the basis on which the segmentation was formed, this group were the least likely to know that folate or folic acid was important for pregnant women and if they did, they had no idea at which stage of pregnancy they were supposed to start taking it.
- ◆ They were evenly divided as to whether or not women who are pregnant (or planning to conceive) could get enough folate and folic acid through diet alone. However, most reported (or assumed) that folic acid could be obtained through a supplement or vitamin tablet.
- ◆ Half of the women in this segment who had been pregnant in the past, reported taking folic acid supplements or vitamins at the time (generally after they discovered they were pregnant).
- ◆ Many of the women in this segment did not know which specific foods and drinks were either naturally good sources of folate, or which contained folic acid. Nor did they look for, or purchase, particular products for their folic acid content.
- ◆ Reflecting their limited knowledge and understanding of the topic, when asked to rate their views on the mandatory addition of folic acid to all bread products, the women in this segment were the most likely to provide a 'neutral' or 'don't know' response.

Awareness and understanding of folate and folic acid

This group was the least likely to have heard of folic acid (85%, cf. 95% of the total sample), or of folate (45%, cf. 68% of the total sample).

Furthermore, many of the women in this segment who had heard of folate and/or folic acid, were unable to describe what it was (60% were unable to describe folic acid, 64% were unable to describe folate). In fact, 72% of this segment stated that they did not know anything about folate or folic acid at all.



Perceptions of who folate and folic acid is most important for, when they need to increase their intake, why and how

When those who knew something about folate and/or folic acid were asked to identify (unprompted) any particular types of people who need to make sure they are getting the right amount of folate or folic acid, 39% of the 'Uninformed' mentioned pregnant women (cf. 62% of the overall sample). However, another third (34% of the 'Uninformed') were unable to identify any particular group. Even after prompting, 25% of this segment did not know whether or not folate or folic acid was important for pregnant women (or those planning to become pregnant).

Reflecting the basis on which the 'Uninformed' segment was derived, none of those who agreed that it was important for pregnant women (or those trying to conceive) to make sure they were getting the right amount of folate or folic acid could say at which stage of pregnancy this was supposed to occur.

When prompted on why it was recommended that women increase their folic acid intake when pregnant (or trying to become pregnant), 15% of this sub-group said it helped to minimise the risk of neural tube defects (i.e. spina bifida), 40% said it had nutritional/health benefits for the mother and/or baby and 35% were unsure. Note, these results are based on the 21% of this segment (n=58) who knew something about folate and/or folic acid and also agreed that pregnant women/those trying to conceive needed to make sure they were getting the right amount of it.

The 'Uninformed' segment were evenly divided on whether or not women who are pregnant (or planning to conceive) can get enough folate and folic acid through diet alone (45% agreed, while another 45% disagreed). However, 81% were aware that folic acid could be sourced through supplements or vitamin pills (91%).

Personal intake and purchasing behaviour with regard to folate and folic acid

Twenty-nine percent (n=84) women in this segment had had children. Approximately half (48%) of these women reported having taken folic acid supplements when they were pregnant, although only 17% of whom started taking them before they became pregnant. All of these findings are significantly lower than the overall average (59% of the total sample had had children, 80% of whom took folic acid supplements, 41% of whom started taking them before they became pregnant).

The women in this segment were the least likely to be responsible for buying their household's groceries (51%, cf. 73% of all respondents) and only 3% said that they currently buy particular food and drinks specifically because it contains folate or folic acid.

Fifty-seven percent of this segment did not know of any food or drink that had folic acid added to it, and 45% did not know which food or drinks were a naturally good source of folate.



As with the other segments, the uninformed were not consciously avoiding products that contained folic acid, it was just not on their radar.

Opinions with regard to the addition of folic acid in bread products

Although this group were also divided as to whether or not all bread products should contain folic acid, they were the most likely to provide a 'neutral' or non-committal response. When asked to explain why, 22% said they did not know enough about it to make an informed decision, 19% said they 'didn't know' and 13% 'didn't care'.



Appendix A: Pre-notification letter & questionnaire



[date]

Dear [name]

SURVEY: WHAT NEW ZEALAND WOMEN KNOW ABOUT NUTRITION?

Purpose of survey

The New Zealand Food Safety Authority (NZFSA) is the government agency responsible for protecting consumers by providing regulations for all food produced and consumed in New Zealand. We have asked an independent research company, Research New Zealand, to conduct a nationwide survey to help us find out what women 16 to 44 years know about nutrition.

Completing the confidential survey

Your name has been randomly selected from the electoral rolls. Research New Zealand may contact you over the next week or so, to see if there is anyone living in your house eligible to complete the survey.

Participation is completely **voluntary**, but we'd like to encourage as many women, 16 to 44 years of age, to complete the survey. The survey will only take about 15 minutes on the telephone and no preparation is required.

Anything you tell Research New Zealand will be strictly **confidential**. When they report back to NZFSA your answers will be grouped together with those of the other women they interview.

As a token of our appreciation, everyone who completes the survey will go into a **prize draw** for one of five petrol or supermarket vouchers of \$100 each.

Any concerns or questions?

If you would prefer not to participate in the survey, please call Research New Zealand on 0800 273 732 (quoting your reference number at the bottom of this letter).

If you have any other questions, please call Research New Zealand, on freephone 0800 500 168 and ask for Katrina Fryer.

Thank you once again for your help.

Yours sincerely

Jenny Reid

Deputy Director Science

New Zealand Food Standards Authority

RNZ ref:



FREQUENTLY ASKED QUESTIONS

| | |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>What's the purpose of the survey?</i> | This is a nationwide survey, completed with women who are 16 to 44 years of age, looking at what they know about nutrition . |
| <i>Who is the research being done for?</i> | This survey is being done for the New Zealand Food Standards Authority (the NZFSA) – a government agency. |
| <i>How did you get my name and address?</i> | Your name and contact details have been randomly selected for this survey from the electoral rolls , along with hundreds of other people. |
| <i>Why are they contacting me?</i> | Research NZ has no way of knowing if there are any women in your household who are 16 to 44 years of age, or how many there are. The only information they have from the electoral rolls is your name, address and age. |
| <i>What does the survey involve?</i> | <p>During the next week or so, you may receive a phone call from Research NZ to see if you or any other woman who lives in your household would like to take part in a telephone interview. Research New Zealand is a private research company employed by the NZFSA to complete this survey.</p> <p>There are no right or wrong answers to the survey and no preparation is required on your part.</p> |
| <i>How long will the interview take?</i> | The interview will take approximately 15 minutes . |
| <i>Is the interview confidential?</i> | <p>Yes, the interview is confidential. Your responses will be grouped together with other responses given by all the other people who take part in the survey. Individuals cannot be identified.</p> <p>Research NZ is bound by the Professional Code of Practice of the Market Research Society of New Zealand, which prohibits us from identifying any person who takes part in a survey unless we have explicit consent from them to do so.</p> |
| <i>Do I have to take part in the survey?</i> | <p>No, you do not have to take part in the survey. Your participation is completely voluntary.</p> <p>If you don't want to be contacted, please call Research NZ on 0800 273 732 and quote the reference number at the bottom of your letter.</p> |
| <i>What if I want to find out more about the survey?</i> | <p>If you have any questions about the survey, please call Katrina Fryer (Research NZ, Project Manager) Free phone: 0800 500 168.</p> <p>If you would like to speak to someone at the NZFSA, please contact Phillippa Hawthorne on 04 894 2514 or by email: phillippa.hawthorne@nzfsa.govt.nz</p> |

FOLATE AWARENESS SURVEY

Research New Zealand #4131

DATE September 2010

Good morning/afternoon/evening, my name is **AI** from Research New Zealand. We are doing a survey on behalf of the New Zealand Food Safety Authority with women, 16-44 years of age about nutrition. You may recall seeing a letter about this recently?

How many women who live in your household are in this age range? Could I speak to the one who had the most recent birthday?

If person qualifies: Would you be willing to help us with this? The interview takes about 15 minutes to complete. When would suit, or is now a good time?

If person does not qualify, but other does, ask, otherwise terminate: When would be the best time for us to contact her, or is she available now? **Make appointment.**

TERMINATION STATEMENT: Thank you for your time but for this survey, we need to speak to women under the age of 45.

If there are no females living in the household who qualify, terminate the interview.

Reintroduce as necessary

Good morning/afternoon/evening, my name is **AI** from Research New Zealand. The New Zealand Food Safety Authority recently sent you a letter about a survey we're doing on their behalf. The aim of this survey is to learn about what women, 16-44 years of age know about nutrition.

Would you be willing to help us with this?

Background information only if needed:

- ◆ This survey is voluntary.
- ◆ This is genuine research. I'm not selling anything. It is being done for the New Zealand Food Safety Authority so that they learn about what women, 16-44 years of age know about nutrition.
- ◆ The New Zealand Food Safety Authority is a government agency that is responsible for protecting consumers by having effective food regulations for all food produced and consumed in New Zealand.
- ◆ Your contact details obtained for this survey were drawn randomly from the electoral rolls, and the phone numbers are from the Telecom White Pages.
- ◆ If you do participate, your answers will be treated as strictly confidential. We do not identify which individuals have said what. All results are reported in a grouped basis only.
- ◆ You may withdraw from the interview at any stage.

Read

This interview is being recorded for quality control and training purposes.

Qualification questions

Q1 Before we start, I have a few questions to make sure we are speaking to a cross-section of women. Could you please tell me which of the following age groups you come into? **Read**

- 1.16–19
- 2.20–24
- 3.25–29
- 4.30–34
- 5.35–39
- 6.40–44
- 7.45+ ****Do not read** TERMINATE**

TERMINATION STATEMENT: Thank you for your time but for this survey, we need to speak to women under the age of 45.

- 99 ...Refused ****Do not read** TERMINATE**

TERMINATION STATEMENT: Thank you for your time but for this survey, we need to know the age of respondents.

Q2 And which of the following best describes your household? **Read**

- 1.Young couple without children
- 2.Family household with youngest child under 5
- 3.Family household with youngest child 5 to 14
- 4.Family household with youngest child 15+
- 5.Older couple – no children or none living at home
- 6.Single/one person household
- 7.Flat/shared household – not a family household
- 96 ...Other ****Do not read****
- 98 ...Don't know ****Do not read****
- 99 ...Refused ****Do not read****

Awareness & understanding of folate & folic acid

Q3 Thanks for that. Now, can you please tell me if you have ever heard about something called Folate?

