

# Climate adaptation: what it means for Australian consumers

## Consumer Survey – 2014 Results

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**Australian Government**

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# Climate adaptation and Australia's food sector

There is little doubt that climate change has and will continue to influence the quantity, quality and availability of food produced in Australia and globally.

Impacts are likely to be felt across a range of activities along the supply chain, including availability and security of raw materials, the length of growing seasons and harvest patterns, and the costs of transportation and manufacturing. Climate change impacts are likely to change the amount and quality of the products consumers are presented with.

Although substantial work has been conducted on the risks of climate change to industry<sup>1</sup> and in particular the food sector<sup>2</sup>, very few researchers have attempted to understand how climate change impacts attitudes and purchasing decisions of consumers.

In particular, there is much to be explored in understanding how consumers perceive climate adaptation in light of the food they purchase and consume. Until now, there has been no research that has sought to understand whether adaptation strategies can add value to certain food products. It is thought that this information may assist Australian food value chains and businesses in making decisions about their strategies in response to the impacts of climate change.

## What is climate adaptation?

*The IPCC define climate adaptation<sup>3</sup> as “the process of adjustment to actual or expected climate and its effects”. From a business perspective, climate adaptation can be seen as mitigating risks posed by climate change and weather variability. At the same time, it can be seen as taking advantage of opportunities presented by a changing climate.*

<sup>1</sup> Berkhout, F., Hertin, J., Gann, D.M. (2006) Learning to adapt: organisational adaptation to climate change impacts. *Climatic Change* 78, 135-156.

O'Brien, K.L., Leichenko, R.M. (2000) Double exposure: assessing the impacts of climate change within the context of economic globalization. *Global Environmental Change* 10, 221-232.

<sup>2</sup> Schmidhuber, J., & Tubiello, F. N. 2007. Global food security under climate change. *Proc Natl Acad Sci USA*, 104(50): 19703-19708; Rosenzweig, C., Parry, M.L. (1994) Potential impact of climate change on world food supply. *Nature* 367, 133-138.

<sup>3</sup> See the IPCC's Fifth Assessment Working Group II report glossary: <http://www.ipcc.ch/report/ar5/wg2/>

# About this study

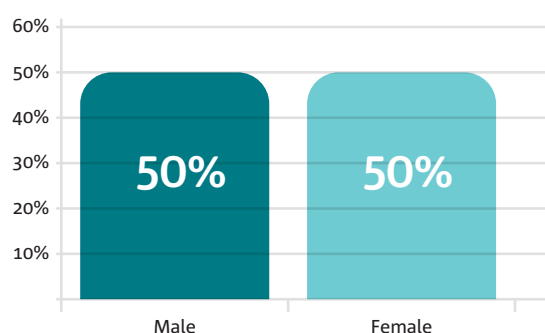
This study provides an indication of current Australian attitudes and behaviours related to climate change and consumer perceptions of climate adaptation with regard to the consumption and purchase of food products.

It forms part of a broader research program investigating the value of a whole-of-systems approach to climate change adaptation in the Australian food sector. This report presents the key findings from an online survey of 1532 Australians conducted on 18-28 April 2014 regarding their attitudes toward climate change and adaptation. The survey was administered to a panel of survey respondents<sup>4</sup> from regional and metropolitan Australia, specifically targeting consumers who purchase a range of food products. The sample were representative of the Australian population in terms of their age, gender and location, according to 2011 ABS population data<sup>5</sup>.

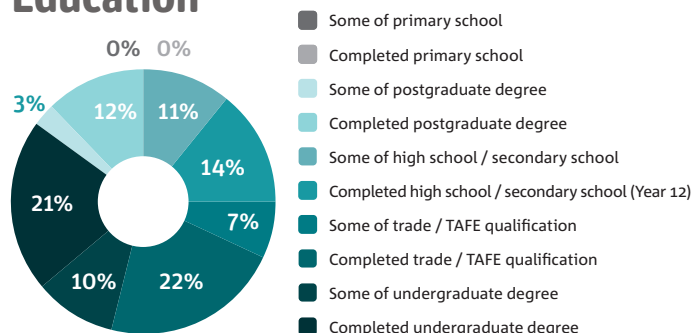
## Demographics

Summary of the demographic profile of survey respondents, compared against ABS population data.

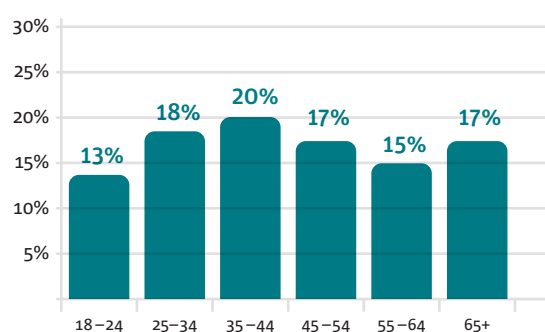
### Gender



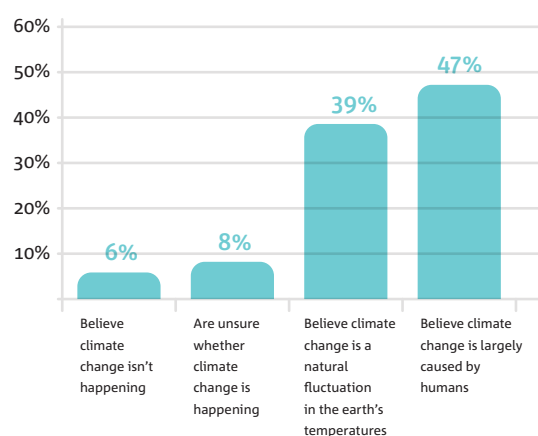
### Education



### Age



### Climate Change Perceptions



<sup>4</sup> Respondents were drawn from a research only panel and the survey was run and managed by Colmar Brunton. The panel is managed by Research Now, an online fieldwork company with ISO 20252 accreditation and ESOMAR status. Colmar Brunton is an independent market research agency (ISO AS/NZS 9001:2000). Colmar Brunton works in accordance with the ESOMAR International Code of Conduct for Market Research, the Market and Social Research Privacy Principles and the AMSRS Code of Professional Behaviour

<sup>5</sup> Australian Bureau of Statistics 2011, Census Quick Stats, [www.abs.gov.au/websitedbs/census home.nsf/home/quickstats](http://www.abs.gov.au/websitedbs/census%20home.nsf/home/quickstats)

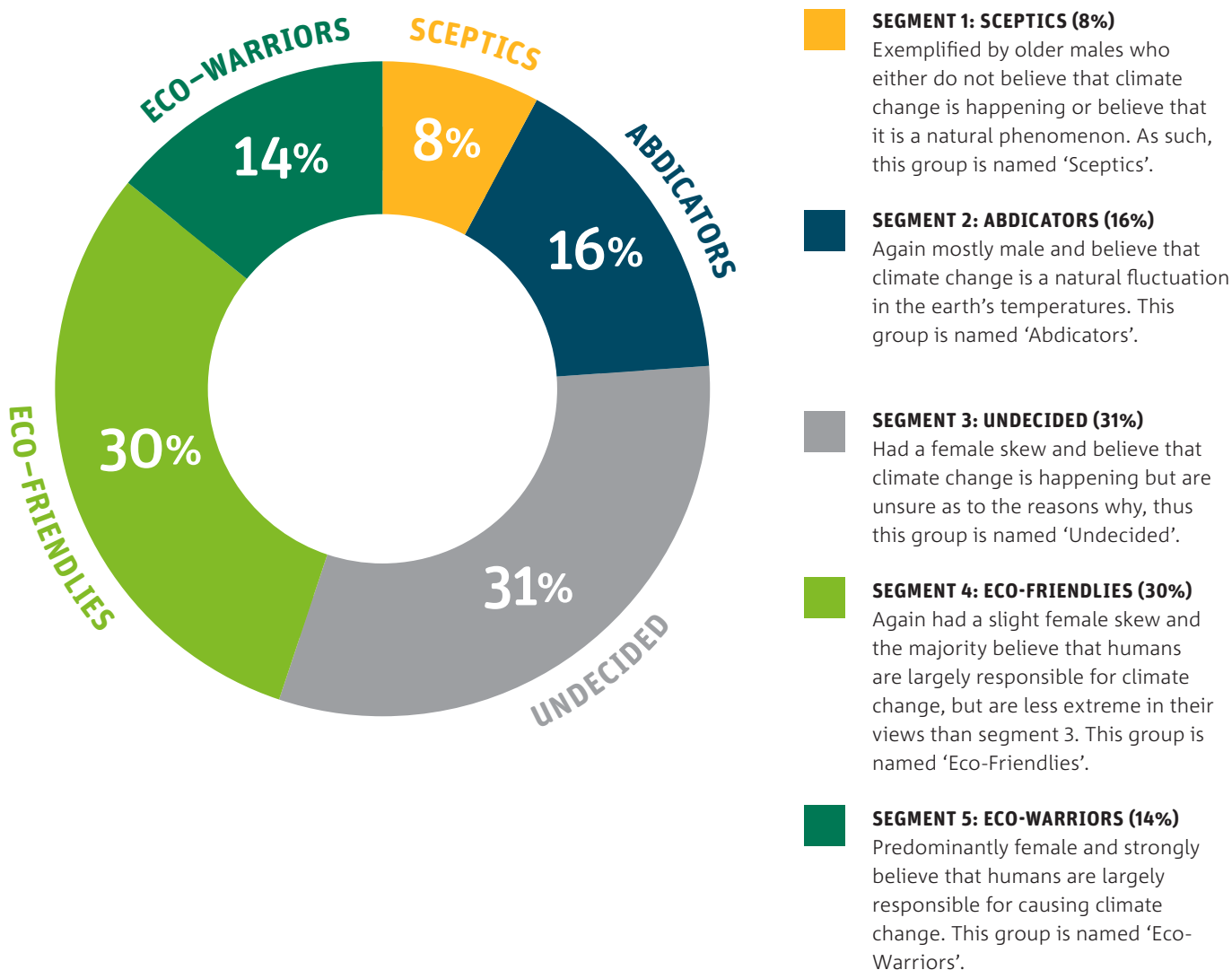




# How do consumers differ when it comes to attitudes toward climate adaptation?

In order to identify differences between consumer perceptions and attitudes towards climate adaptation, a segmentation analysis was performed on the 1532 survey respondents.

