

Consumers Perception Of Organic Food In A Peri-Urban Area In Queensland, Australia

Phuong T. Nguyen, Tuan M. Ha

Abstract: This study aimed to understand peri-urban areas consumers' perception of organic food and the importance of organic certification in customers' decisions for obtaining insights into their consumption of organic food. Data was collected through a questionnaire survey at two main supermarkets in Gatton town (Queensland, Australia). This research showed that 42.4% of consumers purchase organic food at least once per month. Health protection was found the most important reason for Australian peri-urban consumers to purchase organic food. Most of them (89.5%) were interested in organic food, but only around 59% of consumers were confident with the claimed benefits of the food and 42% trust in the organic certification. The more consumers are interested in, trust and are confident with the claimed benefits, the more likely will they purchase organic food. In addition, organic labels and certification turned out to be important for the consumers when shopping organic food. This research was the first study to investigate the consumers' perception of organic food in an Australian peri-urban area, especially relationships between the frequency of purchase and consumers' level of knowledge and their behaviors toward organic food. Both practical and theoretical contributions of this study are also discussed.

Index Terms: Attitudes; Behaviors; Certification; Consumers' perception; Labels; Organic food.

1 INTRODUCTION

Whilst the demand for organic food is increasing, the popularity of organic food is not widespread and consumers' perceptions of organic food is varied [1]. There is variation in people's understandings of organic agriculture, organic food, and differences in consumers' attitudes, motivations and behaviors. International markets are becoming increasingly concerned with production systems for food and fiber products, mainly driven by health concerns [2-8] following outbreaks of mad cow disease, foot-and-mouth disease, salmonella and swine fever [9]. Considerations like these are particularly evident throughout Europe, Japan and the United States, where these issues are influencing the purchasing behavior of mainstream consumers. A study into the key environmental attributes, which showed potential to influence agri-food trade in Japan, the European Union, Germany and the United States, found that an important consumer trend was the move towards less intensively produced food [10]. The study also identified an overall decline in public confidence in modern farming and processing methods, and an increasing consumer awareness of food-borne hazards such as pesticides, antibiotics, hormones, and artificial ingredients. Baker et al. [11] indicate that while German consumers emphasize health issues, UK consumers' perceptions are influenced by animal welfare issues [12]. Zanoli and Naspetti [13] show that Italian consumers are interested in issues around ecology, harmony with the universe, and a sustainable future.

Although there are various motivations, what is common across the globe, is an increasing demand for food produced by organic production methods or at least with fewer chemical inputs [2, 14]. There have been many studies carried out with respect to consumers' perceptions of organic food through a number of aspects, such as demographic characteristics, social attributes, motives, and opinions about market factors such as willingness to pay premium prices, and their trust in organic labels [15-19]. However, consumers' interest in organic food and confidence with its claimed benefits (and other relevant relationships) to their purchasing patterns, are yet to be clarified. It would also seem important to conduct research on the relationship between organic certification and consumers' decision making. In addition, consumers' perceptions of organic food have changed over time, as with the reasoning behind consumers' organic food purchasing decisions [20]. This would suggest that studies on consumers' perceptions of organic food should be conducted regularly. Whilst the Australian supply of organic agriculture for both international and domestic organic markets has increased, there is little research on the perception of organic food in the Australian domestic organic food markets [24]. Additionally, studies into consumers' perceptions, especially consumers' motivations, have concentrated on urban populations, particularly in the metropolitan areas of Queensland and Victoria [25-28]. There have been only two studies investigated rural communities in New South Wales [29, 30]. Research on consumers' perception of organic food of people living in peri-urban areas is lacking. However, they are needed to gain a greater understanding of consumer behaviors from different perspectives. According to Low Choy, et al. [31], peri-urban areas form belts of non-urban land fringing metropolitan centers. "They [peri-urban areas] are often neither fully urban nor rural but form a mosaic of often incompatible and unplanned uses. They usually contain important natural resources, remnant biodiversity and significant landscapes, often remain important for agriculture and recreation, and attract diverse populations of people. These areas are under increasing worldwide threat from development and overuse". Therefore, this research aimed to understand consumers' perceptions of organic food and the importance of organic certification to consumers' decisions in Gatton, a peri-urban area of Queensland, Australia. The study focused on consumers living in a peri-urban area to obtain an insight into

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their organic food consumption behaviors. Particularly, the research sought to (i) identify organic food consumers, (ii) determine the consumers' knowledge of organic food, (iii) explore consumers' motivations, attitudes and behaviors towards organic food, and (iv) explore how consumers recognize organic food and the importance of organic certification to purchasers' decisions. This study contributes to the aforementioned current knowledge gap for better understanding of consumer behaviors in a peri-urban area.