- 1Yes
- 2No
- 98 ...Don't know

Q3a What about Folic acid?

- 1Yes
- 2No
- 98 ...Don't know

If Q3 and Q3a=2 or 98 go to Q6

Q4 **If Q3=1 ask, otherwise go to Q5:** In your own words, how would you describe what "folate" is to a friend?

- 1Answer (**Specify**)
- 98 ...Don't know

Q5 **If Q3a=1 ask, otherwise go to Q6:** And how would you describe what "folic acid" is?

- 1Answer (**Specify**)
- 98 ...Don't know

Q6 "Folate" is a vitamin found naturally in food and "folic acid" is a man-made form of folate. How much would you say you know about folate or folic acid? Please use a scale of 0-10 where 0 means that you "don't know anything about it at all" and 10 means that you "know a lot about it".

| | Don't know anything about it at all | | | | Neutral | | | | Know a lot about it | | | | DK | Ref |
|---------------------------------------|-------------------------------------|---|---|---|---------|---|---|---|---------------------|---|----|----|----|-----|
| Knowledge of folate and/or folic acid | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 98 | 99 | |

.....

Q7 **If Q6=1 to 10 ask, otherwise go to Q18:** And what are the main ways you have got to know about folate and folic acid? **Probe: Any other specific ways or sources? Code many**

- 1The media (television, the press, radio)
- 2Friends and family
- 3GP
- 4Midwife, or other pregnancy health professional (e.g. obstetrician)
- 5Other health professional
- 6Specific literature for pregnant women
- 7The Internet
- 8Product manufacturer
- 9New Zealand Food Safety Authority
- 96 ...Other (**Specify**)
- 98 ...Don't know

Q8 Are there any particular types of people who need to make sure they are getting the right amount of folate or folic acid? **If yes:** Can you tell me who? **Code first mentioned**

Q9 Any other people? **Code many. Probe to no**

| | Q8 First mentioned | Q9 Others mentioned |
|------------------------------------------------|-----------------------|------------------------|
| Pregnant women | 1 | 1 |
| Women planning to become pregnant | 2 | 2 |
| Women who have just given birth | 3 | 3 |
| All women | 4 | 4 |
| Children | 5 | 5 |
| Older people | 6 | 6 |
| All people/Everyone | 7 | 7 |
| Other Specify | 96 | 96 |
| No types of people need to make sure/No others | 97 | 97; E |
| Don't know/can't remember | 98 Q10 | 98; E |

Q10 **If Q8 or Q9=1 or 2 go to Q10a, otherwise ask:** And what about pregnant women or women who are planning to get pregnant?

- 1Yes, pregnant women
- 2Yes, women planning to become pregnant
- 3Yes, both pregnant women and women planning to become pregnant
- 4No, not important
- 98 ...Don't know

Q10a **If Q10=1 to 3 ask, otherwise go to Q18:** On a scale of 0-10 where 0 is not at all important and 10 is extremely important, how important would you say it is for [pregnant women/women planning to become pregnant] to make sure they are getting the right daily amount of folate or folic acid?

| | Not at all important | | | | Neutral | | | | Extremely important | | | | DK | Ref |
|------------------------------------|----------------------|---|---|---|---------|---|---|---|---------------------|---|----|----|----|-----|
| Getting the right amount of folate | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 98 | 99 | |

Q11 At about what stage before or during pregnancy, is it recommended that women start to increase their folate and folic acid intake? Probe for clear answer

- 1Before they become pregnant
- 2When they discover they are pregnant
- 3Within the first trimester (i.e. first 3 months of pregnancy)
- 4Later
- 97.....At no stage (they don't need to)
- 98 ...Don't know

Q12 Can you tell me why it is recommended that pregnant women, or women who are planning to get pregnant, increase their folate or folic acid intake? **Code first mentioned**

Q13 Anything else? **Code many. Probe to no**

| | Q12 | Q13 |
|------------------------------------------------------------------------------------|-----------------|------------------|
| | First mentioned | Others mentioned |
| Helps ensure women have a healthy baby (general comment) | 1 | 1 |
| Decreases the risk of having a neural tube defect (NTD) in pregnancy | 2 | 2 |
| Decreases the risk of spina bifida | 3 | 3 |
| Decreases the risk of having an abnormal pregnancy/birth defects (general comment) | 4 | 4 |
| Reproduction/fertility | 5 | 5 |
| Other Specify | 96 | 96 |
| Not important/No other reasons | 97 Q14 | 97; E |
| Don't know/can't remember | 98 Q14 | 98; E |

Q14 Do you believe women who are pregnant, or planning to get pregnant, can get enough folate and folic acid through what they drink and the types of food that they eat?

1Yes

2No

98 ...Don't know

Q15 Which types of foods and drinks do you think are naturally good sources of folate? **Code first mentioned**

Q16 Any other foods or drinks? **Code many. Probe to no**

| | Q15 | Q16 |
|-------------------------------------------------------|-----------------|------------------|
| | First mentioned | Others mentioned |
| Green vegetables (e.g. broccoli, spinach) | 1 | 1 |
| Vegetables (general comment) | 2 | 2 |
| Breakfast cereals | 3 | 3 |
| Bread | 4 | 4 |
| Grains (general comment) | 5 | 5 |
| Citrus fruit | 6 | 6 |
| Fruit (general comment) | 7 | 7 |
| Chick peas | 8 | 8 |
| Dried beans | 9 | 9 |
| Peas | 10 | 10 |
| Nuts | 11 | 11 |
| Orange juice | 12 | 12 |
| Fruit juice (general comment) | 13 | 13 |
| Energy drinks | 14 | 14 |
| Up & Go, Complan (i.e. Formulated Supplemented Foods) | 15 | 15 |
| Milk | 16 | 16 |
| Other Specify | 96 | 96 |
| None/No others | 97 Q17 | 97; E |
| Don't know/can't remember | 98 Q17 | 98; E |

Q17 Apart from food and drink, what other ways do you know of that women who are pregnant or are planning to become pregnant can get folic acid? **Code many**

1Taking multi-vitamins

2Taking supplements

3Pills (general mention)

4Eating foods and drinks that have had folic acid added to them (i.e. fortified foods)

96 ...Other (**Specify**)

97...No other ways/None

98 ...Don't know

Pregnancy

Q18 For this survey, we are speaking to women of child-bearing age, so may I ask how many, if any, children have you had? **Code many**

- 1None **If not coded in combination with 2, go to Q21**
- 2Currently pregnant
- 3One
- 4Two or more
- 5Refused **;E Go to Q21**

Q19 **If Q18=3 or 4 ask:** Did you take any vitamins or supplements that contained folic acid when you were pregnant?

If Q18=2 ask: Are you taking any vitamins or supplements that have folic acid?

- 1Yes
- 2No
- 98 ...Don't know

Q20 **If Q19=1 ask, otherwise go to Q21:** At what stage of your pregnancy did you start taking these vitamins and supplements?

- 1Before I became pregnant
- 2When I discovered that I was pregnant
- 3Within the first trimester (i.e. first 3 months of pregnancy)
- 4Later
- 98 ...Don't know

Additives in foods

Q21 Some drinks and foods have folic acid added to them. Do you currently check to see whether the drinks and food you buy contain folic acid?

- 1Yes
- 2Sometimes/occasionally
- 3No I don't check
- 98 ...Don't know

Q22 **If Q21=1 or 2 ask, else go to Q23:** And how do you do this? **Code many**

- 1Do research (by going onto the Internet, library)
- 2Ask a friend or family member
- 3Ask someone else (like a GP, nutritionist)
- 4Check ingredients label (if a manufactured product)
- 5Check nutrition information panel
- 96 ...Other **Specify**
- 98 ...Don't know

Q23 **If Q21=3 ask, else go to Q24:** If you were going to check, how would you do this? **Code many**

- 1Do research (by going onto the Internet, library)
- 2Ask a friend or family member
- 3Ask someone else (like a GP, nutritionist)
- 4Check ingredients label (if a manufactured product)
- 5Check nutrition information panel
- 96 ...Other **Specify**
- 98 ...Don't know

Q24 Do you know that folic acid is sometimes labelled on food products as folate?

- 1Yes
- 2No
- 98 ...Don't know

Q25 Which types of foods and drinks do you believe have folic acid added to them? **Code first mentioned**

Q26 Any other foods or drinks? **Code many. Probe to no**

| | Q25 First mentioned | Q26 Others mentioned |
|-------------------------------------------------------|------------------------|-------------------------|
| Green vegetables (e.g. broccoli, spinach) | 1 | 1 |
| Vegetables (general comment) | 2 | 2 |
| Breakfast cereals | 3 | 3 |
| Bread | 4 | 4 |
| Grains (general comment) | 5 | 5 |
| Citrus fruit | 6 | 6 |
| Fruit (general comment) | 7 | 7 |
| Chick peas | 8 | 8 |
| Dried beans | 9 | 9 |
| Peas | 10 | 10 |
| Nuts | 11 | 11 |
| Orange juice | 12 | 12 |
| Fruit juice (general comment) | 13 | 13 |
| Energy drinks | 14 | 14 |
| Up & Go, Complan (i.e. Formulated Supplemented Foods) | 15 | 15 |
| Milk | 16 | 16 |
| Other Specify | 96 | 96 |
| None/No others | 97 Q27 | 97; E |
| Don't know/can't remember | 98 Q27 | 98; E |

Behaviour

Q27 Are you the person or one of the persons in your household who is mainly responsible for buying the food and groceries?

- 1Yes
- 2No
- 3Depends/sometimes
- 98 ...Don't know

Q28 Do you currently buy particular drinks and food products because they have folic acid added to them?

- 1Yes
- 2No
- 98 ...Don't know

Q29 **If Q28=1 ask, otherwise go to Q33:** Is this for yourself and or other people in your household? Which ones? **Code many**

- 1For self
- 2For partner
- 3For children
- 4Other
- 98 ...Don't know

Q30 And which drinks and food products do you buy that contain folate or folic acid? **Code many.**
Probe to no

- 1Green vegetables (e.g. broccoli, spinach)
- 2Vegetables (general comment)
- 3Breakfast cereals
- 4Bread
- 5Grains (general comment)
- 6Citrus fruit
- 7Fruit (general comment)
- 8Chick peas
- 9Dried beans
- 10 ...Peas
- 11 ...Nuts
- 12 ...Orange juice
- 13 ...Fruit juice (general comment)
- 14 ...Energy drinks
- 15 ...Up & Go, Complan (i.e. Formulated Supplemented Foods)
- 16 ...Milk
- 96 ...Other **Specify**
- 98 ...Don't know

Q31 Do you believe you [**if Q2=2-4** and your family] get enough folate and folic acid?