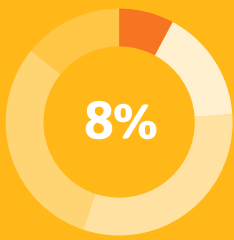
Respondents were asked to provide details on demographics and belief in and attitudes towards climate change. Segmentation analysis allows groups within the data to be identified based on the similarity in their responses<sup>6</sup>. For the purposes of this study, the analysis resulted in five distinct segments<sup>7</sup>, as shown below and overleaf in full page images. For ease of identification, qualitative descriptors were developed to identify the segments; these were generated using distinguishing characteristics of each group identified. Note that from herein consumer segments are referred to by their descriptor name, as described below.



<sup>6</sup> Burns, R. P., & Burns, R. 2008. Business research methods and statistics using SPSS. London: Sage Publications.

<sup>7</sup> The segmentation analysis was conducted using a two-step clustering approach, which grouped cases into homogenous subgroups based on their responses to demographic questions (age, gender, 95 level of education and location), their belief in the concept of climate change, and their attitudes towards climate change adaptation. Two-step clustering was chosen due to its ability to handle large data sets and continuous and categorical variables. No specific numbers of clusters were set.





# Sceptics



## Beliefs

### MY MOST IMPORTANT SOCIAL ISSUES:

- The cost of living
- Health

### THE NATURAL ENVIRONMENT IS NOT IMPORTANT FOR ME, BUT I AM CONCERNED ABOUT:

- Water quality
- Water shortages
- Drought

### ABOUT ME:

- Maintaining my way of life is most important for me
- I tend not to seek new experiences
- I stick to brands I trust
- I make decisions based on logic rather than emotion
- I can cope perfectly with the impacts of climate change

### I AM NOT INTERESTED IN:

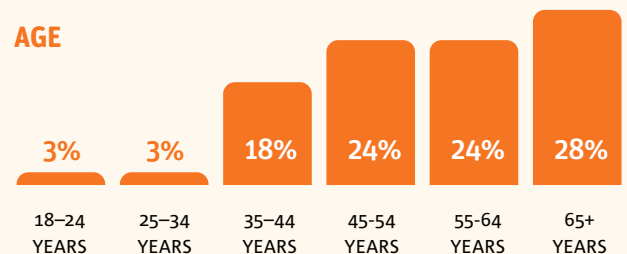
- Having a full social life
- Changing the world
- Purchasing environmentally-friendly products
- Supporting food businesses that adapt
- Taking any action to adapt to climate change

## Demographics

### GENDER



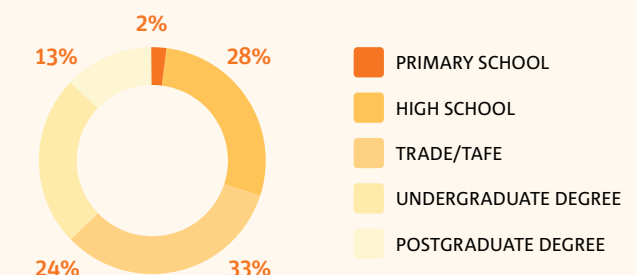
### AGE



### WHAT I'M DOING ABOUT IT

“FITTED SOLAR POWER, BUT TO SAVE MONEY, NOT TO SAVE THE PLANET.”

### EDUCATION (SOME OR ALL OF)



34%

BELIEVE CLIMATE CHANGE IS A NATURAL FLUCTUATION IN THE EARTH'S TEMPERATURES

50%

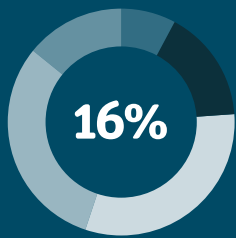
BELIEVE CLIMATE CHANGE ISN'T HAPPENING

## Climate Adaptation Is...

“ change in the way we live and do things because of changes in the local climate, especially seasonal or natural changes. ”

“ A natural process that has gone on for millions of years. People are NOT damaging the climate.... ”





# Abdicators



## Beliefs

### MY MOST IMPORTANT SOCIAL ISSUES:

- The cost of living
- Health

### MY KEY ENVIRONMENTAL CONCERNS ARE:

- Water quality
- Water shortages
- Drought

### ABOUT ME:

- I'm pretty optimistic about the future
- I'm open to change, but...
- I do not seek new experiences

### I AM NOT INTERESTED IN:

- Purchasing environmentally-friendly products
- Seeking information about products

### WHO'S RESPONSIBLE FOR ADAPTING TO CLIMATE CHANGE?

- Big polluting countries
- Multi-national corporations
- Not me, but I think I can cope with the impacts of climate change

### HOWEVER...

- I support sourcing locally, because its good for the environment

# 13%

ARE UNSURE  
WHETHER CLIMATE  
CHANGE IS  
HAPPENING

# 66%

BELIEVE CLIMATE  
CHANGE IS A  
NATURAL  
FLUCTUATION IN  
THE EARTH'S  
TEMPERATURES

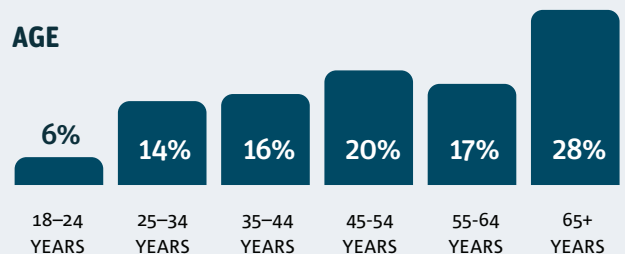
## Demographics

### GENDER

♀ 42%

58% ♂

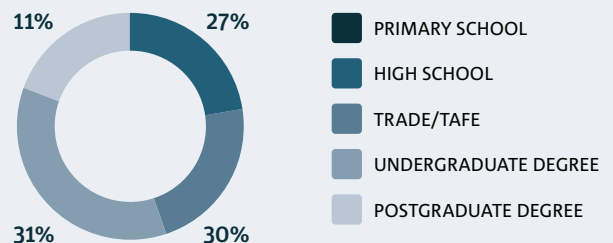
### AGE



### WHAT I'M DOING ABOUT IT

“WE GENERALLY HAVE A HEALTHY AND ENVIRONMENTALLY FRIENDLY HOUSEHOLD REGARDLESS OF CLIMATE CHANGE.”

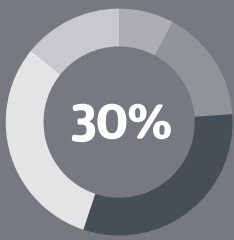
### EDUCATION (SOME OR ALL OF)



## Climate Adaptation Is...

“ If we don't worry too much about it, we would not even notice how we adapted to it. Climate change is happening and it has always been happening. Nothing new. ”

“ It has happened before in the past we will just have to learn to live with it and with our knowledge and scientific backup should be able to. ”



# Undecided



## Beliefs

### MY MOST IMPORTANT SOCIAL ISSUES:

- The cost of living
- Health

### ABOUT ME:

- I'm pretty optimistic about the future
- I'm open to change, but...
- I do not seek new experiences, and...
- There's too much change going on these days

### I AM NOT INTERESTED IN:

- Purchasing environmentally-friendly products
- Seeking information about products I'm interested in
- Taking risks

### ABOUT CLIMATE CHANGE:

- I'm unsure about how I feel about it all
- The big organisations are responsible for adapting
- I do my bit, in my own little way, but...
- I am not so sure about how I will cope with it
- Something needs to be done, just to be safe

### I SUPPORT:

- Businesses that are environmentally friendly (like me)
- Sourcing locally
- Protecting farmers

34%

BELIEVE CLIMATE CHANGE IS LARGELY BEING CAUSED BY HUMANS.