2. METHODOLOGY

This study was conducted via a questionnaire survey with random customers at two main supermarkets in Gatton, Southeast Queensland, Australia. A questionnaire was designed into two sections. The first section was concerned with what people know and think about organic food and organic certification. It focused on consumer purchase patterns rather than their consumption of organic food. A general question was asked about characteristics of food that consumers pay attention to when they go shopping to avoid a bias towards organic food when answering the next questions. In addition, several questions were designed to cross-check contents. The questions were arranged according to four content groups, namely, consumers' knowledge, motivations, attitudes, and behaviors. The second section of the questionnaire contained questions related to personal information for classification purpose. The questionnaire was pre-tested with ten consumers and revised to finalize for the actual survey.

TABLE 1

Characteristics of respondents by gender, age, education level, presence of children in household, and income

Variable	Number	Percentage	
Gender	Male	14	17.9
	Female	64	82.1
Age	Under 30 years	9	11.5
	30-49 years	24	30.8
	50-69 years	33	42.3
	70 years and over	12	15.4
Education level	Primary/High school	53	67.9
	Vocation college	11	14.1
	University	14	17.9
Any children in household	Yes	33	42.3
	No	45	57.7
Household income (before tax)	Under \$10,000	8	10.3
	\$10,000-\$24,999	19	24.4
	\$30,000-\$49,999	12	15.4
	\$50,000-\$74,999	17	21.8
	Over \$75,000	8	10.3
	Don't know	14	17.9

A random sampling method was used to select participants for the survey. 120 shoppers in two main supermarkets, Coles and IGA, were randomly selected to answer the questionnaire. The respondents were guaranteed that their personal information is anonymous for the research purpose only. On weekdays, every third consumer that walked past the survey position was invited to participate. On weekends, however, every sixth consumer was invited as the number of shoppers was much larger. Each was given a survey form, an information sheet, a pen and a prepaid envelope with a returned address. Consumers were asked to fill out the questionnaire and post it to the provided address. Of the 120

random shoppers selected to answer the questionnaire, 78 returned the questionnaires. This is seen as a valid sample number given the survey purpose and a confidence level required for data analysis. In this research, both descriptive and inferential statistics were explored. Descriptive statistics were used to summarize and present the data. Inferential statistics were used to draw conclusions about the population. SPSS software (version 11.5, SPSS Inc., Chicago, IL, USA) was used for this statistical analysis. Descriptive statistics were used for each of the questionnaire responses and their outcomes were shown in graphs and tables. Chi-square tests were conducted to investigate relationships between pairs of responses such as frequency of purchase and interest.

3. RESULTS AND DISCUSSION

3.1. Characteristics of the survey respondents in Gatton

Demographic characteristics provide useful information for understanding and interpreting consumer perceptions of organic food. Table 1 presents characteristics of the respondents regarding gender, age, education level, presence of any children in their households, and income levels. The percentage figures reflected what the researchers anticipated to be the general profile of shoppers in peri-urban supermarkets. The results clearly showed that more women (82.1%) do family shopping than men (17.9%). A small proportion of the respondents (17.9%) ticked "don't know" in the income levels indicating that they would be dependents in the family

3.2. Peri-urban consumers and their purchase of organic food

More than half of the respondents (57.7%) stated that they never or rarely buy organic food. Only 10 percent purchased organic food weekly (Figure 1). Of those who purchased organic food, organic vegetables and fruits were main products purchased with 53% and 30%, respectively. The proportion of respondents buying organic milk, beef and processed products was almost the same at 5%. In addition, nearly half (48.5%) of respondents purchased organic food in supermarkets, and about 26% of participants bought organic fruits at fruit shops.