- 1Yes, enough folate and folic acid
- 2No
- 98 ...Don't know

Q32 **If Q31=2 ask, otherwise go to Q33:** Is there any particular reason for this?

- 1Answer (**Specify**)
- 98 ...Don't know

Q33 **If Q28=2 ask, otherwise go to Q35:** Can I just check. Do you **not buy** these products because they contain folic acid?

- 1Yes, because they specifically contain folic acid
- 2No, buying against other criteria
- 98 ...Don't know

Q34 **If Q33=1 ask** Are there any particular reasons for this?

- 1Answer (**Specify**)
- 98 ...Don't know

Bread

Q35 Currently, only some bread has folic acid added to it. How much do you agree or disagree that all bread products should have folic acid added using a scale of 0 to 10 where 0=Strongly disagree and 10=Strongly agree

| | Strongly disagree | | | | Neutral | | | | Strongly agree | | | | DK | Ref |
|--------------------------------------------------------|-------------------|---|---|---|---------|---|---|---|----------------|---|----|----|----|-----|
| <u>All</u> bread products should have folic acid added | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 98 | 99 | |

Q36 For what particular reasons do you agree or disagree? **Code first mentioned**

Q37 Anything else? **Code many. Probe to no**

| | Q36 | Q37 |
|--|-----------------|------------------|
| | First mentioned | Others mentioned |

Positives:

All women planning to get pregnant or who are pregnant will get the daily intake they need (irrespective of their awareness/knowledge)

Babies will be born without defects

Everyone needs it/would make it more accessible to all

1

1

2

2

3

3

Negatives:

Limits consumer choice

Increases cost of bread

Creates nutrient imbalances/excesses in my body

Creates nutrient imbalances/excesses in children, males and the elderly

Don't like the idea of everyone being medicated

4

4

5

5

6

6

7

7

8

8

Other **Specify**

96

96

No particular reason/ no other reasons

97 **Q38**

97;**E**

Don't know/can't remember

98 **Q38**

98;**E**

Bread consumption

Q38 About how many slices of bread do you have in an average day?

- 1Less than one slice
- 2One slice
- 32 slices (one sandwich)
- 43 slices
- 54 slices (two sandwiches)
- 65-8 slices
- 79-12 slices
- 813-16 slices
- 917 slices or more
- 96...Other **Specify**
- 97...None/Do not eat bread
- 98 ...Don't know

Q39 **If Q38=1-96 ask, otherwise go to Q40:** And what type of bread do you usually have? Is it ...?

Read

- 1White bread
- 2Brown or wholemeal bread
- 3Multi-grain bread
- 4Pita bread, flat breads or similar
- 5Sour dough breads
- 96 ...Other **Specify** ****Do not read****
- 98 ...Don't know ****Do not read****

Concluding demographics

Q40 Including yourself, is there anyone in your household whose health is impacted or directly affected by the food that they eat?

- 1Yes
- 2No
- 97 ...Refused
- 98 ...Don't know

To finish this survey, I would like to ask you a few more questions about yourself.

Q41 What is your highest educational qualification? **Read**

- 1NCEA, School C or other secondary school qualification
- 2Polytechnic qualification or Trade Certificate, or
- 3Bachelors degree or higher
- 96 ...Other ****Do not read****
- 97 ...None/No qualifications ****Do not read****
- 98 ...Don't know ****Do not read****

Q42 And which ethnic group or groups do you belong to? (**if necessary:** you can belong to more than one) **Code many**

- 1New Zealand European (or Pakeha)
- 2Māori
- 3Pacific
- 4Asian
- 5Middle East/Latin American/African
- 96 ...Other ethnic group
- 99 ...Refused **E**

Q43 Which of the following best describes your household income before tax, for the last year? Please include any child support, benefits or other income support you or people in your household may receive. **Read**

- 1Under \$40,000
- 2\$40,000 but less than \$70,000
- 3\$70,000 but less than \$100,000
- 4\$100,000 but less than \$120,000
- 5\$120,000 but less than \$150,000
- 6\$150,000 or more
- 98 ...Don't know ****Do not read****
- 99 ...Refused ****Do not read****

Q44 Which of these best describes where you live? Do you live in a...? **Read words and numbers**

- 1Rural area or small town with a population of less than about 10,000 people
- 2Or do you live in a large town or city with a population greater than 10,000
- 98 ...Don't know ****Do not read****

Q45 And in which of the following areas do you live? **Read**

- 1Northland
- 2Auckland
- 3Waikato
- 4Bay of Plenty
- 5Gisborne
- 6Hawke's Bay
- 7Taranaki
- 8Manawatu-Wanganui
- 9Wellington-Wairarapa
- 10 ...Tasman
- 11 ...Nelson
- 12 ...Marlborough
- 13 ...West Coast
- 14 ...Canterbury
- 15 ...Otago
- 16 ...Southland
- 98 ...Don't know ****Do not read****

End

Q46 Finally, if there was anything in particular that you wanted to find out about folate and folic acid, what would this be?

- 1 Answer (**Specify**)
- 2 No information requirements
- 98 ...Don't know

Q47 May I please confirm your name in case my supervisor needs to check on the quality of this interview? **Record first and last name**

Q48 And can I just confirm that you are the female in your household aged between 16-44 years old who had the most recent birthday?

- 1.Yes
- 2.No
- 98. ...Don't Know
- 99. ...Refused

Those are all the questions I have. Thank you very much for your help. My name is **Q01V** from Research New Zealand. If you have enquiries about this survey, please ring the Project Manager, Katrina Fryer on our toll-free number: 0800 500 168. (Wellington respondents 499-3088)

If necessary: If you would like to get some information on folate or folic acid, you can visit the NZFSA website (www.nzfsa.govt.nz) or call them on 0800 693 721.



Appendix B: Weighting and margin of error



Folate Survey – Sample Weighting

Summary:

| | |
|-------------------------------|------------|
| Margin of error (weighted): | 3.4 |
| Margin of error (unweighted): | 3.1 |
| Design effect (“deff”) | 1.09 |

Calculations

| | Surveyed sample (counts) | Surveyed sample (proportions) | Target population (counts) | Target population (proportions) | Weight | Proportional weights used for analysis |
|-------------------------------|--------------------------|-------------------------------|----------------------------|---------------------------------|------------|----------------------------------------|
| Sub-group | n | % | Ni | % | Ni/n | |
| Pacific (16-44 yrs) | 29 | 2.9 | 61,794 | 7.4 | 2,131 | 2.54 |
| Māori (16-29 yrs) | 39 | 3.9 | 72,462 | 8.6 | 1,858 | 2.22 |
| Māori (30-44 yrs) | 60 | 6.0 | 62,079 | 7.4 | 1,035 | 1.23 |
| NZ European/Other (16-19 yrs) | 100 | 10.0 | 98,613 | 11.8 | 986 | 1.18 |
| NZ European/Other (20-24 yrs) | 108 | 10.8 | 95,889 | 11.4 | 888 | 1.06 |
| NZ European/Other (25-29 yrs) | 111 | 11.1 | 88,587 | 10.6 | 798 | 0.95 |
| NZ European/Other (30-34 yrs) | 134 | 13.4 | 108,840 | 13.0 | 812 | 0.97 |
| NZ European/Other (35-39 yrs) | 203 | 20.3 | 122,037 | 14.6 | 601 | 0.72 |
| NZ European/Other (40-44 yrs) | 216 | 21.6 | 128,433 | 15.3 | 595 | 0.71 |
| Total | 1,000 | 100 | 838,734 | 100 | 839 | 1.00 |

Margin of error formula

$$z \times \sqrt{\frac{p(1-p)}{n}}$$

z = 1.96

P = 50%

n = 1,000



Testing for statistical significance

Pearson's chi-square test is used to assess two types of comparison: tests of goodness of fit and tests of independence. A test of goodness of fit establishes whether or not an observed frequency distribution differs from a theoretical distribution. A test of independence (as was used for this particular survey) assesses whether paired observations on two variables, expressed in a contingency table, are independent of each other – for example, whether women of different ages differ in the frequency with which they report being aware of folic acid.

In testing for 'independence', an "observation" consists of the values of two outcomes and the null hypothesis is that the occurrence of these outcomes is statistically independent. Each observation is allocated to one cell of a two-dimensional array of cells (called a table) according to the values of the two outcomes. If there are r rows and c columns in the table, the "theoretical frequency" for a cell, given the hypothesis of independence, is

$$E_{i,j} = \frac{\sum_{k=1}^c O_{i,k} \sum_{k=1}^r O_{k,j}}{N},$$

and fitting the model of "independence" reduces the number of degrees of freedom by $p=r+c-1$. The value of the test-statistic is

$$X^2 = \sum_{i=1}^r \sum_{j=1}^c \frac{(O_{i,j} - E_{i,j})^2}{E_{i,j}}.$$

The number of degrees of freedom is equal to the number of cells rc , minus the reduction in degrees of freedom, p , which reduces to $(r-1)(c-1)$.

For the test of independence, a chi-square probability of less than or equal to 0.05 (or the chi-square statistic being at or larger than the 0.05 critical point) is commonly interpreted as justification for rejecting the null hypothesis that the row variable is unrelated (that is, only randomly related) to the column variable. The alternative hypothesis corresponds to the variables having an association or relationship where the structure of this relationship is not specified. This means that an observed difference is statistically significant.



Appendix C: Correlation Analysis



As noted in the body of the report, respondents were segmented into three groups, on the basis of their knowledge (correct or incorrect) of when it is important for women to increase their daily intake of folate or folic acid. Each group has been given a name so that they can be easily referred to in this report.

The 'Informed' segment (which comprises 50% of the total sample), is based on those who were aware that women should increase their daily intake of folate or folic acid prior to becoming pregnant.