52%

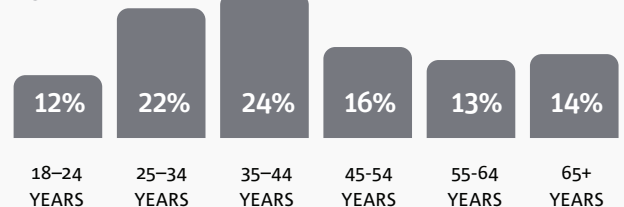
BELIEVE CLIMATE CHANGE IS A NATURAL FLUCTUATION IN THE EARTH'S TEMPERATURES

## Demographics

### GENDER



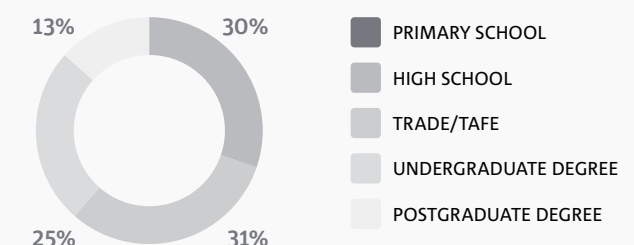
### AGE



### WHAT I'M DOING ABOUT IT

"WE HAVE REDUCED WATER CONSUMPTION, REDUCED POWER USAGE, INSTALLED SOLAR PANELS, RECYCLE AND MADE GARDENS MORE WATER WISE AND PRODUCTIVE."

### EDUCATION (SOME OR ALL OF)



## Climate Adaptation Is...

" I'm not sure why we have fluctuations in climate but just in case we are causing it, we should make changes where possible. "

" ...the process of informing people about how to adapt to climate change. It is also the process of advising Government policy makers on the best ways to tackle the problem. "



# Eco-Friendlies



## Beliefs

### MY MOST IMPORTANT SOCIAL ISSUES:

- The cost of living
- Health

### ABOUT ME:

- Helping others is important for me
- I seek new experiences
- I purchase environmentally-friendly products where possible
- I like to live a full and busy life
- I'm optimistic about the future

### I BELIEVE THAT CLIMATE CHANGE IS HAPPENING:

- I have personally experienced its effects
- It's changed the way I think, live and consume
- Everyone is responsible for doing something
- I make an effort to do something about mitigating it
- I have done some things to adapt to climate change, but...
- I don't think I can cope with the impacts of it, so...
- I need support in making better choices

### I SUPPORT:

- Businesses that are environmentally friendly (like me)
- Businesses that make it easier for me to make good decisions
- Protecting farmers

22%

BELIEVE CLIMATE CHANGE IS A NATURAL FLUCTUATION IN THE EARTH'S TEMPERATURES

72%

BELIEVE CLIMATE CHANGE IS LARGELY BEING CAUSED BY HUMANS.

## Demographics

### GENDER

♀ 54%

46% ♂

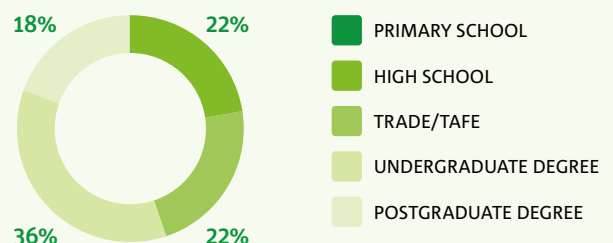
### AGE



### WHAT I'M DOING ABOUT IT

"I HAVE CHANGED TO GREEN CLEANING PRODUCTS AND GROW MY OWN FRUIT AND VEGETABLES TO REDUCE MY PERSONAL IMPACT ON THE SUPPLY CHAIN"

### EDUCATION (SOME OR ALL OF)

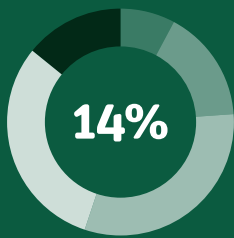


## Climate Adaptation Is...

“...how people will have to change their lifestyle and sometimes where they live to survive the changes in the environment caused by climate change.”

“Changing the way we live to reduce the impact to the environment but to also conserve and preserve the natural resources.”





# Eco-Warriors



## Beliefs

### MY MOST IMPORTANT SOCIAL ISSUES:

- The cost of living
- Climate change
- Health
- Our natural environment

### ABOUT ME:

- I seek new experiences
- I believe in taking risks
- I like to purchase environmentally-friendly products

### I BELIEVE THAT CLIMATE CHANGE WILL HARM ME PERSONALLY:

- I've experienced its effects
- I don't think I will cope with its impacts
- I've made big changes in the way I live because of it
- There are profound changes occurring and we need to act
- The whole food chain is vulnerable to it, especially farmers
- We all need to use less resources
- We are all responsible for adapting

### I SUPPORT:

- Businesses that are sustainable and environmentally friendly
- Businesses that make it easier for me to make good decisions
- Protecting farmers

# 89%

BELIEVE CLIMATE CHANGE IS LARGELY BEING CAUSED BY HUMANS.

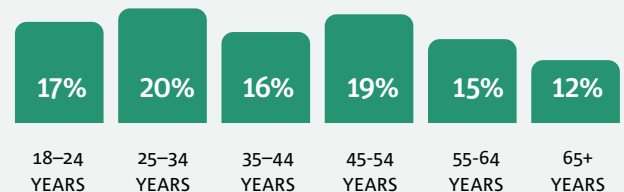
## Demographics

### GENDER

♀ 60%

40% ♂

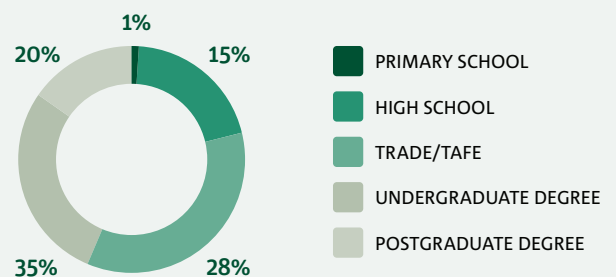
### AGE



### WHAT I'M DOING ABOUT IT

"I BECAME VEGAN DUE TO CLIMATE CHANGE. WE EDUCATE OUR CHILDREN ABOUT HOW TO BE RESILIENT, WE BUY SECOND HAND, FERMENT OUR OWN PROBIOTICS AND ARE SAVING UP FOR A SMALL WIND TURBINE TO GENERATE ELECTRICITY."

### EDUCATION (SOME OR ALL OF)



## Climate Adaptation Is...

“...changing our lifestyle to adapt to climate change while changing what we as humans have done to cause climate change.”

“...changing the current habits of society and industry to suit today's environmental climate in a manner that does not cause any further hindrance to nature.”

# Is climate change a priority for consumers?

To understand how important climate change is for consumers, we asked respondents to rank what they felt were the most important social issues.

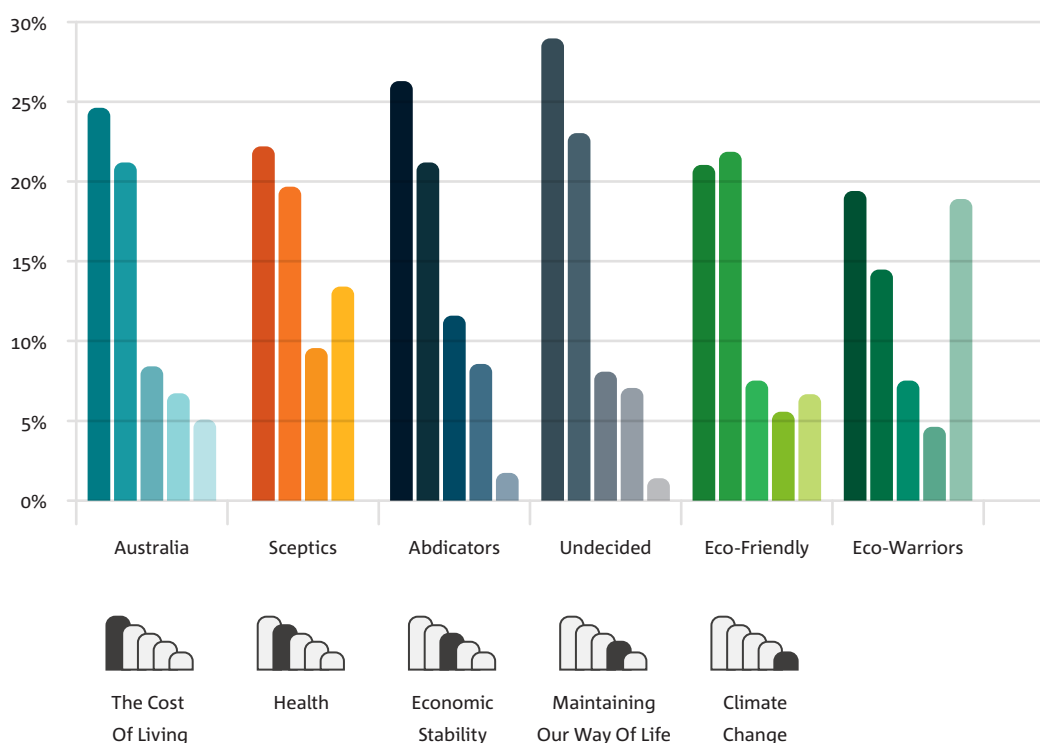
Results revealed that the most important social issues currently facing consumers are mainly household related, i.e. the cost of living and health. Issues such as 'economic stability' and 'maintaining our way of life' also ranked highly in importance in comparison to climate change (Figure 1).