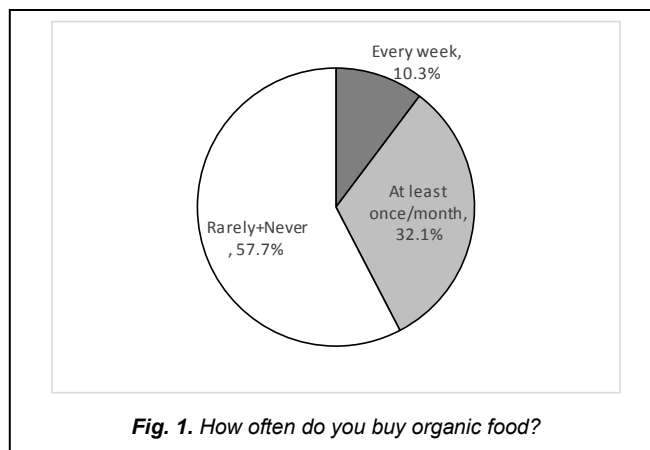


Fig. 1. How often do you buy organic food?

The purchase pattern of organic food is rather similar to findings of other regions in Australia. According to Biological Farmers of Australia [32], 40% of consumers in Australia buy

organic food occasionally. In this present study, 42% of the respondents stated their occasional purchase. However, purchasing patterns in Australia differ from consumers in other countries. For example, in Australia, vegetables and fruits are the most frequently purchased organic products, whereas the Swedish and Swiss consumers mainly consume organic milk [22, 33]. Greek consumers tend to prefer organic tomatoes [34]. In terms of the relationship between consumers' behaviors and their characteristics, the survey yielded different results compared to previous Australian and international studies. This research indicated that there is no significant relationship between the frequency of organic food purchase and characteristics of the participants. These characteristics include gender, age, presence of children in the household, total household income (before tax) and the highest education level attained. The Chi-square test yielded non-significant results (all P-values > 0.2). While Pearson [30] and Dimitri and Lohr [35] found no difference between the characteristics and purchase patterns, others have found strong correlations between income, education and propensity to buy organic food [22, 23]

Table 2

Frequencies Of Organic Food Purchase By Gender, Age, With Or Without Children In The Household, Household Income And Education Level, With Chi-Square Tests Results.

Variable		Frequency of organic food purchase		P	Notes
		At least once per month	Rarely or Never		
Gender	Male	7	7	0.520	ns
	Female	26	38		
Age	Under 50 years	14	19	0.986	ns
	50 years and over	19	26		
Any child in household	Yes	13	20	0.656	ns
	No	20	25		
Household income	Under \$50,000	17	22	0.777	ns
	\$50,000 and over	10	15		
Education level	Primary/High school	20	33	0.234	ns
	College/University	13	12		

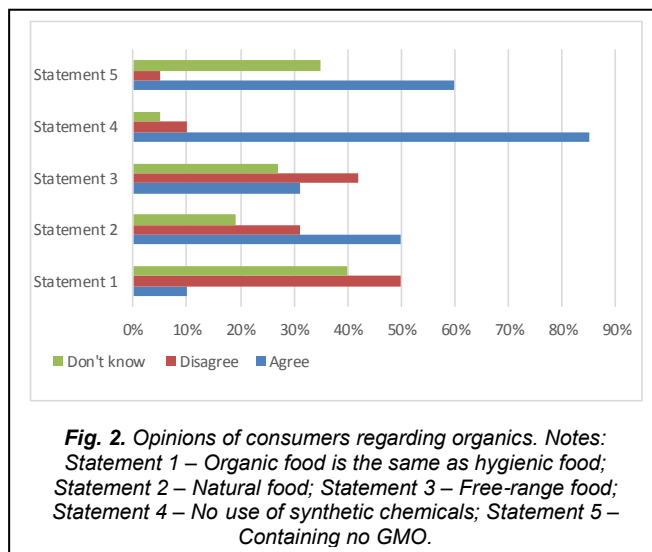
Notes: ns – not significantly different.