The 'Somewhat informed' segment (which comprises 17% of the total sample) is based on those who believed that women should increase their daily intake of folate or folic acid when they become pregnant.

The third segment of 'Uninformed' respondents (who comprise one third of the total sample), either did not know when women were supposed to increase their daily intake of folate or folic acid, did not believe an increase was necessary at all, or reported not knowing anything at all about folate or folic acid.

In order to understand the **relationship** between respondents' segment membership and their demographic characteristics, correlation analysis was undertaken using Kendall's Tau_b⁷.

As detailed in Table 1 overleaf, this analysis found that the demographic variables most strongly associated with correct knowledge of the importance of folate intake for women are, in descending order:

- ◆ Whether respondents have children and/or are currently pregnant (-0.365)⁸,
- ◆ Age group (-0.337),
- ◆ Education (-0.263), and
- ◆ Ethnicity (0.137).

⁷ The Kendall tau_b correlation coefficient is a non-parametric measure of association based upon the number of concordances/discordances between two variables (i.e. paired observations) in a dataset. It is an appropriate statistical measure for identifying the strength of the relationship between two variables, where the data values for both are ordinal (i.e. the values are ordered or ranked in a particular manner, but the relative size, or degrees of difference between two values is not implied in the values themselves. between the items measured.

⁸ The directionality of the correlations is a function of how the values of variables are ordered, and does not have any bearing on the relative strength of the correlation. For example, the numeric data values of the three different segments are 1="informed", 2="somewhat informed" and 3="uninformed"; while the values for age are 1="16-29 years old" and 2="30 to 44 years old". The correlation between segment membership and age group is -0.337, which given the directionality of the two different variables indicate that older women (viz. those aged 30 to 44 years old) are significantly more likely to be in segment one.



Of note, the relationship between segment membership and whether respondents have children and/or are pregnant, their age and their educational status are all **statistically significant at the 99%** (or $p=0.01$) confidence level. In comparison, the relationship between segment membership and ethnicity is statistically significant at the 95% (or $p=0.05$) confidence level.

The correlation analysis also identified that the association between segment membership and whether respondents have children and/or are pregnant is more than 2.5 times stronger than that between segment membership and ethnicity. Similarly, age and educational status are also more strongly associated with segment membership than is ethnicity.

However, our analysis has found that there is also a fair degree of collinearity in the data, with many of the demographic variables strongly correlated with each other. This is especially the case in terms of respondents' educational status, which is strongly associated with whether they have children and/or are pregnant, their age and income level (see yellow shaded figures in Table 1).

In order to control for this, we conducted partial correlation analysis, controlling for education⁹. This analysis reconfirmed that the demographic variables which are most strongly associated with segment membership are, in descending order (Table 2):

- ◆ Whether respondents have children and/or are currently pregnant (-0.366),
- ◆ Age group (-0.319), and
- ◆ Ethnicity (0.148).

Further, this analysis reconfirmed that while ethnicity is, to some degree, a factor in relation to women being knowledgeable about the role and importance of folate in the pre-natal and pregnant stages, knowledge appears more significantly to be predicated on whether respondents already have children and/or are pregnant.

When we analysed the main ways that respondents who knew something about folate had learnt about folate, a number of significant differences were noted by whether they already have children and/or are currently pregnant (Table 3). Those with children or are currently pregnant were more likely to report their knowledge being gained from healthcare professionals and health literature. In comparison, respondents who do not have children and/or are not pregnant were more likely to state their knowledge gained from the media, friends and family and the education system generally.

⁹ Partial correlation analysis is based upon the correlations between the residuals resulting from conducting linear regressions of two different variables (e.g. age and education) against the same target or dependent (i.e. segment measurement), for two related sets of variables. In other words, to compute the partial correlations of the various demographic variables with segment membership, while controlling for education levels, the software computes the associated linear regression results for each set of variables and then calculates the correlation between the residuals.



Table 6: Correlations between Segment measurement and demographic variables

| <i>Correlations Kendall's tau_b</i> | | Segment | Have children | Geographic location | Ethnicity (prioritised) | Age group | Income band | Education |
|-------------------------------------|-------------------------|---------|---------------|---------------------|-------------------------|--------------|--------------|--------------|
| Segment | Correlation Coefficient | 1.000 | -.365 | -.045 | .137 | -.337 | -.051 | -.263 |
| | Sig. (2-tailed) | . | .000 | .119 | .000 | .000 | .109 | .000 |
| Have kids | Correlation Coefficient | | 1.000 | -.007 | .023 | .611 | -.081 | .183 |
| | Sig. (2-tailed) | | . | .806 | .470 | .000 | .016 | .000 |
| Geographic location | Correlation Coefficient | | | 1.000 | -.169 | .004 | -.050 | -.041 |
| | Sig. (2-tailed) | | | . | .000 | .901 | .115 | .169 |
| Ethnicity (prioritised) | Correlation Coefficient | | | | 1.000 | -.058 | -.093 | -.042 |
| | Sig. (2-tailed) | | | | . | .063 | .005 | .184 |
| Age group | Correlation Coefficient | | | | | 1.000 | .025 | .227 |
| | Sig. (2-tailed) | | | | | . | .450 | .000 |
| Income band | Correlation Coefficient | | | | | | 1.000 | .129 |
| | Sig. (2-tailed) | | | | | | . | .000 |
| Education | Correlation Coefficient | | | | | | | 1.000 |
| | Sig. (2-tailed) | | | | | | | . |

Notes: Grey shaded bold figures indicates a statistically significant correlation between segment membership and a demographic characteristic, awareness that supplements can be used to improve folate in-take and ratings of importance that pregnant women get the right daily amount of folate.

Yellow shadings denote statistically significant correlations between two demographic variables, and/or awareness and ratings of the importance for pregnant women to get the right daily amount of folate.



Table 7: Correlations between Segment measurement and demographic variables after controlling for education

| | | Segment1 | Income | Have children | Geographic location | Ethnicity | Age group |
|---------------------|-------------------------|----------|--------|---------------|---------------------|-----------|-----------|
| Segment | Correlation | 1.000 | -.025 | -.366 | -.058 | .148 | -.319 |
| | Significance (2-tailed) | . | .449 | .000 | .065 | .000 | .000 |
| Income band | Correlation | | 1.000 | -.107 | -.048 | -.090 | -.004 |
| | Significance (2-tailed) | | . | .001 | .148 | .007 | .904 |
| Have children | Correlation | | | 1.000 | .002 | .018 | .594 |
| | Significance (2-tailed) | | | . | .949 | .576 | .000 |
| Geographic location | Correlation | | | | 1.000 | -.182 | .016 |
| | Significance (2-tailed) | | | | . | .000 | .618 |
| Ethnicity | Correlation | | | | | 1.000 | -.066 |
| | Significance (2-tailed) | | | | | . | .036 |
| Age group | Correlation | | | | | | 1.000 |
| | Significance (2-tailed) | | | | | | . |

Table 8:

Q7. And what are the main ways you have got to know about folate and folic acid?

| | Base = | Total 809 % | No children 242 % | Currently pregnant or have one or more children 567 % |
|---------------------------------------------------------------------|--------|-------------------|-------------------------|-------------------------------------------------------------------------|
| The media (TV, the press, radio) | | 43 | 58 | 36 |
| Friends and family | | 14 | 19 | 11 |
| GP | | 19 | 8 | 24 |
| Midwife, or other pregnancy health professional (e.g. obstetrician) | | 24 | 2 | 36 |
| Other health professional | | 6 | 4 | 7 |
| Specific literature for pregnant women | | 13 | 2 | 18 |
| The Internet | | 4 | 2 | 5 |
| Product manufacturer / Product information | | 7 | 11 | 4 |
| New Zealand Food Safety Authority | | 0 | 0 | 0 |
| At high school / tertiary institution | | 10 | 20 | 4 |
| General health/diet-related literature | | 4 | 4 | 4 |
| Through pregnancy | | 0 | 0 | 0 |
| Other | | 21 | 8 | 28 |
| Don't know | | 3 | 4 | 3 |

Total may exceed 100% because of multiple responses.

*Sub-sample based on those who reported knowing something about folate and/or folic acid.



Appendix D: Tabular results



Table 9:

Q1. Could you please tell me which of the following age groups you come into?

| | Base = | Total 1,000 | 'Informed' Segment 552 | 'Somewhat informed' Segment 175 | 'Uninformed' Segment 273 |
|-----------|--------|----------------|------------------------------|------------------------------------------|--------------------------------|
| | | % | % | % | % |
| 16–19 yrs | | 15 | 5 | 13 | 30 |
| 20–24 yrs | | 15 | 8 | 14 | 27 |
| 25–29 yrs | | 17 | 17 | 16 | 17 |
| 30–34 yrs | | 15 | 21 | 14 | 7 |
| 35–39 yrs | | 18 | 25 | 21 | 7 |
| 40–44 yrs | | 19 | 23 | 23 | 12 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

Table 10:

Q2. And which of the following best describes your household?

| | Base = | Total 1,000 | 'Informed' Segment 552 | 'Somewhat informed' Segment 175 | 'Uninformed' Segment 273 |
|---------------------------------------------------|--------|----------------|------------------------------|------------------------------------------|--------------------------------|
| | | % | % | % | % |
| Young couple without children | | 8 | 9 | 9 | 7 |
| Family household with youngest child under 5 | | 31 | 42 | 32 | 15 |
| Family household with youngest child 5 to 14 | | 26 | 28 | 25 | 21 |
| Family household with youngest child 15+ | | 25 | 12 | 27 | 43 |
| Older couple – no children or none living at home | | 1 | 1 | 1 | 2 |
| Single/one person household | | 3 | 2 | 2 | 3 |
| Flat/shared household – not a family household | | 3 | 3 | 2 | 5 |
| Other | | 3 | 2 | 3 | 4 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

Table 11:

Q3. Can you please tell me if you have ever heard about something called Folate?

| | Base = | Total 1,000 | 'Informed' Segment 552 | 'Somewhat informed' Segment 175 | 'Uninformed' Segment 273 |
|------------|--------|----------------|------------------------------|------------------------------------------|--------------------------------|
| | | % | % | % | % |
| Yes | | 68 | 84 | 68 | 45 |
| No | | 31 | 16 | 31 | 53 |
| Don't know | | 1 | 0 | 1 | 2 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.