While the vast majority of respondents acknowledge that climate change is happening, only 5% of all the survey respondents (N=1532) ranked climate change as one of their most important social issues. Not surprisingly, Eco-Warriors ranked climate change highly, while Sceptics did not identify climate change as one of its most important social issues. Interestingly, this group instead ranked 'maintaining our way of life' higher than all other consumer segments. These results support previous suggestions that individuals find it difficult to engage with climate change, given the plethora of other concerns they find more pressing<sup>8</sup>. However, understanding what different priorities consumers have does enable us to develop 'frames of reference' in which to better engage with different market segments.

FIGURE 1

## Social Issues

How consumer segments rank climate change compared with other social issues



<sup>8</sup> Norton, A., & Leaman, J. 2004. The day after tomorrow: Public opinion on climate change. MORI Social Research Institute, London.  
Poortinga, W., & Pidgeon, N. F. 2003. Exploring the dimensionality of trust in risk regulation. Risk analysis, 23(5): 961-972.







# A consumer's personal perspective of climate change

The personal relevance of climate change to individuals has been identified as one of the barriers to better engaging the general community with the issue<sup>9</sup>.

In order to explore personal relevance, we asked respondents to what extent they agreed on or disagreed with a series of statements relating to personal harm, importance, and their experience with climate change.

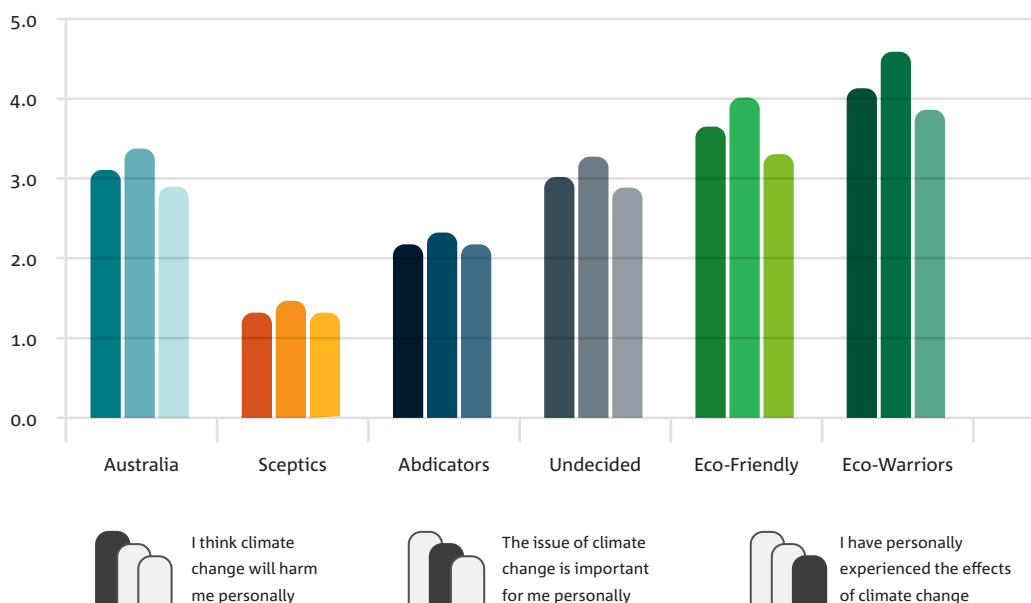
As Figure 2 illustrates, in general respondents felt the issue of climate change is important to them personally; however, fewer perceive that climate change will harm them personally, and even less feel they have personal experience with the effects of climate change. This suggests that although climate change is important, the issue is removed from the everyday life of the majority of consumers.

The issue of climate change is, however, significantly more important to Eco-Warriors who are also more concerned that climate change will harm them personally. Conversely, Sceptics (and to a lesser extent Abdicators) are significantly less likely to perceive that climate change will harm them personally, nor do they believe that humans are primarily responsible. As a result the issue is less important to them.

FIGURE 2

## Personal Relevance

Thoughts on the personal relevance of climate change  
Mean levels of agreement, 1 = strongly disagree, 5 = strongly agree



<sup>9</sup> Scannell, L., & Gifford, R. 2013. Personally Relevant Climate Change: The Role of Place Attachment and Local Versus Global Message Framing in Engagement. *Environment and Behavior*, 45(1): 60-85.

## How well can consumers cope with climate change?

In general, respondents believed they will cope moderately well with the impacts of climate change. While the ability to cope financially was rated lowest by respondents, the difference between the categories is relatively small. These results are not surprising given the emphasis most consumers place on the cost of living. Perhaps, for consumers, some of the most tangible and visible impacts of climate change relate to rising electricity prices, water shortages and water supply.

Sceptics are the most optimistic about coping with the impacts of climate change. On average, this segment is significantly more likely to believe that they will cope financially and mentally with the impacts of climate change. However, this should be viewed in light of their attitudes to climate change, and belief that climate change doesn't exist. Further, Sceptics are typically older in age, and are thus more likely to have the resources and experience to know that they are able to cope with a range of risks and threats. In contrast, respondents aged 18-24 years are the most concerned with how they will cope with the impacts of climate change, with significantly lower mean scores for their ability to cope mentally, and financially<sup>10</sup>.

FIGURE 3

### Perceived Ability to Cope

Perceived ability to cope with the impacts of climate change  
Mean levels of agreement, 1 = strongly disagree, 5 = strongly agree



Eco-Warriors are the most pessimistic about their ability to cope with the impacts of climate change. This segment is significantly less likely to believe that they will cope mentally, socially, physically or financially with climate change, thus supporting their awareness of climate change and its full range of impacts and causes.

<sup>10</sup> 18-24 years – mentally: 3.3, financially: 2.9. This is significantly lower than the total at the 0.05 confidence interval.

## How will consumers respond to the threat of climate change?

Individuals face a variety of risks on a daily basis, some greater than others. Climate change is considered to be one of the long-term environmental risks faced by individuals, with many of the impacts serious and irreversible. How consumers respond to climate change can vary depending on how they perceive the risk<sup>11</sup>. A significant amount of work has already explored the role of cognition and emotion in the perception of climate change risk<sup>12</sup>. For this study we built on this further by asking respondents the extent to which they agree or disagree with a series of statements relating to their thoughts (Figure 4) and emotions (Figure 5).

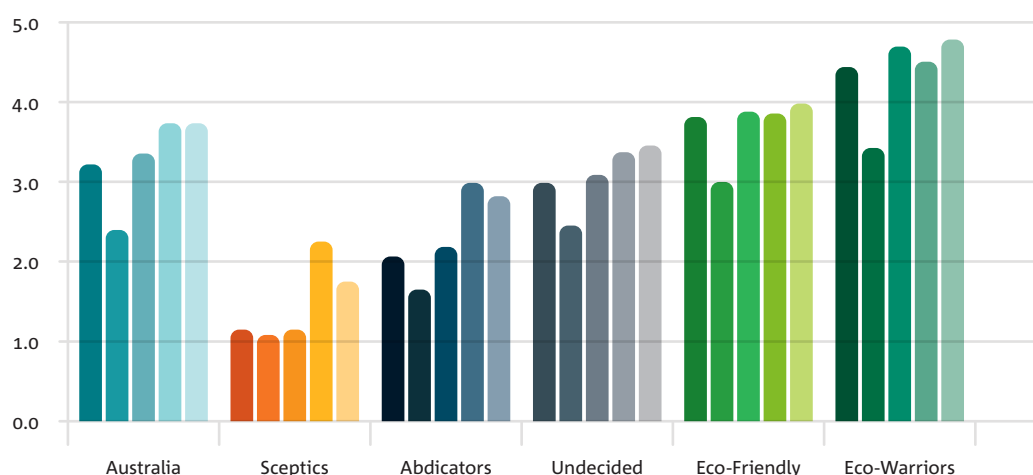
Over half of those surveyed agree or strongly agree that the threat of climate change has made them look for things they can address and change in their everyday lives as well as think differently about what is acceptable and sustainable with respect to products, packaging and consumption – both relatively ‘easy’ to achieve without causing much disruption in day-to-day living.

Actions that require more effort and change, however, were not so common. For example, only 21% of respondents agreed or strongly agreed that they had thought of alternative places to live because of the increasingly evident impacts of climate change. This is not surprising, given the significant level of change this would require, especially if done primarily due to climate change.

FIGURE 4

### Thought Responses

Thought responses to the threat of climate change  
Mean levels of agreement, 1 = strongly disagree, 5 = strongly agree



I have changed the way I think about the seriousness of environmental problems because of climate change



I have seriously thought about alternative places to live because of the increasingly evident impacts of climate change



Climate change has forced me to change the way I think about and view how we live in and use our natural environment and resources in Australia



I tend to think differently these days about what is acceptable and sustainable and not acceptable with respect to consumer products and packaging, and consumption in general



When considering the challenges of climate change it is important to look for things that I can address and change in my everyday life

<sup>11</sup> O'Connor, R. E., Bord, R. J., & Fisher, A. 1999. Risk perceptions, general environmental beliefs, and willingness to address climate change. *Risk analysis*, 19(3): 461-471.