This study found that concerns of customers about chemical residues in vegetables and fruits, and Genetically Modified Organisms (GMOs) influence the frequency in which organic food is purchased. The majority of consumers were concerned about chemical residues in food and GMOs. However, there was no link between consumer concerns and organic food purchase, indicating that concerns alone are not sufficient to influence purchasing behavior. Nonetheless, the research also showed that those who had low or no concern rarely buy organic food ($P < 0.01$).

3.3. Consumers' understanding of organic farming and organic food

Nearly 100% of respondents have heard about organic food (only 1.3% of the respondents had not), yet their level of knowledge about organic food farming was basic. Most of the participants (66.7%) believed that it is food grown and

produced without chemicals. Of these participants, 6.3% emphasized that organic food is grown, produced and certified 'according to strict guidelines'. Five percent of respondents assume that organic food is closer to natural food and 11.5% indicated that organic food is healthy because organic farming uses 'natural pesticides to protect food', having 'no use of GMOs', and it 'reduces body reactions (allergies)'. Amongst the remaining participants, 2.6% said 'it seems to be another way of charging higher prices for fresh food'. Interestingly, 16.7% of respondents indicated that although they have heard about organics, they stated having 'no idea' as they did not know how it is produced or grown. Compared to Pearson's study of consumers in Armidale (New South Wales), the percentage of respondents who know that organic food is produced without chemicals (nearly 67%) of this present research is low compared to 89% in the study in Armidale [30]. This may be due to insufficient information or interest by the consumers. Regarding participants' purchasing of organic food, all regular buyers, non-regular buyers and non-buyers had an understanding of organic food production. The results are consistent with findings of Harper and Makatouni [36] who found that consumers' understanding of organics does not necessarily affect consumers' consumption.

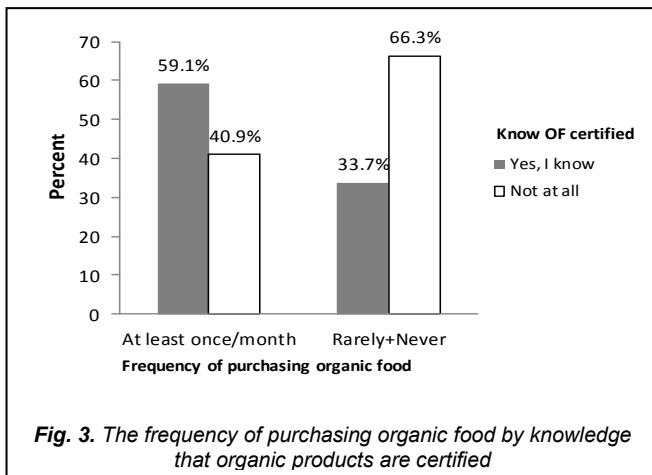


The survey was designed to gauge deeper insights into the participants' understanding of organics through a multiple choice question asking the respondents if they agree or disagree with five statements (Figure 2). The first three are imperfect definitions of organic food, but they are statements that can express viewpoints about the quality of organic food. Statements four and five are accurate ones that define organic food [37]. When asked whether they agree or disagree with these statements defining organic food, there were differences between consumers' opinions and understanding of organics. A larger ratio of respondents disagreed with statements from one to three. Fifty percent of the sample disagreed with statement one, and 42% for statement three. Whilst, many respondents (31%) were confident that statement two was incorrect (Figure 2). In terms of the two accurate knowledge statements - four and five, the proportions of respondents that agreed with the two statements were much higher at 85% and 60%, respectively. However, 35% of respondents were unsure in statement 5 (Figure 2). This may be due to their lack of information and understanding about GMOs. While there was

a fairly clear understanding that organic farming is chemical- and GMO-free (Figure 2), the consumers' opinions about the differences between organic food, and hygienic, natural and free range foods, were unclear and varied. This would be due to the use of different concepts in the discourse around the organic food movement. Rahayu [37] states that the term "organic" is used interchangeably with clean, green, natural, ecological and sustainable although, strictly speaking, it is not interchangeable". It is likely that consumers' interests in organics influence whether or not they are motivated to understand organics. There was no correlation between the frequency of purchasing organic food and agreeing or disagreeing with each statement. Therefore, understanding about organics is not likely to influence the consumers' organic food consumption. In contrast, Canadian organic food consumers understand the clear differences between organic and natural produce, whereas non-buyers think organic food is the same as free-range one [38].