Table 12:

Q3a. What about Folic acid? (have you heard of Folic acid)

| Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|------------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| Yes | 95 | 99 | 99 | 85 |
| No | 5 | 0 | 1 | 14 |
| Don't know | 0 | 0 | 1 | 0 |
| Total | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

Table 13:

Q4. In your own words, how would you describe what 'folate' is to a friend?

| | Total | 'Informed' Segment | 'Somewhat informed' Segment | 'Uninformed' Segment |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------------------|-----------------------------------|-------------------------|
| Base = | 728* | 467 | 127 | 134 |
| | % | % | % | % |
| It's a vitamin/mineral/micro nutrient | 24 | 29 | 24 | 10 |
| Something to do with Iron | 6 | 6 | 11 | 2 |
| Helps with the development of blood cells/prevents (megaloblastic) anaemia | 1 | 2 | 1 | 0 |
| It's something you need/take before/during pregnancy (but did not know or elaborate as to why) | 14 | 15 | 16 | 8 |
| It's something you need/take before/during pregnancy to help with baby's nerve development/to minimise risk of neural tube defects (ie. Spina bifida) | 14 | 17 | 17 | 3 |
| Helps with the development of unborn children (general mention)/ mention birth defects generally | 7 | 10 | 8 | 1 |
| It's good for your bones/calcium | 3 | 3 | 3 | 4 |
| it's found in food (general mention)/cereals/grains | 5 | 5 | 4 | 5 |
| It's found in vegetables (especially leafy green vegetables) and fruit | 5 | 6 | 5 | 1 |
| It's in bread/they're thinking of putting it in bread | 5 | 4 | 6 | 7 |
| Folate and folic acid are the same thing/similar | 2 | 3 | 1 | 1 |
| Helps with reproduction/to get pregnant | 2 | 3 | 1 | 0 |
| For health/nutrition (general mention) | 9 | 10 | 8 | 6 |
| Other | 1 | 1 | 3 | 0 |
| Don't know/can't describe it | 35 | 26 | 32 | 64 |

Total may exceed 100% because of multiple response.

*Sub-sample based on those who have heard of folate.



Table 14:

Q5. And how would you describe what 'folic acid' is?

| | Base = | Total 959* % | 'Informed' Segment 549 % | 'Somewhat informed' Segment 172 % | 'Uninformed' Segment 238 % |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| It's a vitamin/mineral/micro nutrient | | 8 | 11 | 8 | 3 |
| Something to do with Iron | | 4 | 3 | 9 | 2 |
| Helps with the development of blood cells/prevents (megaloblastic) anaemia | | 1 | 2 | 1 | 1 |
| It's something you need/take before/during pregnancy (but did not know or elaborate as to why) | | 17 | 18 | 24 | 10 |
| It's something you need/take before/during pregnancy to help with baby's nerve development/to minimise risk of neural tube defects (ie. Spina bifida) | | 13 | 21 | 10 | 1 |
| Helps with the development of unborn children (general mention)/ mention birth defects generally | | 6 | 9 | 6 | 2 |
| It's good for your bones/calcium | | 1 | 1 | 2 | 1 |
| it's found in food (general mention)/cereals/grains | | 2 | 2 | 3 | 3 |
| It's found in vegetables (especially leafy green vegetables) and fruit | | 2 | 2 | 2 | 1 |
| It's in bread/they're thinking of putting it in bread | | 2 | 2 | 2 | 2 |
| Folate and folic acid are the same thing/similar | | 12 | 16 | 8 | 5 |
| Folic acid is the synthetic form of folate | | 4 | 5 | 4 | 0 |
| Helps with reproduction/to get pregnant | | 3 | 4 | 3 | 4 |
| For health/nutrition (general mention) | | 4 | 4 | 5 | 3 |
| Same answer as before | | 2 | 2 | 0 | 3 |
| Other | | 5 | 4 | 4 | 8 |
| Don't know/can't describe it | | 30 | 17 | 21 | 60 |

Total may exceed 100% because of multiple response.

*Sub-sample based on those who have heard of folic acid.



Table 15:

Q6A. How much would you say you know about folate or folic acid?

| | Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|-----------------------------------------|--------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| 0 - Don't know anything about it at all | | 23 | 0 | 0 | 72 |
| 1 | | 18 | 19 | 19 | 15 |
| 2 | | 15 | 18 | 27 | 4 |
| 3 | | 14 | 19 | 17 | 3 |
| 4 | | 9 | 14 | 9 | 3 |
| 5 - Neutral | | 12 | 17 | 14 | 2 |
| 6 | | 4 | 7 | 5 | 0 |
| 7 | | 3 | 4 | 4 | 0 |
| 8 | | 1 | 2 | 2 | 0 |
| 9 | | 0 | 1 | 1 | 0 |
| 10 - Know a lot about it | | 0 | 0 | 1 | 0 |
| Don't know | | 0 | 0 | 0 | 1 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

Table 16:

Q7. And what are the main ways you have got to know about folate and folic acid?

| | Base = | Total 809* % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 82 % |
|---------------------------------------------------------------------|--------|--------------------|-----------------------------------|-----------------------------------------------|------------------------------------|
| The media (TV, the press, radio) | | 43 | 44 | 38 | 46 |
| Friends and family | | 14 | 14 | 11 | 20 |
| GP | | 19 | 21 | 19 | 6 |
| Midwife, or other pregnancy health professional (e.g. obstetrician) | | 24 | 28 | 24 | 3 |
| Other health professional | | 6 | 7 | 6 | 2 |
| Specific literature for pregnant women | | 13 | 14 | 14 | 2 |
| The Internet | | 4 | 5 | 3 | 1 |
| Product manufacturer / Product information | | 7 | 5 | 6 | 17 |
| New Zealand Food Safety Authority | | 0 | 0 | 0 | 0 |
| At high school / tertiary institution | | 10 | 7 | 13 | 18 |
| General health/diet-related literature | | 4 | 5 | 3 | 1 |
| Through pregnancy | | 0 | 0 | 0 | 0 |
| Other | | 21 | 22 | 23 | 10 |
| Don't know | | 3 | 2 | 2 | 7 |

Total may exceed 100% because of multiple response.

*Sub-sample based on those who reported knowing something about folate and/or folic acid.



Table 17:

Q8. Are there any types of people, if any, who need to make sure they are getting the right amount of folate or folic acid? Who are these people? (First mentioned)

| | Base = | Total 809* % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 82 % |
|----------------------------------------------------------------------------|--------|--------------------|-----------------------------------|-----------------------------------------------|------------------------------------|
| Pregnant women | | 62 | 67 | 61 | 37 |
| Women planning to become pregnant | | 10 | 12 | 7 | 2 |
| All women | | 5 | 3 | 7 | 8 |
| Children | | 4 | 4 | 4 | 3 |
| Older people | | 1 | 0 | 1 | 0 |
| All people / Everyone | | 5 | 4 | 6 | 2 |
| Women of child-bearing age | | 1 | 2 | 0 | 1 |
| People with existing health conditions/family history of health conditions | | 2 | 1 | 4 | 0 |
| People who are undernourished | | 1 | 1 | 1 | 5 |
| Other | | 1 | 1 | 1 | 3 |
| No types of people need to make sure/No others | | 2 | 1 | 3 | 4 |
| Don't know/can't remember | | 8 | 4 | 6 | 34 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

*Sub-sample based on those who claimed to know at least something about folate or folic acid (rating of 1-10 at Q6)

Table 18:

Q8 & Q9. Are there any types of people, if any, who need to make sure they are getting the right amount of folate or folic acid? Who are these people? Any other people? (Total unprompted).

| | Base = | Total 809* % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 82 % |
|----------------------------------------------------------------------------|--------|--------------------|-----------------------------------|-----------------------------------------------|------------------------------------|
| Pregnant women | | 73 | 80 | 72 | 39 |
| Women planning to become pregnant | | 20 | 25 | 15 | 7 |
| Women who have just given birth | | 2 | 2 | 2 | 0 |
| All women | | 11 | 9 | 15 | 11 |
| Children | | 14 | 15 | 16 | 7 |
| Older people | | 12 | 12 | 13 | 12 |
| All people / Everyone | | 17 | 19 | 17 | 6 |
| Women of child-bearing age | | 2 | 3 | 0 | 2 |
| People with existing health conditions/family history of health conditions | | 4 | 4 | 7 | 0 |
| People who are undernourished | | 4 | 4 | 4 | 8 |
| Breastfeeding women | | 2 | 1 | 2 | 1 |
| Other | | 3 | 3 | 3 | 3 |
| No types of people need to make sure/No others | | 2 | 1 | 3 | 4 |
| Don't know/can't remember | | 8 | 4 | 6 | 34 |

Total may exceed 100% because of multiple response.

*Sub-sample based on those who claimed to know at least something about folate or folic acid



Table 19:

Q8 Q9 & Q10. Are there any types of people, if any, who need to make sure they are getting the right amount of folate or folic acid? Who are these people? Any other people? What about...? (Total prompted).

| Base = | Total 809* % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 82 % |
|-------------------------------------------|--------------------|-----------------------------------|-----------------------------------------------|------------------------------------|
| Pregnant women | 90 | 93 | 92 | 70 |
| Women planning to become pregnant | 33 | 36 | 26 | 30 |
| No, it's not important for either of them | 0 | 0 | 0 | 3 |
| Don't know | 3 | 0 | 0 | 25 |

Total may exceed 100% because of multiple response.

*Sub-sample based on those who claimed to know at least something about folate or folic acid

Table 20:

Q10aA. How important is it for pregnant women/women planning to become pregnant to make sure they are getting the right amount of folate (rebased to total sample)

| Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|------------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| Not at all important | 0 | 0 | 0 | 0 |
| 2 | 0 | 0 | 1 | 1 |
| 3 | 0 | 0 | 0 | 0 |
| 4 | 0 | 1 | 1 | 0 |
| Neutral | 2 | 2 | 1 | 1 |
| 6 | 2 | 2 | 2 | 1 |
| 7 | 5 | 4 | 9 | 3 |
| 8 | 14 | 16 | 23 | 6 |
| 9 | 9 | 13 | 9 | 3 |
| Extremely important | 41 | 62 | 52 | 5 |
| Don't know anything about folate or folic acid | 23 | 0 | 0 | 72 |
| Don't know if it is important | 4 | 0 | 1 | 10 |
| Total | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.