<sup>12</sup> Grothmann, T., & Patt, A. 2005. Adaptive capacity and human cognition: The process of individual adaptation to climate change. *Global Environmental Change*, 15(3): 199-213.; Kahan, D. M., Braman, D., Gastil, J., Slovic, P., & Mertz, C. K. 2007. Culture and identity-protective cognition: Explaining the white-male effect in risk perception. *Journal of Empirical Legal Studies*, 4(3): 465-505.; O'Neill, S., & Nicholson-Cole, S. 2009. "Fear Won't Do It": Promoting Positive Engagement With Climate Change Through Visual and Iconic Representations. *Science Communication*, 30(3): 355-379.; Pidgeon, N. 2012. Climate change risk perception and communication: addressing a critical moment? *Risk Anal*, 32(6): 951-956.

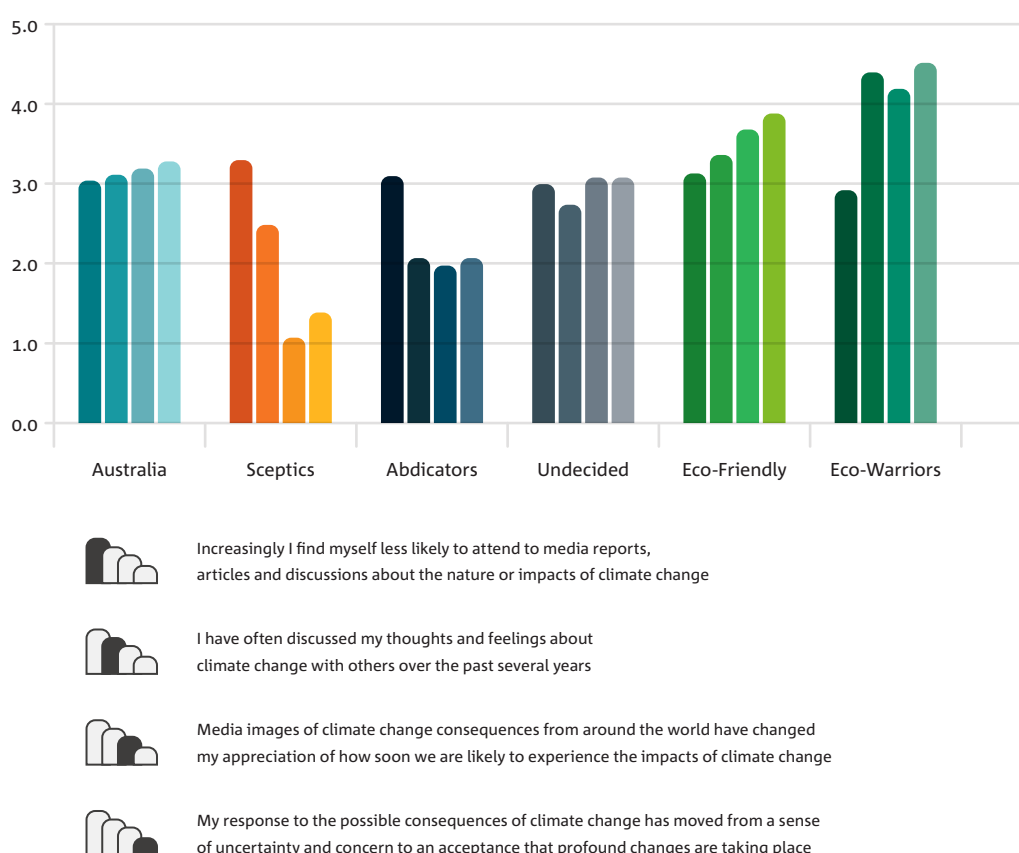


How the media portrays climate change is likely to influence consumer emotional responses to the issue. All segments pay a similar level of attention to media reports about climate change, and they are all, on average, fairly neutral about their level of attention. For Sceptics and Eco-Warriors, there was strong polarisation of responses in relation to the extent to which they pay attention to media reports about the nature and impact of climate change (Figure 5). Both segments had strong levels of disagreement, as well as strong levels of agreement<sup>13</sup>. Interestingly, both Abdicators and Eco-Friendlies show significant levels of agreement – indicating that these segments prefer to ‘switch-off’ when it comes to hearing about climate change in the media<sup>14</sup>.

FIGURE 5

## Emotive Responses

Emotive responses to the threat of climate change  
Mean levels of agreement, 1 = strongly disagree, 5 = strongly agree



Younger consumers (aged 18-24 years) are significantly more likely to agree that media images of climate change have changed their appreciation of how soon we are likely to experience the impacts of climate change (51% agree or strongly agree).

Overall, apart from attendance to media reports, emotive responses to climate change show similar trends to other issues, with Sceptics and Abdicators indicating low levels of agreement with statements that are underpinned by belief in climate change, Eco-Friendlies and Eco-Warriors show strong agreement, and Undecided not having strong opinions.

<sup>13</sup> Sceptics = 32% Strongly Disagree; 44% Strongly Agree. Eco-Warriors = 25% Strongly Disagree; 21% Strongly Agree. These are significantly higher than the total at the 0.05 confidence interval. "Increasingly I find myself less likely to attend to media reports, articles and discussions about the nature or impacts of climate change"

<sup>14</sup> 29% of both segments 'Agree'. These are significantly higher than the total at the 0.05 confidence interval. "Increasingly I find myself less likely to attend to media reports, articles and discussions about the nature or impacts of climate change"

# Perceived vulnerability of our food system

Climate change can affect our food systems in many ways.

On one hand, there is clear evidence that drought and reductions in local food production are correlated as is extreme temperatures. This will continue in the future and so continued declines in rainfall and increased warming is very likely to result in further food production challenges. Climate events are also seen to change markets, food prices and supply chain infrastructure, with disruptions regularly occurring globally<sup>15</sup>, and this again will be enhanced as future climate conditions become more variable and extreme events become more intense.

The primary concern of climate change impacts on the food system is food security. In an Australian context, this might not necessarily mean a risk of not having enough food, but rather it could mean restricted access to some food types or increased food prices

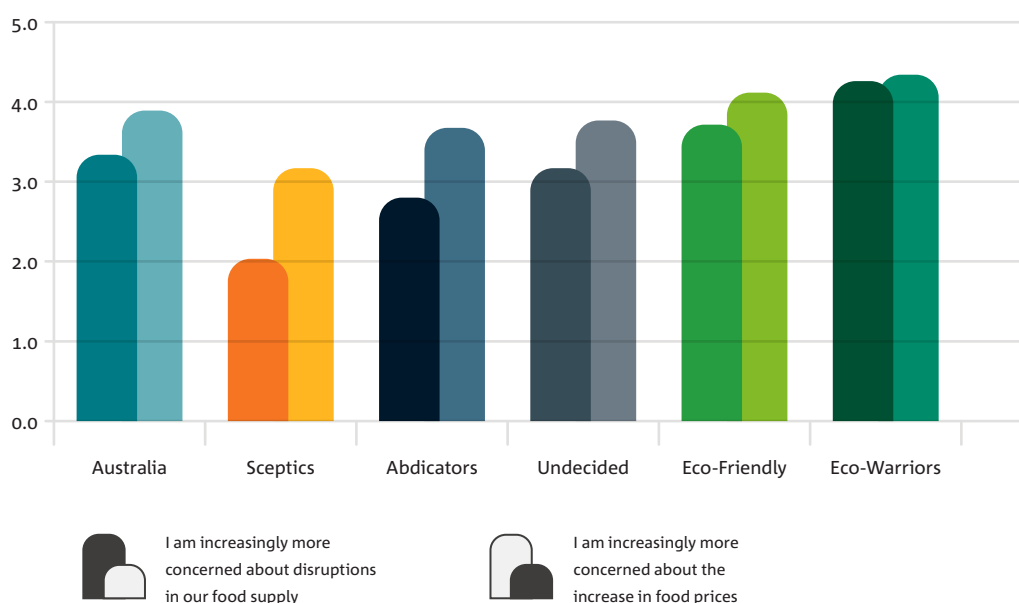
Not surprisingly, increased food prices are the greatest concern for respondents when considering the threat of climate change, with 70% agreeing or strongly agreeing that they are increasingly more concerned about this issue (Figure 6). In comparison, disruptions in food supply on its own is a slightly less significant concern, even if such disruptions often translate to price spikes for consumers.

FIGURE 6

## Food Concerns

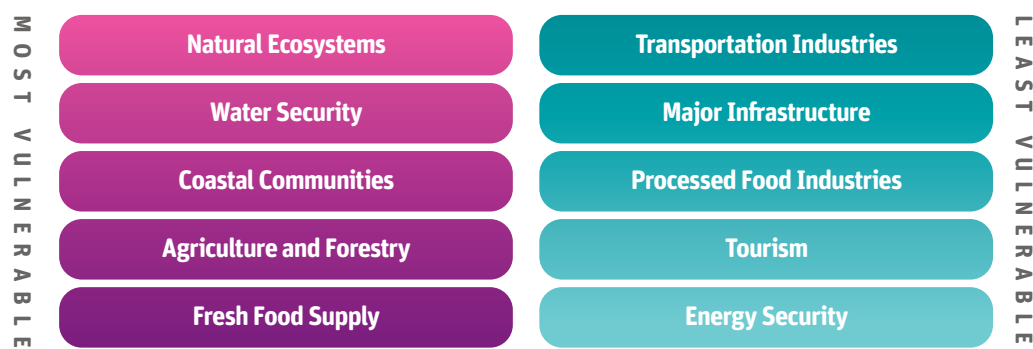
Food concerns and climate change

Mean levels of agreement, 1 = strongly disagree, 5 = strongly agree



<sup>15</sup> Gregory, P. J., Ingram, J. S., & Brklacich, M. 2005. Climate change and food security. *Philos Trans R Soc Lond B Biol Sci*, 360(1463): 2139-2148.