Consumers' understanding of certified organics

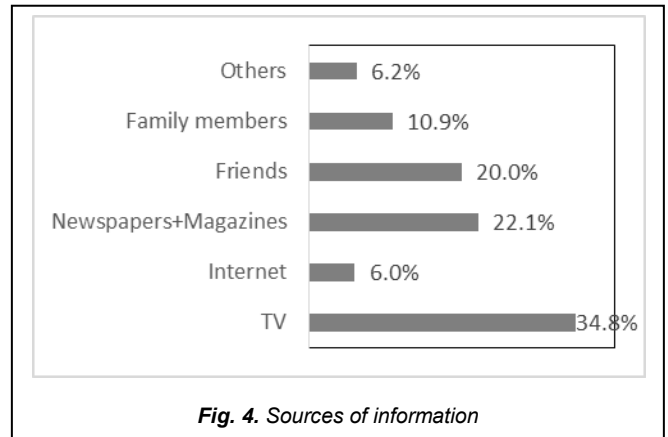
With regard to their knowledge of organic certification, 65.2% of the respondents did not know about procedures behind organic certification, 30.9% of respondents had partial knowledge, and 3.9% knew the process well. The knowledge of how organic products are certified is likely to influence the frequency of organic food purchase. Those who know how organic food is certified consume organic food more often ($P < 0.05$) (Figure 3). Nonetheless, in response to the question 'Does your understanding of organic certification procedures affect your choice of organic food?', only 28.2% of respondents said they believed that their knowledge does have an impact on their choice. Interestingly, although the majority of participants had limited or no knowledge about certification procedures, 33.7% of participants still purchased organic food at least once per month. Therefore, it is likely that knowledge of the certification process is not an influential factor on purchasing behavior.



Information sources about organic food

There was a range of sources where the participants gained information about organic food (Figure 4). Television was the most popular medium for consumer education with 35% gaining information about organics, followed by 22% reading newspapers or magazines, while 19% and 11% information gained through friends and family members, respectively. Only 6% of respondents received information about organics from internet, which may suggest either the reduced access to or

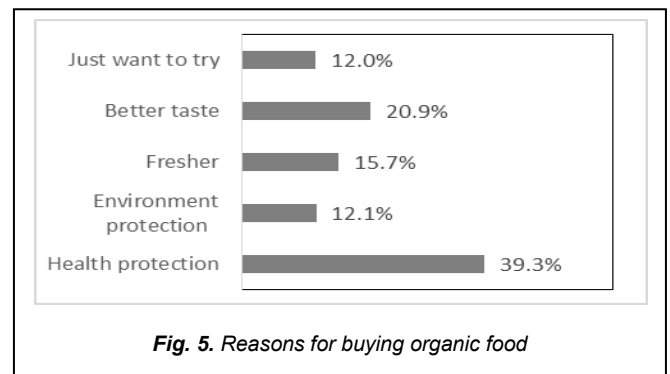
less popular use of internet in peri-urban areas. Seven percent of respondents received organic information from other sources, including doctors, pubs, farmers, radio and schools/universities (Figure 4).



Although male and female respondents gained most of their information about organics from TV and newspapers, women received more information from TV and via friends and family members; whereas, men gained more access to the information from newspapers and internet. Therefore, choices of appropriate media would be essential to promote organic consumption. Habits of target consumers should also be considered.

3.4. Motivations for purchasing or not purchasing organic food

Consumers' motivations for purchasing organic food varied. Respondents cited their motives for buying organic include health protection (39%), better taste (21%) and freshness (16%). Environmental protection was a motivation for only 12% of respondents. A similar ratio of consumers purchased organic food for curiosity, 'just wish to try' (Figure 5). Several studies, both in Australia and overseas, indicate a strong link between health concerns and motivation to buy organic produce [15, 29, 39, 40]. The motivation for purchasing organic food is based on benefits to the customers themselves rather than to the community and/or environment. This is consistent with Hughner et al. [1] who note that 'egoistic motives are better predictors of the purchase of foods than are altruistic motives'.