Table 21:

Q11. At about what stage before or during pregnancy, is it recommended that women increase their folate and folic acid intake?

| | Base = | Total 785* % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 58 % |
|---------------------------------------------------------------|--------|--------------------|-----------------------------------|-----------------------------------------------|------------------------------------|
| Before they become pregnant | | 68 | 100 | 0 | 0 |
| When they discover they are pregnant | | 7 | 0 | 30 | 0 |
| Within the first trimester (i.e. first 3 months of pregnancy) | | 14 | 0 | 61 | 0 |
| Later | | 2 | 0 | 9 | 0 |
| Don't know | | 9 | 0 | 0 | 100 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

*Sub-sample based on those who said that pregnant women or women planning to become pregnant need to make sure they are getting the right amount of folate or folic acid.

Table 22:

Q12. Can you tell me why it is recommended that pregnant women, or women who are planning to get pregnant, increase their folate or folic acid intake? (first mentioned)

| | Base = | Total 785* % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 58 % |
|-------------------------------------------------------------------------------------------------------------------|--------|--------------------|-----------------------------------|-----------------------------------------------|------------------------------------|
| Increase Iron levels | | 0 | 0 | 1 | 0 |
| Helps with the development of blood cells/prevents (megaloblastic) anaemia | | 1 | 0 | 1 | 1 |
| Something you need/take before/during pregnancy for baby's nerve development/minimise risk of neural tube defects | | 43 | 50 | 33 | 15 |
| Helps with the development of unborn children (general mention)/ mention avoid birth defects generally | | 16 | 18 | 13 | 7 |
| It's good for bones/calcium | | 0 | 0 | 0 | 0 |
| Helps with reproduction/fertility | | 1 | 1 | 0 | 0 |
| For mother's/baby's health/nutrition/vitamin intake (general mention) | | 25 | 21 | 31 | 37 |
| To help with the birth | | 0 | 0 | 0 | 0 |
| Other | | 1 | 1 | 2 | 3 |
| Not important | | 0 | 0 | 0 | 2 |
| Don't know | | 12 | 7 | 18 | 35 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

*Sub-sample based on those who said that pregnant women or women planning to become pregnant need to make sure they are getting the right amount of folate or folic acid.



Table 23:

Q12 & Q13. Can you tell me why it is recommended that pregnant women, or women who are planning to get pregnant, increase their folate or folic acid intake? Anything else? (Total unprompted)

| | Base = | Total 785* % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 58 % |
|-------------------------------------------------------------------------------------------------------------------|--------|--------------------|-----------------------------------|-----------------------------------------------|------------------------------------|
| Increase iron levels | | 1 | 1 | 2 | 0 |
| Helps with the development of blood cells/prevents (megaloblastic) anaemia | | 1 | 1 | 1 | 1 |
| Something you need/take before/during pregnancy for baby's nerve development/minimise risk of neural tube defects | | 51 | 59 | 42 | 15 |
| Helps with the development of unborn children (general mention)/ mention avoid birth defects generally | | 24 | 28 | 18 | 10 |
| It's good for bones/calcium | | 1 | 1 | 1 | 2 |
| Helps with reproduction/fertility | | 2 | 3 | 2 | 2 |
| For mother's/baby's health/nutrition/vitamin intake (general mention) | | 32 | 30 | 36 | 40 |
| To help with the birth | | 0 | 0 | 2 | 0 |
| Other | | 3 | 2 | 5 | 3 |
| Not important | | 0 | 0 | 0 | 2 |
| Don't know | | 12 | 7 | 18 | 35 |

Total may exceed 100% because of multiple response.

*Sub-sample based on those who said that pregnant women or women planning to become pregnant need to make sure they are getting the right amount of folate or folic acid.

Table 24:

Q14. Do you believe women who are pregnant, or planning to get pregnant, can get enough folate and folic acid through the drink and foods they eat alone?

| | Base = | Total 785* % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 58 % |
|------------|--------|--------------------|-----------------------------------|-----------------------------------------------|------------------------------------|
| Yes | | 30 | 24 | 43 | 45 |
| No | | 60 | 67 | 46 | 45 |
| Don't know | | 10 | 9 | 11 | 10 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

*Sub-sample based on those who said that pregnant women or women planning to become pregnant need to make sure they are getting the right amount of folate or folic acid.



Table 25:

Q15. Which types of foods and drinks do you think are naturally good sources of folate? (First mentioned)

| | Base = | Total 785* % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 58 % |
|-------------------------------------------------------|--------|--------------------|-----------------------------------|-----------------------------------------------|------------------------------------|
| Green vegetables (e.g. broccoli, spinach) | | 25 | 28 | 21 | 13 |
| Vegetables (general comment) | | 9 | 9 | 8 | 11 |
| Breakfast cereals | | 2 | 2 | 2 | 0 |
| Bread | | 8 | 8 | 9 | 4 |
| Grains (general comment) | | 3 | 3 | 3 | 0 |
| Citrus fruit | | 1 | 0 | 2 | 0 |
| Fruit (general comment) | | 6 | 4 | 11 | 10 |
| Dried beans | | 0 | 0 | 0 | 0 |
| Nuts | | 1 | 0 | 1 | 0 |
| Orange juice | | 1 | 2 | 0 | 0 |
| Fruit juice (general comment) | | 2 | 2 | 3 | 3 |
| Up & Go, Complan (i.e. Formulated Supplemented Foods) | | 0 | 0 | 0 | 0 |
| Milk / Dairy products | | 4 | 3 | 4 | 11 |
| Red meat | | 1 | 2 | 1 | 0 |
| Other meat | | 1 | 1 | 1 | 0 |
| Other | | 2 | 2 | 3 | 3 |
| None / No others | | 1 | 1 | 0 | 0 |
| Don't know / Can't remember | | 33 | 33 | 30 | 45 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

*Sub-sample based on those who said that pregnant women or women planning to become pregnant need to make sure they are getting the right amount of folate or folic acid.



Table 26:

*Q15 & Q6. Which types of foods and drinks do you think are naturally good sources of folate? Any others?
(Total unprompted)*

| | Base = | Total 785* % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 58 % |
|-------------------------------------------------------|--------|--------------------|-----------------------------------|-----------------------------------------------|------------------------------------|
| Green vegetables (e.g. broccoli, spinach) | | 33 | 37 | 31 | 14 |
| Vegetables (general comment) | | 22 | 20 | 25 | 29 |
| Breakfast cereals | | 6 | 8 | 3 | 2 |
| Bread | | 14 | 14 | 13 | 10 |
| Grains | | 7 | 7 | 8 | 2 |
| Citrus fruit | | 1 | 1 | 3 | 0 |
| Fruit | | 17 | 15 | 20 | 26 |
| Chick peas | | 0 | 0 | 0 | 0 |
| Dried beans | | 1 | 1 | 2 | 0 |
| Peas | | 1 | 0 | 3 | 0 |
| Nuts | | 3 | 2 | 4 | 3 |
| Orange juice | | 3 | 3 | 1 | 0 |
| Fruit juice | | 4 | 3 | 5 | 3 |
| Energy drinks | | 0 | 0 | 0 | 0 |
| Up & Go, Complan (i.e. formulated supplemented foods) | | 1 | 2 | 1 | 0 |
| Milk/dairy products | | 9 | 8 | 10 | 17 |
| Red meat | | 4 | 4 | 5 | 1 |
| Other meat | | 6 | 6 | 7 | 3 |
| Vegetable juice | | 0 | 0 | 0 | 0 |
| Other | | 6 | 5 | 9 | 5 |
| No-one | | 1 | 1 | 0 | 0 |
| Don't know | | 33 | 33 | 30 | 45 |

Total may exceed 100% because of multiple response.

*Sub-sample based on those who said that pregnant women or women planning to become pregnant need to make sure they are getting the right amount of folate or folic acid.



Table 27:

Q17. Apart from the drink and foods they eat, what other ways do you know of that women who are pregnant or are planning to become pregnant can get folic acid?

| | Base = | Total 785* % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 58 % |
|-----------------------------------------------------------------------------------------|--------|--------------------|-----------------------------------|-----------------------------------------------|------------------------------------|
| Taking multi-vitamins | | 14 | 14 | 15 | 21 |
| Taking supplements | | 50 | 54 | 44 | 40 |
| Pills (general mention) | | 35 | 36 | 32 | 32 |
| Eating foods and drinks that have had folic acid added to them (i.e. fortified foods) | | 2 | 3 | 1 | 2 |
| On advice from a doctor | | 2 | 2 | 1 | 3 |
| Pure Folic Acid (injection / liquid form) | | 4 | 3 | 8 | 1 |
| Other health / healthcare professionals (GPs, pharmaceuticals, health/nutrition stores) | | 1 | 0 | 0 | 1 |
| Other | | 2 | 2 | 2 | 0 |
| None/There are no other ways | | 1 | 1 | 3 | 0 |
| Don't know | | 6 | 4 | 7 | 19 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

*Sub-sample based on those who said that pregnant women or women planning to become pregnant need to make sure they are getting the right amount of folate or folic acid.

Table 28:

Q18. How many, if any, children have you had?

| | Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|--------------------|--------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| None | | 42 | 26 | 34 | 71 |
| Currently pregnant | | 2 | 3 | 3 | 0 |
| One | | 16 | 19 | 17 | 9 |
| Two or more | | 41 | 53 | 47 | 20 |
| Refused | | 0 | 0 | 0 | 0 |

Total may exceed 100% because of multiple response.

Table 29:

Q19. Did you take any vitamins or supplements that contained folic acid when you were pregnant?

| | Base = | Total 632* % | 'Informed' Segment 426 % | 'Somewhat informed' Segment 122 % | 'Uninformed' Segment 84 % |
|------------|--------|--------------------|-----------------------------------|-----------------------------------------------|------------------------------------|
| Yes | | 80 | 88 | 78 | 48 |
| No | | 19 | 12 | 21 | 46 |
| Don't know | | 2 | 0 | 2 | 6 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

*Sub-sample based on those who are currently pregnant, or have had children.