When placed in a broader context, fresh food supply is one of the sectors that respondents perceive as the most vulnerable, along with other environmentally-dependent issues, such as functioning natural ecosystems, water security, vulnerable coastal communities and productive agriculture and forestry. In contrast, transportation industries, major infrastructure and processed food industries were rated as the least vulnerable sectors to a changing climate. This we know is not necessarily the case with some infrastructure and processing more vulnerable than on-farm production, as is the case of abattoirs.



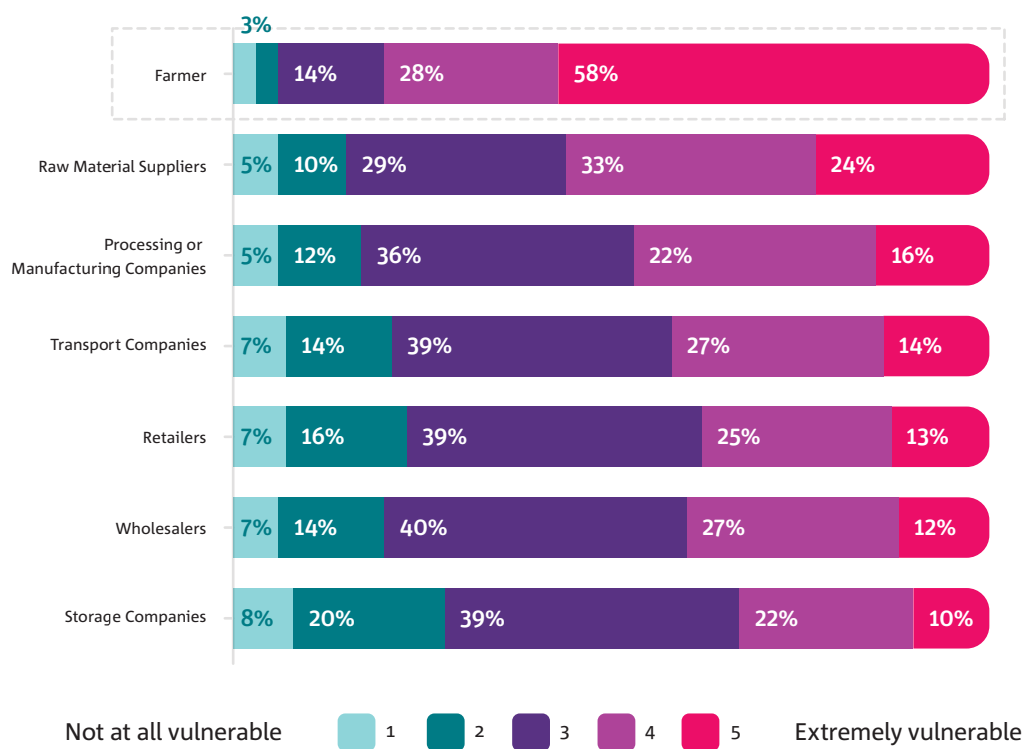
Consumer perceptions of vulnerable sectors align with their perceptions of vulnerability along the food chain. This is supported by the finding that 81% of those surveyed felt that farmers are ‘very’ or ‘extremely’ vulnerable to the effects of climate change and extreme weather events (Figure 7).

This study also found that consumers are much less concerned about the vulnerability of other parties along a typical food chain, such as transportation and processing, with the majority believing that these sectors are only moderately vulnerable to the effects of climate change. These results suggest a flow on effect of perceived vulnerability along the food chain, with consumers perceiving those in the food chain who are closer and more reliant on natural resources (e.g. farmers) to be more vulnerable.

FIGURE 7

# Perceived Vulnerability

Perceived vulnerability of areas of the food chain to the impacts of climate change





The results presented here also reveal an opportunity to link consumer concerns of fresh food supply, with improved knowledge of the role that transport, storage, wholesalers and retailers play in ensuring that food products are able to reach consumers. This may enable consumers to understand that fresh food supply vulnerability is not only associated with the vulnerability of farmers, but all members of the food chain are exposed to the impacts of climate change.

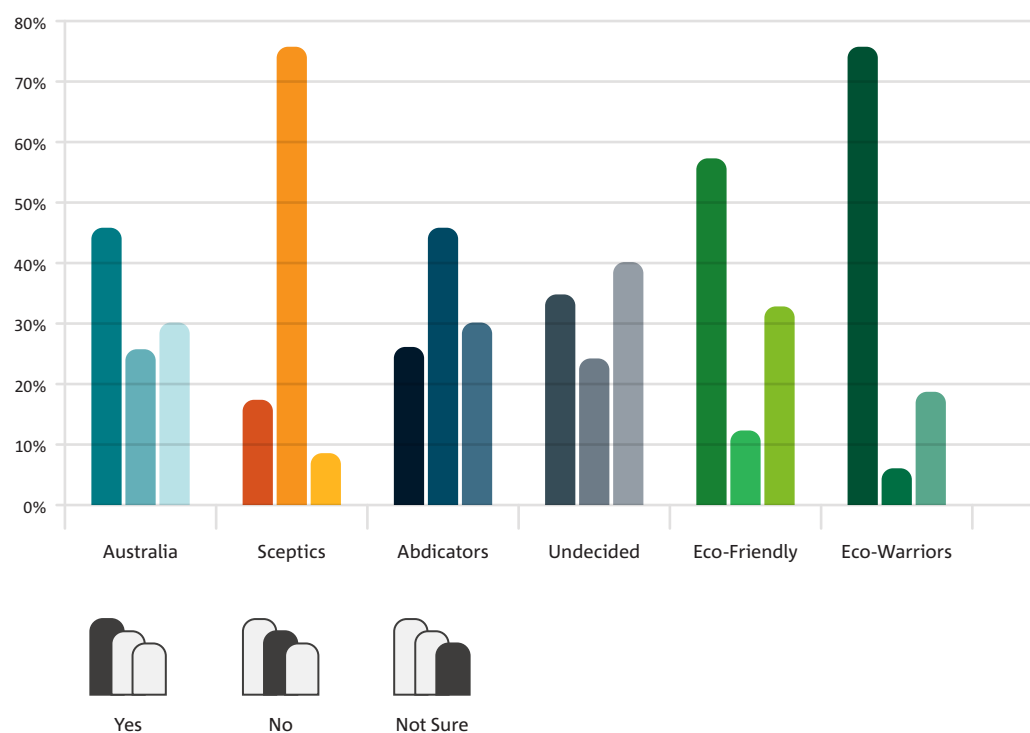
## Adapting to climate change

This study found that as a concept, climate adaptation is not well understood by consumers.

When asked to define climate adaptation, 30% of respondents to this question<sup>16</sup> provided a circular definition (e.g. “adapt to changes around us”). Fourteen per cent defined it as sustainable living (e.g. “minimising the use of natural resources and major pollutants”). Only 16% of those consumers who answered this question provided a definition that aligns with that used in literature. In this case they defined adaptation as making changes to reduce the impacts of climate change and coping with change.

FIGURE 8

### Is there anything you have done to adapt to climate change?



<sup>16</sup> Less than 60% (n=937) of those surveyed provided a definition to climate adaptation.

Given consumers' varying understanding of climate adaptation, 44% of those surveyed believe they are taking some adaptive actions. Not surprisingly, Eco-Warriors are more likely to have done something to adapt to climate change with 75% of this segment taking some action (Figure 8). At the other end of the spectrum, Sceptics are significantly less likely to have done something to adapt to climate change (17%). This is no doubt associated with their tendency to believe climate change is not happening, or that it is merely a natural phenomenon.