Organic food was mainly bought for all family members. Only 7% of respondents said that they purchase organic food solely for their children. The result is consistent with that of other

studies conducted in the US, however different to results shown from studies in Sweden [22]. This is perhaps linked to a greater knowledge in Scandinavia of organic food in general, including both the short- and long-term impacts of food chemicals on children compared to adults. In terms of reasons for not buying organic food, 51% of the respondents who do not or rarely purchase organic food claimed that it was expensive. This could mean that they may not be able to afford this food or they think organic food is not worth paying a premium price for. The second reason cited by 17% of the non-organic purchasing respondents was the unavailability of organic food. The same percentage of non-organic purchasers did not trust organic labels. Nine percent indicated that they did not purchase organic food as they were 'not sure which food was organic', and 6% of participants felt that they were 'not ready to try it'. This research showed that the premium price was the most important reason for not purchasing organic food. Similar studies in Australia revealed the same results (e.g. Turnbull [26]; Lea and Worsley [27]). Previous studies in other countries have also found that price is the key deterrent to purchasing organic food along with the skepticism of certification [22, 41, 42]. It seems that this has not changed yet over time and does not differ among places.

3.5. Attitudes and behavior towards organic food

Most respondents were interested in organic food with 19.5% showing "very interested", and 70.1% "somewhat interested". Only 10.4% of respondents were not interested in organic food. However, only 10.3% purchased organic food weekly and 32% bought organic food at least once per month. Therefore, the reasons listed above for not buying organic food, such as prices and availability, might continue to influence consumers even when their interest in organic food is high.

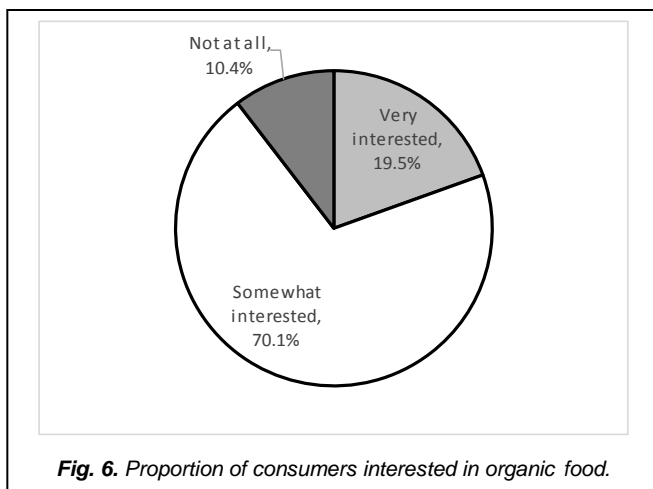


Fig. 6. Proportion of consumers interested in organic food.

The main reason for respondents' interest in organic food was related to health concerns. Chemical-free food was perceived as being better for human health particularly children's health. The respondents believed that organic food can help avoid diseases. Some participants also stated that they would like to protect the environment (Figure 5). The perceived high price of organic food seemed to be the most important cause reducing their level of interest. Furthermore, skepticism and inadequate confidence in the claimed benefits of organic food also led participants to have a declined interest. For respondents who had no interest in organic food, there were two main reasons stated for not purchasing organic food. First, they do not like

the taste of organic food. Second, organic food is too expensive. These respondents emphasized that they also have confidence in health benefits of conventional agriculture, citing that they 'can still stay healthy with other food'. There was a statistically significant relationship between interest in organic food and frequency of purchase. Respondents, who were more interested in organic food, purchased organic food more often ($P < 0.01$) (Figure 7).

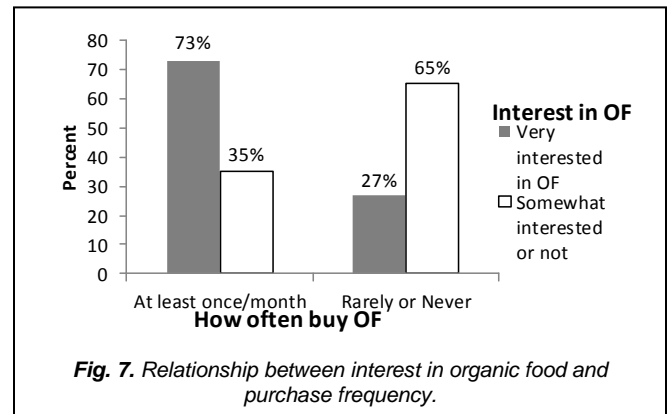


Fig. 7. Relationship between interest in organic food and purchase frequency.