Table 30:

Q20. At what stage of your pregnancy did you start taking these vitamins and supplements?

| | Base = | Total 509* % | 'Informed' Segment 371 % | 'Somewhat informed' Segment 95 % | 'Uninformed' Segment 43 % |
|---------------------------------------------------------------|--------|--------------------|-----------------------------------|----------------------------------------------|------------------------------------|
| Before I became pregnant | | 41 | 49 | 25 | 17 |
| When I discovered that I was pregnant | | 38 | 37 | 39 | 47 |
| Within the first trimester (i.e. first 3 months of pregnancy) | | 18 | 12 | 30 | 31 |
| Later | | 2 | 1 | 6 | 0 |
| Don't know | | 1 | 1 | 0 | 5 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

*Sub-sample based on those who took vitamins or supplements with folic acid while they were pregnant.

Table 31:

Q21. Some drinks and foods have folic acid added to them. Do you currently check to see whether the drinks and food you buy have folic acid added to them?

| | Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|------------------------|--------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| Yes | | 2 | 2 | 3 | 1 |
| Sometimes/Occasionally | | 4 | 4 | 8 | 3 |
| No I don't check | | 93 | 93 | 89 | 95 |
| Don't know | | 1 | 1 | 0 | 0 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.



Table 32:

Q22. And how do you do this?

| Base = | Total 45* % | 'Informed' Segment 25** % | 'Somewhat informed' Segment 13** % | 'Uninformed' Segment 7** % |
|-----------------------------------------------------|-------------------|------------------------------------|------------------------------------------------|-------------------------------------|
| Do research (by going onto the internet / library) | 4 | 0 | 13 | 0 |
| Ask a friend or family member | 0 | 0 | 0 | 0 |
| Ask someone else (GP, nutritionist) | 5 | 9 | 0 | 0 |
| Check ingredients label (if a manufactured product) | 76 | 79 | 66 | 88 |
| Check nutrition information panel | 36 | 33 | 49 | 16 |
| Product advertisements | 2 | 3 | 0 | 0 |
| Other | 0 | 0 | 0 | 0 |
| None | 0 | 0 | 0 | 0 |
| Don't know | 2 | 0 | 0 | 12 |

Total may exceed 100% because of multiple response.

*Sub-sample based on those who check to see if their food and drink has folic acid added to it.

**Caution: low base number of respondents-results are indicative only.

Table 33:

Q23. If you were going to check, how would you do this?

| Base = | Total 950* % | 'Informed' Segment 525 % | 'Somewhat informed' Segment 161 % | 'Uninformed' Segment 264 % |
|---------------------------------------------------------|--------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| Do research (by going onto the internet / library) | 8 | 9 | 8 | 5 |
| Ask a friend or family member | 1 | 0 | 0 | 1 |
| Ask someone else (GP, nutritionist) | 1 | 1 | 2 | 1 |
| Check ingredients label (if a manufactured product) | 73 | 69 | 76 | 78 |
| Check nutrition information panel | 37 | 43 | 36 | 28 |
| Contact the manufacturer | 0 | 0 | 0 | 0 |
| Other product information (i.e. labelling; advertising) | 1 | 2 | 0 | 0 |
| Other | 0 | 0 | 0 | 0 |
| Don't know | 2 | 1 | 2 | 3 |

Total may exceed 100% because of multiple response.

*Sub-sample based on those who don't check to see if their food or drink has folic acid in it.



Table 34:

Q24. Do you know that folic acid is sometimes labelled on food products as folate?

| | Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|------------|--------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| Yes | | 37 | 47 | 48 | 17 |
| No | | 61 | 51 | 51 | 83 |
| Don't know | | 1 | 2 | 2 | 1 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

Table 35:

Q25. Which types of foods and drinks do you believe have folic acid added to them? (First mentioned)

| | Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|-------------------------------------------------------|--------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| Green vegetables (e.g. broccoli, spinach) | | 1 | 1 | 0 | 0 |
| Vegetables (general comment) | | 1 | 1 | 1 | 0 |
| Breakfast cereals | | 6 | 9 | 8 | 1 |
| Bread | | 22 | 30 | 27 | 9 |
| Grains (general comment) | | 0 | 0 | 0 | 0 |
| Citrus fruit | | 0 | 0 | 0 | 0 |
| Fruit (general comment) | | 0 | 0 | 0 | 0 |
| Orange juice | | 5 | 6 | 5 | 3 |
| Fruit juice (general comment) | | 8 | 6 | 8 | 9 |
| Energy drinks / | | 2 | 1 | 1 | 4 |
| Up & Go, Complan (i.e. Formulated Supplemented Foods) | | 2 | 3 | 3 | 1 |
| Milk/Dairy | | 6 | 6 | 6 | 6 |
| Red meat | | 4 | 0 | 0 | 12 |
| Other meat | | 0 | 0 | 2 | 0 |
| Other | | 2 | 2 | 3 | 2 |
| None | | 1 | 1 | 2 | 0 |
| Don't know/can't remember | | 39 | 32 | 35 | 51 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.



Table 36:

Q25 & Q26. Which types of foods and drinks do you believe have folic acid added to them? Any other foods or drinks? (Total unprompted)

| | Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|-------------------------------------------------------|--------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| Green vegetables (e.g. broccoli, spinach) | | 1 | 1 | 0 | 1 |
| Vegetables (general comment) | | 2 | 2 | 3 | 2 |
| Breakfast cereals | | 13 | 19 | 13 | 3 |
| Bread | | 30 | 40 | 35 | 11 |
| Grains | | 1 | 1 | 3 | 1 |
| Citrus fruit | | 0 | 0 | 0 | 1 |
| Fruit | | 1 | 1 | 2 | 1 |
| Chick peas | | 0 | 0 | 0 | 0 |
| Dried beans | | 0 | 0 | 0 | 0 |
| Peas | | 0 | 0 | 0 | 0 |
| Nuts | | 0 | 1 | 0 | 0 |
| Orange juice | | 9 | 11 | 9 | 6 |
| Fruit juice | | 12 | 12 | 11 | 12 |
| Energy drinks | | 3 | 3 | 3 | 5 |
| Up & Go, Complan (i.e. formulated supplemented foods) | | 5 | 6 | 8 | 3 |
| Milk/Dairy | | 13 | 15 | 15 | 11 |
| Red meat | | 4 | 0 | 0 | 12 |
| Other meat | | 1 | 0 | 2 | 1 |
| Vegetable juice | | 1 | 1 | 2 | 1 |
| Other | | 4 | 4 | 4 | 4 |
| None | | 1 | 1 | 2 | 0 |
| Don't know | | 40 | 32 | 36 | 57 |

Total may exceed 100% because of multiple response.

Table 37:

Q27. Are you the person or one of the persons in your household who is mainly responsible for buying the food and groceries?

| | Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|-------------------|--------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| Yes | | 73 | 87 | 75 | 51 |
| No | | 23 | 11 | 20 | 45 |
| Depends/sometimes | | 3 | 3 | 5 | 4 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.



Table 38:

Q28. Do you currently buy particular drinks and food products because they contain folate or folic acid?

| Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|------------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| Yes | 3 | 3 | 3 | 3 |
| No | 96 | 96 | 97 | 96 |
| Don't know | 1 | 1 | 0 | 1 |
| Total | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

*Sub-sample based on those are responsible for buying food and groceries.

Table 39:

Q29. Is this for yourself and or other people in your household? Which ones?

| Base = | Total 31* % | 'Informed' Segment 18** % | 'Somewhat informed' Segment 5** % | 'Uninformed' Segment 8** % |
|--------------|-------------------|------------------------------------|-----------------------------------------------|-------------------------------------|
| For self | 81 | 89 | 100 | 61 |
| For partner | 41 | 47 | 38 | 32 |
| For children | 47 | 49 | 62 | 39 |
| Other | 16 | 5 | 16 | 32 |
| Don't know | 0 | 0 | 0 | 0 |
| Total | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

*Sub-sample based on those who buy particular drinks and food because it has folate or folic acid in it.

**Caution: low base number of respondents-results are indicative only.



Table 40:

Q30. And which drinks and food products do you buy?

| Base = | Total 31* % | 'Informed' Segment 18** % | 'Somewhat informed' Segment 5** % | 'Uninformed' Segment 8** % |
|--------------------------------------------------------|-------------------|------------------------------------|-----------------------------------------------|-------------------------------------|
| Green vegetables (e.g. broccoli, spinach) | 3 | 7 | 0 | 0 |
| Vegetables (general comment) | 8 | 7 | 32 | 0 |
| Breakfast cereals | 15 | 19 | 16 | 10 |
| Bread | 15 | 16 | 22 | 10 |
| Grains (general comment) | 3 | 0 | 22 | 0 |
| Citrus fruit | 0 | 0 | 0 | 0 |
| Fruit (general comment) | 11 | 7 | 32 | 7 |
| Chick peas | 0 | 0 | 0 | 0 |
| Dried beans | 0 | 0 | 0 | 0 |
| Peas | 0 | 0 | 0 | 0 |
| Nuts | 2 | 0 | 0 | 7 |
| Orange juice | 16 | 22 | 16 | 7 |
| Fruit juice (general comment) | 37 | 11 | 62 | 64 |
| Energy drinks / | 0 | 0 | 0 | 0 |
| Up & Go, Complan (i.e.: Formulated Supplemented Foods) | 4 | 0 | 0 | 12 |
| Milk/Dairy | 16 | 18 | 24 | 10 |
| Red meat | 0 | 0 | 0 | 0 |
| Other meat | 6 | 7 | 0 | 7 |
| Other | 13 | 21 | 16 | 0 |
| None | 0 | 0 | 0 | 0 |
| Don't know/can't remember | 5 | 5 | 0 | 7 |

Total may exceed 100% because of multiple response.

*Sub-sample based on those who buy particular drinks and food because it has folate or folic acid in it

**Caution: low base number of respondents-results are indicative only.

Table 41:

Q31. Do you believe you and your family get enough folate and folic acid through these drinks and food products, and if applicable, any vitamins and supplements?

| Base = | Total 31* % | 'Informed' Segment 18** % | 'Somewhat informed' Segment 5** % | 'Uninformed' Segment 8** % |
|-----------------------------------|-------------------|------------------------------------|-----------------------------------------------|-------------------------------------|
| Yes, enough folate and folic acid | 70 | 79 | 40 | 68 |
| No | 17 | 21 | 44 | 0 |
| Don't know | 13 | 0 | 16 | 32 |
| Total | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

*Sub-sample based on those who buy particular drinks and food because it has folate or folic acid in it.