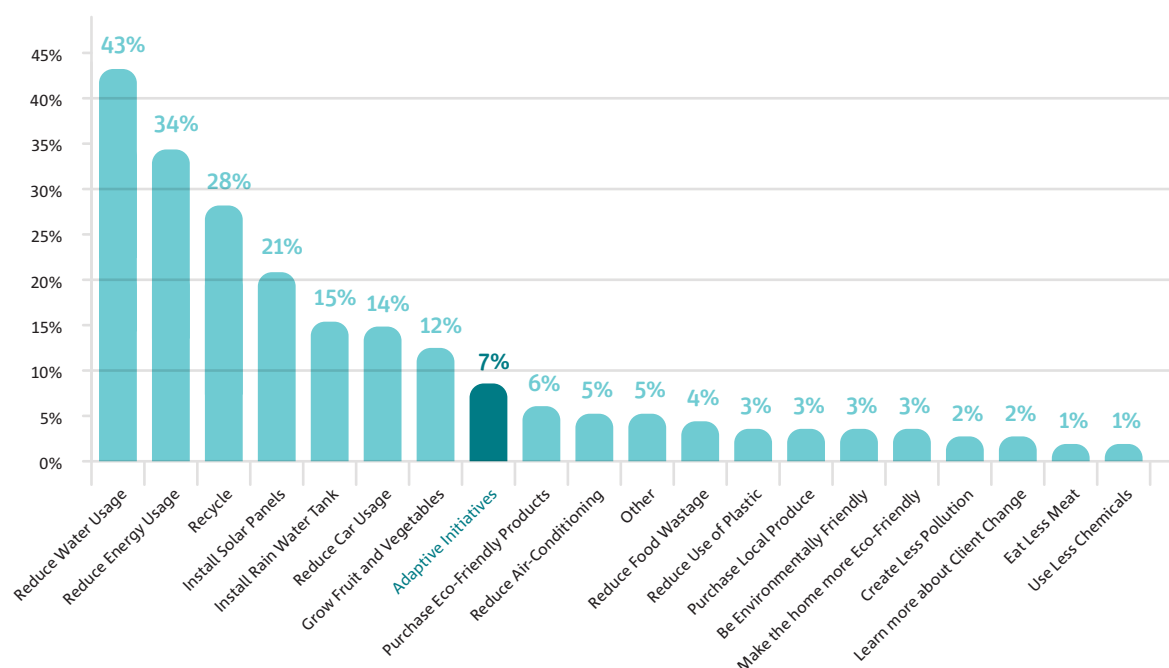
Across the entire sample, the two most common initiatives respondents are undertaking to address climate change are reducing water and energy usage. While not directly 'adaptive' in nature, reduction in energy and water consumption does translate to a potential reduction in household costs and offers a way for consumers to manage what they perceive are the financial impacts of climate change. This is consistent with consumer perceptions of the cost of living being one of the most important social issues, and their concerns that the impacts of climate change will result in increased food prices.

Of all the respondents who provided examples of what they do to adapt (n=602), only 7% identified personal initiatives that aim to minimise the impacts of climate change (Figure 9). These include actions such as moving to cooler regions, installing insulation and being sun-smart, as well as potentially maladaptive actions<sup>17</sup> such as purchasing more white goods to cope with extreme weather and installing more air-conditioning.

FIGURE 9

## Steps taken

by individuals to adapt to climate change



<sup>17</sup> Barnett and O'Neil (2009) talked about maladaptation in an editorial in the journal *Global Environmental Change*, defining it as: "action taken ostensibly to avoid or reduce vulnerability to climate change that impacts adversely on, or increases the vulnerability of other systems, sectors or social groups." (page 211). Maladaptation includes any action that increases greenhouse gases.



# Climate change and implications for food products

To more specifically understand how consumers may act in response to adaptation strategies implemented by food businesses, we asked consumers to rate their likelihood of purchasing from a company who embarks on certain initiatives.

Sustainability initiatives, potential adaptation initiatives and other common competitive strategies were presented to respondents, and are listed in Figure 10. Generally speaking, sustainability initiatives had a positive effect on consumer likelihood to purchase, with almost three quarters (72%) of those surveyed indicating they are likely to purchase from food businesses that source their products locally. A large number of consumers indicated they prefer to support businesses sourcing products locally and using energy and water saving initiatives. It is important to note that these sustainability initiatives are not foreign to most consumers, with some of those surveyed classifying these as adaptation as well (Figure 9).

Consumers in general are supportive of businesses that source products locally. Almost half of Sceptics (48%) are likely or very likely to support food businesses that source products locally, though this is to a much lesser extent than other segments. Not surprisingly, Eco-Warriors are significantly more likely to support food businesses that adopt initiatives that seek to reduce or prevent the impacts of climate change.

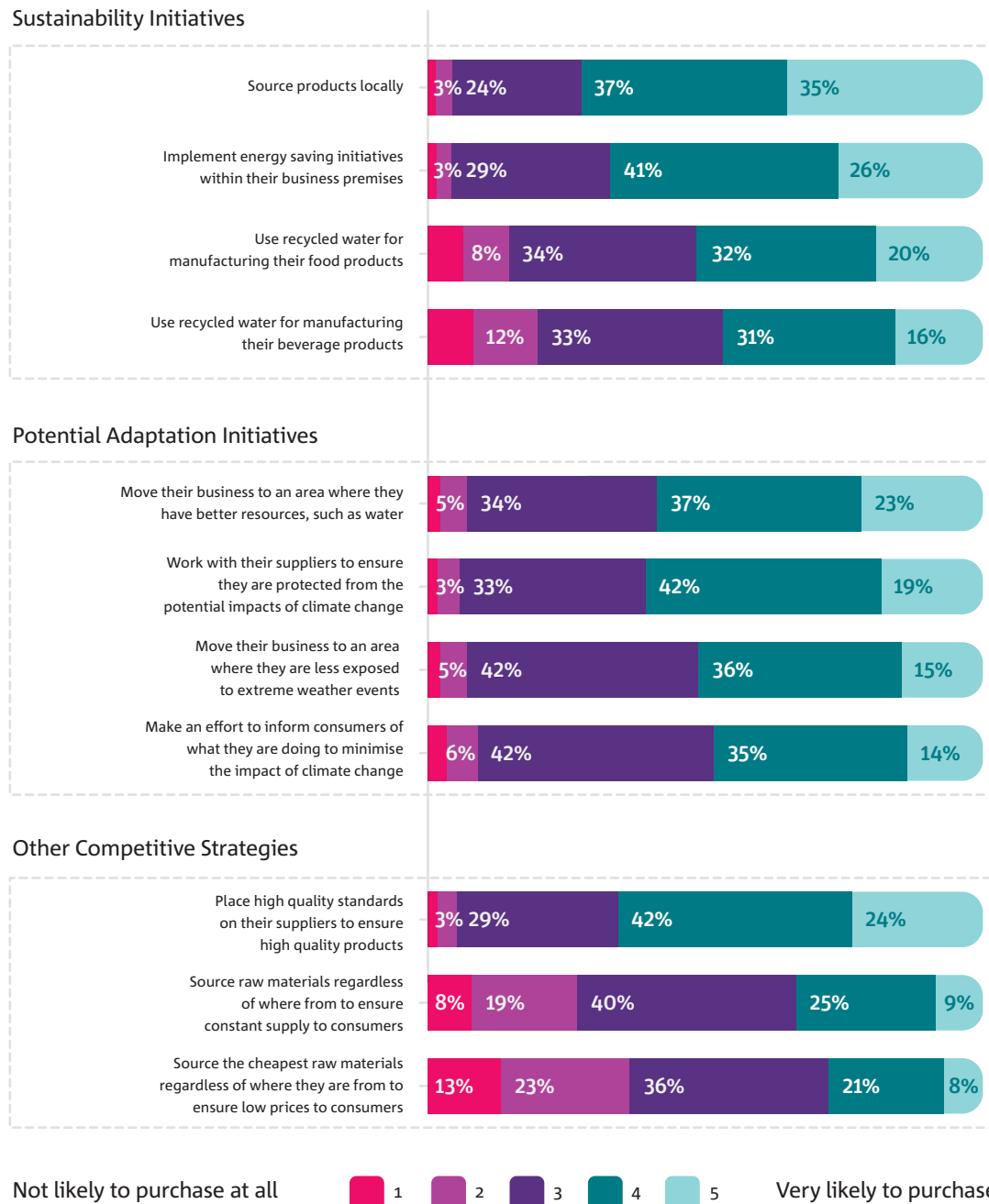
Our survey found that most consumers also tend to support food businesses that place high quality standards on their suppliers, as this implies a direct quality translation to the end consumer product. In contrast, there is less support for businesses that have a focus on cheaper raw materials in order to ensure low prices. While consumers are likely to purchase products from food businesses that are undertaking adaptation and sustainability initiatives it is important to consider this in the context of their concerns about the rising cost of living and the common belief that climate change will result in increased food prices.



FIGURE 10

# Support for initiatives

Support for food business sustainability, adaptation and competitive strategies



# Do Australian consumers value climate adaptation in the food sector?

To further explore the potential value of climate adaptation in the food sector, we asked consumers how they would respond to a range of hypothetical scenarios involving a company responding to the climate change impacts.

Two sets of scenarios across three food and beverage categories (mangoes, potato chips and wine) were initially presented, with one set resulting in a reduction in product quality, and another set resulting in maintenance of high quality standards (Table 1).