Consumers' confidence with the claimed benefits of organic food

There was a rather high level of consumers confident with the claimed benefits of organic food. More than 6% of respondents were very confident and 52.6% was somewhat confident. However, the proportion of respondents that was not confident was also fairly high at 41%. There was a significant correlation between the confidence in the claimed benefits for organic food and knowledge levels concerning organic certification. Those who knew more about the way organic products are certified were likely to be more confident with the claimed benefits ($P < 0.05$). Also, there was a significant relationship between the confidence with the claimed benefits and frequency of purchasing organic food ($P < 0.001$). In this study, consumers, who were more confident with the claimed benefits, bought organic food more often. It is not surprising that consumers' confidence with the claimed benefits of organic food impacts their frequency of purchase. However, this is not necessarily influenced by their knowledge about certification practices.

Level of trust in organic certification

Seventy-seven percent of the respondents used labels to recognize organic food. Other 15% of participants selected organic food according to other signs, including fresher appearance, deeper color, more flavor, presence of bruises, as well as direct inquiries about the origin of food with shop assistants. The remaining 8% were not confident with organic labelling or otherwise. A previous study also showed that organic labels are essential for consumers in peri-urban Australia to recognize organic products [38]. These authors also found other factors, including prices and trust in certification, which influence consumption decisions of consumers. There was a significant level of trust in organic certification with 42.3% and 38.5% respondents having a high and little trust, respectively, while 19.2% of respondents did not trust in organic certification. The latter percentage is consistent with the proportion of participants who did not purchase organic food citing poor trust inorganic labels. Data

of Chi-square tests showed that those who had more knowledge of organic certification trusted organic products more strongly. There was a strong relationship between trust in the organic certification and the confidence with the claimed benefits of organic food ($P < 0.01$). Those who are more confident showed more trust in the certification. Moreover, there was a significant relationship between trust in the certification and the frequency of organic food consumption ($P < 0.01$). In other words, consumers who trust more strongly in organic certification purchase organic food more often. However, over a half of the respondents felt little trust or distrust in certification because of insufficient understanding about the process of certification. This result is consistent with findings of Lockie et al. [25] who assume that skepticisms about organic labelling among Australian consumers is caused by their lack of understanding of existing certification schemes and practices for organic growers and processors. Essoussi & Zahaf [38] found that consumers did not have information about the certification process. In addition, some did not trust some certification bodies. The skepticism is likely to influence frequency, patterns and quantity of consumption.

Preferred stores to buy organic food

Consumers have a number of choices to purchase organic food at regular supermarkets, smaller grocery stores, markets and farmers' stores. Of these options, supermarkets or stores that sell both organic and conventional foods were chosen by most of the respondents (86%). Consumers wanted to buy both organic and conventional foods in one place for convenience. The remaining consumers preferred to buy organic food in farmer stores because they trust farmers rather than shops. They might also wish to see how organic farms operate and make sure the organic products are genuine.

Recommended information to print on organic product labels

The survey comprised questions concerning what information consumers would like to see printed on the labels of organic products. Several options were provided and participants were asked to select which option they most preferred. The options include:

Option 1- Name, address and number of the certified operator.

Option 2- The certification body's logo.

Option 3- Name, address, number and logo of the certification body.

Printing all information (including options 1, 2 and 3) on a label was preferred by over half of the respondents (54%). Option 2 attracted only 14% of respondents' preferences. The others were chosen by less than that figure (Figure 10). Interestingly, most respondents who were not interested in organic food would like to see all of the information provided on labels (Figure 8). In fact, consumers do not know the authenticity of organic products without certification and labels. Therefore, they would like to see all of the information on organic products, and may wish to gain more organic information before becoming organic shoppers. It seemed that consumers, who never buy or rarely buy organic food, are keen to see more detailed information than those who purchase it more often. That is, they wish to receive more organic information in order to trust the certifications and labels. These results show that a large proportion of Gattton peri-urban consumers do not purchase organic food. The most important reason given by

those who do buy organic food, was to protect their health; while high price is the leading deterrent to purchasing organic food. The consumers' understanding of organic food does not differ from other areas that have been studied, but consumers' understanding of organic certification procedures is likely to influence the frequency of purchasing organic food. A majority of consumers were interested in and confident with the claimed benefits of organic food and trust in organic certification. These factors are likely to affect the frequency of organic food purchase. It seems that organic food shoppers are more likely to recognize the certification practice, but few could identify leading bodies such as the Australian Certified Organic (ACO). Moreover, an organic label was found to be the most important sign by which Gattton consumers recognize organic food.