**Caution: low base number of respondents-results are indicative only.



Table 42:

Q33. Can I just check. Do you not buy these products because they contain folic acid?

| Base = | Total 963* % | 'Informed' Segment 531 % | 'Somewhat informed' Segment 170 % | 'Uninformed' Segment 262 % |
|---------------------------------------------------|--------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| Yes, because they specifically contain folic acid | 1 | 2 | 0 | 1 |
| No, buying against other criteria | 96 | 97 | 100 | 94 |
| Don't know | 2 | 1 | 0 | 5 |
| Total | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

*Sub-sample based on those who do not specifically buy drinks or food because they have folic acid added to them.

Table 43:

Q35A. All bread products should have folic acid added

| Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|-----------------------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| 0 - Strongly disagree | 8 | 7 | 4 | 11 |
| 1 | 2 | 2 | 2 | 1 |
| 2 | 5 | 6 | 3 | 6 |
| 3 | 6 | 6 | 7 | 5 |
| 4 | 4 | 4 | 4 | 4 |
| 5 - Neutral | 37 | 35 | 35 | 42 |
| 6 | 8 | 8 | 14 | 5 |
| 7 | 7 | 11 | 7 | 2 |
| 8 | 7 | 9 | 9 | 4 |
| 9 | 2 | 2 | 1 | 2 |
| 10 - Strongly agree | 6 | 7 | 9 | 3 |
| Don't know | 6 | 3 | 5 | 12 |
| Refused | 0 | 0 | 0 | 1 |
| Total | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.



Table 44:

Q36. For what particular reasons do you agree or disagree? (first mentioned)

| | Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|----------------------------------------------------------------------------------------------------------------------------------|--------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| All women planning to get pregnant or who are pregnant will get the daily intake they need (irrespective of awareness/knowledge) | | 8 | 10 | 10 | 4 |
| Babies will be born without defects | | 2 | 3 | 4 | 1 |
| Everyone needs it/would make it more accessible to all | | 20 | 23 | 26 | 12 |
| Limits consumer choice | | 19 | 24 | 16 | 13 |
| Increases cost of bread | | 1 | 1 | 1 | 0 |
| Creates nutrient imbalances/excesses in my body | | 0 | 1 | 0 | 0 |
| Creates nutrient imbalances/excesses in children, males and the elderly | | 0 | 1 | 0 | 0 |
| Don't like the idea of everyone being medicated | | 2 | 2 | 1 | 2 |
| It will not make any difference to health/not enough will be added so will still require supplements | | 0 | 0 | 0 | 1 |
| Don't like additives | | 4 | 4 | 3 | 6 |
| Don't know enough about it/would need more information | | 14 | 9 | 12 | 22 |
| Believe there could be potential side effects/downsides/negative health effects | | 5 | 4 | 8 | 4 |
| Not everybody needs it | | 6 | 8 | 6 | 2 |
| Other | | 2 | 1 | 1 | 3 |
| No particular reasons/Don't care | | 7 | 4 | 8 | 13 |
| Don't know | | 9 | 5 | 3 | 19 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.



Table 45:

Q36. For what particular reasons do you agree or disagree? Anything else? (total unprompted)

| | Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|------------------------------------------------------------------------------------------------------|--------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| All women planning to get pregnant or who are pregnant will get the daily intake they need | | 8 | 11 | 10 | 4 |
| Babies will be born without defects | | 3 | 3 | 4 | 1 |
| Everyone needs it/would make it more accessible to all | | 20 | 23 | 27 | 12 |
| Limits consumer choice | | 22 | 28 | 17 | 15 |
| Increases cost of bread | | 1 | 1 | 1 | 0 |
| Creates nutrient imbalance/excesses in my body | | 1 | 1 | 0 | 0 |
| Creates nutrient imbalance/excess in children, males and the elderly | | 1 | 1 | 0 | 0 |
| Don't like the idea of everyone being medicated | | 2 | 2 | 1 | 2 |
| It will not make any difference to health/not enough will be added so will still require supplements | | 1 | 1 | 0 | 1 |
| Don't like additives | | 5 | 5 | 4 | 7 |
| Don't know enough about it/would need more information | | 15 | 10 | 12 | 23 |
| Believe there could be potential side effects/downsides/negative health effects | | 6 | 7 | 10 | 4 |
| Not everybody needs it | | 10 | 13 | 14 | 4 |
| Other | | 2 | 2 | 1 | 3 |
| No particular reasons/Don't care | | 7 | 4 | 8 | 13 |
| Don't know | | 9 | 5 | 3 | 19 |

Total may exceed 100% because of multiple response.

Table 46:

Q38. About how many slices of bread do you have in an average day?

| | Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|------------------------|--------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| Less than one slice | | 3 | 3 | 1 | 5 |
| 1-2 slices | | 9 | 9 | 9 | 8 |
| 2-3 slices | | 38 | 37 | 40 | 40 |
| 3-4 slices | | 9 | 11 | 11 | 6 |
| 4-5 slices | | 21 | 21 | 19 | 23 |
| 5-8 slices | | 7 | 7 | 10 | 7 |
| 9-12 slices | | 0 | 0 | 0 | 0 |
| Other | | 5 | 6 | 2 | 4 |
| None / Don't eat bread | | 7 | 7 | 7 | 5 |
| Don't know | | 0 | 0 | 1 | 0 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.



Table 47:

Q39. And what type of bread do you usually have? Is it...?

| | Base = | Total 933* % | 'Informed' Segment 514 % | 'Somewhat informed' Segment 163 % | 'Uninformed' Segment 256 % |
|------------------------------------------------|--------|--------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| White bread | | 22 | 17 | 26 | 27 |
| Brown or wholemeal bread (including rye bread) | | 31 | 31 | 29 | 33 |
| Multi-grain bread | | 41 | 45 | 42 | 35 |
| Pita bread, flat breads or similar | | 1 | 1 | 1 | 1 |
| Sour dough breads | | 0 | 1 | 0 | 0 |
| Gluten-free | | 1 | 1 | 0 | 1 |
| Homemade | | 1 | 0 | 0 | 1 |
| Mixed / range of types | | 1 | 1 | 1 | 0 |
| Other | | 2 | 2 | 1 | 1 |
| Don't know | | 0 | 0 | 0 | 0 |
| Total | | 100 | 100 | 100 | 100 |

Total may exceed 100% because of multiple response.

*Sub-sample based on those who eat at least some bread in an average day.

Table 48:

Q40. Including yourself, is there anyone in your household whose health is impacted or directly affected by the food that they eat?

| | Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|------------|--------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| Yes | | 28 | 31 | 30 | 22 |
| No | | 71 | 68 | 70 | 78 |
| Don't know | | 0 | 1 | 0 | 1 |
| Total | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.



Table 49:

Q41. What is your highest educational qualification?

| | Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|-------------------------------------------------------------------------------|--------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| NCEA, School C or other secondary school qualification | | 39 | 29 | 35 | 57 |
| Polytechnic qualification or Trade Certificate, or Bachelors degree or higher | | 23 | 28 | 22 | 16 |
| Other | | 32 | 39 | 37 | 18 |
| None/No qualifications | | 1 | 1 | 3 | 1 |
| Don't know | | 4 | 3 | 3 | 7 |
| Total | | 0 | 0 | 0 | 0 |
| | | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

Table 50:

Q42. And which ethnic group or groups do you belong to?

| | Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|------------------------------------|--------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| New Zealand European (or Pakeha) | | 76 | 85 | 68 | 67 |
| Māori | | 18 | 13 | 19 | 24 |
| Pacific | | 7 | 4 | 7 | 13 |
| Asian | | 4 | 3 | 6 | 6 |
| Middle East/Latin American/African | | 1 | 0 | 4 | 1 |
| Other ethnic group | | 8 | 8 | 12 | 8 |
| Refused | | 0 | 0 | 0 | 0 |

Total may exceed 100% because of multiple response.



Table 51:

Q43. Which of the following best describes your household income before tax, for the last year?

| Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|--------------------------------------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| Under \$40,000 | 15 | 12 | 12 | 20 |
| \$40,000 but less than \$70,000 | 26 | 28 | 25 | 23 |
| \$70,000 but less than \$100,000 | 24 | 25 | 28 | 20 |
| \$100,000 but less than \$120,000 | 12 | 15 | 11 | 10 |
| \$120,000 but less than \$150,000 | 6 | 7 | 5 | 5 |
| \$150,000 or more | 5 | 7 | 5 | 4 |
| Don't know | 10 | 5 | 12 | 17 |
| Refused | 2 | 3 | 2 | 1 |
| Total | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.

Table 52:

Q44. Which of these best describes where you live? Do you live in a...?

| Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|---------------------------------------------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| Rural area or small town with a population of less than about 10,000 people | 26 | 25 | 30 | 26 |
| Or do you live in a large town or city with a population greater than 10,000 | 71 | 73 | 67 | 71 |
| Don't know | 3 | 2 | 3 | 4 |
| Total | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.



Table 53:

Q45. And in which of the following areas do you live?

| Base = | Total 1,000 % | 'Informed' Segment 552 % | 'Somewhat informed' Segment 175 % | 'Uninformed' Segment 273 % |
|--------------------------|---------------------|-----------------------------------|-----------------------------------------------|-------------------------------------|
| Northland | 3 | 3 | 2 | 4 |
| Auckland | 32 | 29 | 34 | 37 |
| Waikato | 7 | 7 | 8 | 7 |
| Bay of Plenty | 6 | 6 | 9 | 4 |
| Gisborne | 1 | 1 | 0 | 1 |
| Hawke's Bay | 2 | 2 | 2 | 4 |
| Taranaki | 3 | 3 | 3 | 2 |
| Manawatu- Wanganui | 4 | 5 | 3 | 3 |
| Wellington- Wairarapa | 13 | 14 | 15 | 10 |
| Tasman | 1 | 1 | 2 | 1 |
| Nelson | 1 | 2 | 1 | 1 |
| Marlborough | 1 | 1 | 1 | 1 |
| West Coast | 1 | 1 | 1 | 1 |
| Canterbury | 15 | 16 | 13 | 14 |
| Otago | 6 | 6 | 4 | 6 |
| Southland | 3 | 4 | 3 | 3 |
| Total | 100 | 100 | 100 | 100 |

Total may not sum to 100% due to rounding.