TABLE 1

## Adaptation scenarios

Hypothetical climate impact and adaptation scenarios for three food categories and what consumers would most likely do. Consumer responses to scenarios are colour coded, i.e. All 'Substitute' is light teal, all 'Not purchase' is fuschia.

| Product      | Reduction in product quality scenario  | Maintain high quality scenario  |
|--------------|--|---|
| Potato Chips | Reduce Raw Material Quality Standards Resulting In 'Spotty Chips'                              | Alternative supply arrangements to meet high quality standards                              |
|              | 1. Substitute (27%)  | 1. Purchase less often (28%)  |
|              | 2. Continue purchasing (22%)   | 2. Substitute (24%)   |
|              | 3. Specific use (12%)  | 3. Not purchase (21%)   |
|              | 4. Purchase less often (9%)  | 4. Specific use (9%)  |
|              | 5. Not purchase (7%)   | 5. Continue purchasing (8%)   |
| Mangoes      | Reduce quality standards to market smaller, quick-ripening mangoes                             | Maintain high quality standards resulting in smaller volumes and more expensive mangoes     |
|              | 1. Purchase less often (28%)   | 1. Specific use (29%)   |
|              | 2. Continue purchasing (25%)   | 2. Purchase less often (19%)  |
|              | 3. Specific use (22%)  | 3. Substitute (14%)   |
|              | 4. Substitute (19%)  | 4. Not purchase (10%)   |
|              | 5. Not purchase (7%)   | 5. Continue purchasing (8%)   |
| Wine         | Absorb change in wine grape quality resulting in less crisp flavour and discolouration of wine | Shift sourcing to alternate, lesser-known region with grapes that meet quality requirements |
|              | 1. Substitute (54%)  | 1. Continue purchasing (56%)  |
|              | 2. Continue purchasing (18%)   | 2. Substitute (21%)   |
|              | 3. Not purchase (17%)  | 3. Specific use (14%)   |
|              | 4. Specific use (11%)  | 4. Not purchase (9%)  |

In general, when faced with a climate adapted product, consumers are most likely to substitute or purchase less rather than buy what is perceived to be an inferior product at the same price or a more expensive but 'adapted' product. Concern about climate change, in itself, is not enough to encourage consumers to accept a more expensive, adapted product or an inferior product. This is particularly the case with fast moving consumer goods (e.g. potato chips) where substitution is relatively easy.

Consumers are less likely to substitute mangoes with other fruit, compared to wine and potato chips, particularly when the product's quality is reduced. This is unsurprising, given that substitution for mangoes entails purchasing a different kind of fruit and thus results in a different eating experience. In addition, there is a wide range of wine and potato chip products available which consumers can easily choose from.

Efforts to maintain high quality standards is supported more so in wine than it is for mangoes and potato chips, though this is likely explained by the reputation of the wine company specified in the scenario ('award-winning') as well as the relevant importance of provenance for this product (Margaret River). Amongst the scenarios presented, this was the only case where a company is unlikely to be disadvantaged by an outcome of an adaptation strategy. The results show that, similar to other competitive strategies, pricing, quality and brand equity as functions of product positioning are important considerations when developing adaptation strategies, especially when the adaptation strategy produces tangible differences for the consumer. But what about adaptation strategies that present no tangible outcomes for the consumer?

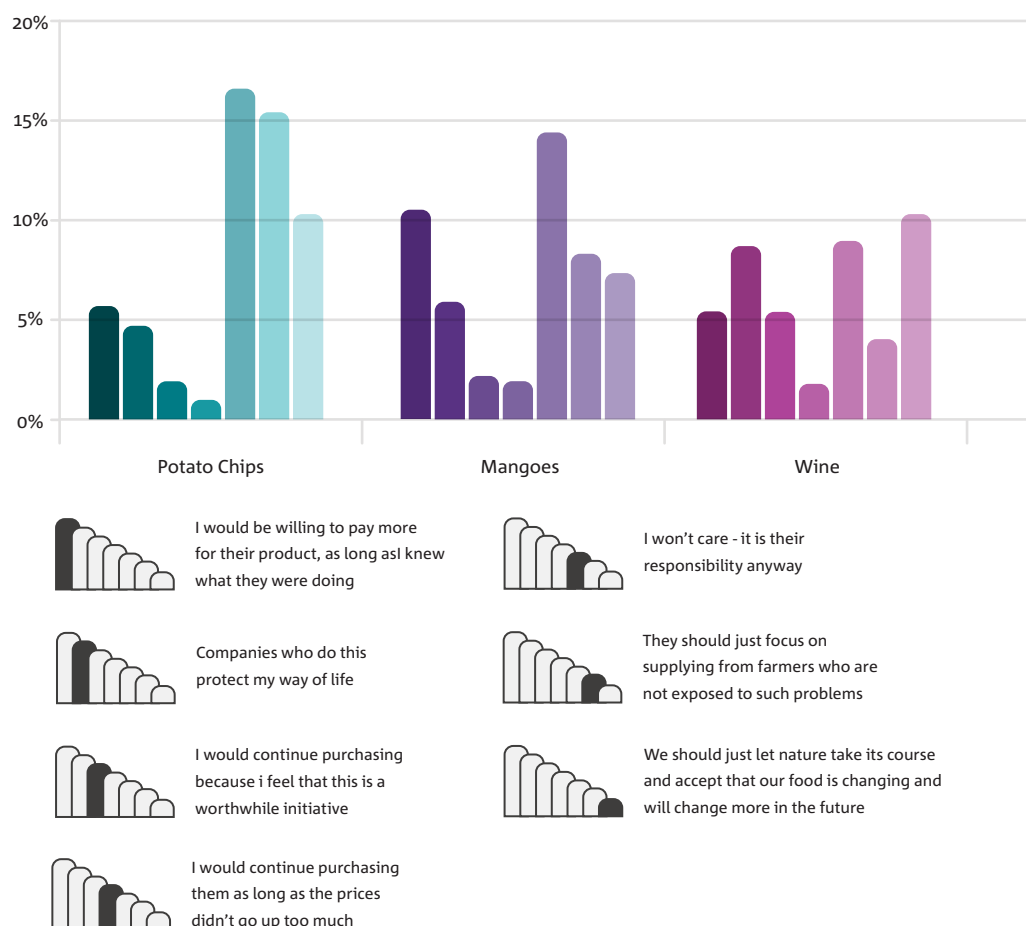
In addition to the scenarios presented above, respondents were also asked to state their agreement towards a series of attitudinal statements given more significant, or transformational, adaptation strategies. For potato chips, this involved significant R&D investment to protect the chain's current growers from the impacts of climate change. On the other hand, significant shifts in where production areas are located were the scenarios presented for mangoes and wine. The results for 'strongly agree' responses are illustrated in Figure 11.



FIGURE 11

# Transformational adaptation

Percentage of 'strongly agree' responses to transformational adaptation strategies



Our findings suggest there is a lack of consumer support for transformational strategies across all three food products. Support for adaptation strategies which assist farmers through R&D investment is low for potato chips, with 43% choosing options that indicate that they do not value such initiatives. Only 13% of potato chip consumers indicated strong support for this type of adaptation.

On the other hand, 19% of both mango and wine consumers support transformational strategies in the form of shifting production locations so the company can continue providing the same product offering to consumers. It is interesting to note that of all food categories, mangoes showed the strongest indication that consumers would place more value on being informed of adaptation strategies, to the extent that they would pay more for 'adapted' fruit.

<sup>18</sup> Jones, G. V., White, M. A., Cooper, O. R., & Storchmann, K. 2005. Climate Change and Global Wine Quality. *Climatic Change*, 73(3): 319-343.



However, a large proportion of consumers (29% for mangoes and 23% for wine), still indicated limited or no support for such initiatives. Of the three food categories, wine had the strongest responses for ‘letting nature take its course’. Given sensitivity of wine grapes to climate signals, a lack of adaptation could result to significant ramifications to the industry. This may include a reduction in wine quality, and a contraction of the size of the industry as wine grape production in certain regions reaches climatic thresholds<sup>18</sup>.

Our results suggest that consumers need something more than climate change to persuade them to purchase an adapted product. Where businesses take steps to protect farmers or protect industries ‘close to home’, consumers are more likely to support these initiatives – provided it does not cost them too much, and only for certain types of products. While our survey data across the board does support the finding that most Australian consumers believe climate change is happening, the personal responsibility of making a difference does appear to be limited.

## Creating value from climate adaptation

Overall, climate adaptation is a concept that is not well-understood by consumers, therefore any adaptation initiatives are best framed in the context of what Australian consumers find important: 1) managing the cost of living, 2) health, 3) economic stability and 4) maintaining their way of life.

These social issues are impacted by climate change to varying degrees. As such, it may be possible for consumers to value adapted food products if they more fully understand and appreciate how climate adaptation addresses their broader societal concerns.

By default, consumers can adapt to climate change and take action through their power of choice. However, such choices may not be made solely on the basis of climate adaptation. Instead, consumers are more likely to adapt if there is an added benefit such as a cost saving, rather than a deliberate act to protect the environment and mitigate climate change risk. The choice of installing insulation in a home, for example, may be a decision based on reducing energy costs, supported by price reductions from policy initiatives, rather than to solely protect the household from extreme temperatures. This situation limits the ability to profit from adaptation, especially in the case where adaptation requires significant investment.

One step food businesses can take towards creating value from adaptation is improving their understanding of the beliefs and values of their market segments. For some businesses, some adaptation initiatives may be worth communicating to consumers if that target market is receptive to such messages. For example, businesses engaged in the production and marketing of food products that appeal to Eco-Friendly and Eco-Warrior consumers (such as organics) may benefit from exploring specific adaptation initiatives that are valued by their market segments. On the other hand, businesses operating in highly segmented food markets such as wine, may benefit by positioning certain types of products in line with specific environmental values of their consumers.

Overall, not all adaptation initiatives will translate to consumer value. For now, most adaptation initiatives will more specifically address internal business risks such as rising input costs, the sustainability of growing regions and reliability of supply. As such, selecting adaptation options on the basis of what consumers prefer is unlikely to be the optimal approach to a climate change adaptation strategy. It can, however, be beneficial to know which initiatives have the potential to add value to product offerings and brand equity, and as such may be worth communicating to consumers.

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