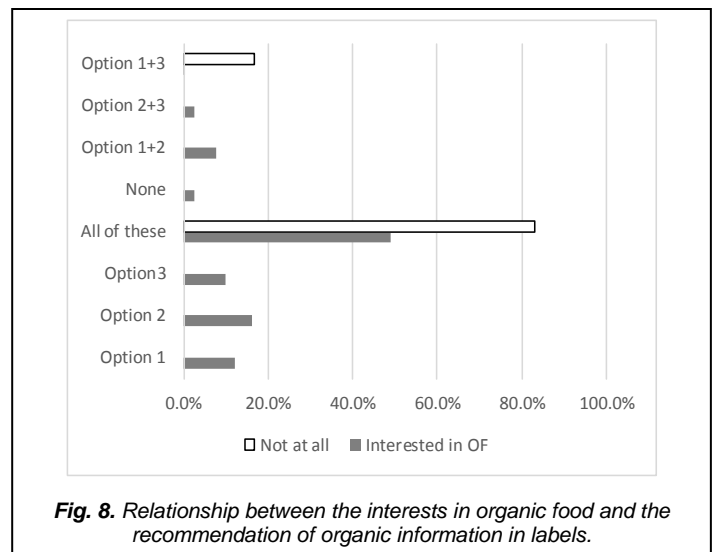


Fig. 8. Relationship between the interests in organic food and the recommendation of organic information in labels.

4. CONCLUSION

This study has provided insights of characteristics, purchase behaviors, understanding, and motivations for purchase of organic foods of consumers in a peri-urban area of Australia. Many new findings have been gained from this, providing both practical and theoretical contributions. The proportion of regular organic consumers was found very low. No link between the consumption of organic food and gender, age, education and income levels was established in the research area. In addition, no relationship was found between having children in the household and the consumption of organic food, although some participants recognized additional benefits of organic food for children. This point had not been mentioned in previous studies in Australia. Regarding consumers' understanding of organics, the percentage of Gattton consumers who knew that organic food is produced without chemicals is smaller than in other regions documented in the literature. Of those, some knew that organic food is grown, produced and certificated following strict guidelines. This was another new finding of the study. In addition, the knowledge of certification procedures and operation was found to influence the frequency of which people purchase organic food. Those who purchase the food are more likely to know how organic food is certified. The proportion of consumers that rarely or never buy organic food (nearly 60%) is consistent with the 65% of consumers that know little or nothing about organic certification procedures. This can be also seen as an original and important finding of the present study. There is a

relationship between interest in organic food and the frequency in which organic food is purchased. Those who are interested in organic food buy the food more often. The frequency of purchase and people knowing that organic products are certified is also related. The better consumers know about the nature of organic certification, the higher will their confidence be in the claimed benefits, and this increases their propensity to buy organic food. Again, previous studies had not shown these correlations, but found those generally. For instance, according to Smith and Paladino [43], Australian consumers had a positive attitude towards organic food and believed in the benefits of it for human health and the environment. This study also found that trust influences frequency of purchase. Those with a higher level of trust purchase organic food more often. Previous studies had not investigated this detailed relationship fully either, but Turnbull [26] shows that trust was a main influence on choosing organic food for metropolitan consumers, and Lockie [25] reports on skepticism towards labelling among Australian consumers. Information about organics is essential, especially information about different certification bodies and how organic food is certified, to increase the number of organic consumers. This could be delivered through education programs and promotional campaigns. Media should also be taken into account to reach peri-urban target audiences because of the respondents' preference for media. Furthermore, more research into health benefits of organic food together with promotional activities should be conducted to increase the percentage of 'committed' organic consumers and expand the organic sector.

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