

Country-of-Origin Labelling (CoOL)

***A Review of the Relevant Literature on
Consumer Preferences, Understanding, Use and
Willingness-to-Pay for CoOL of Food and Meat***

FINAL REPORT

FOOD STANDARDS AUSTRALIA NEW ZEALAND

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Executive Summary

This literature review is designed to provide insight on the role of country-of-origin (CoOL) information in Australian consumers' food and meat purchase decisions. Specifically we were asked to review studies which examined consumers' use, awareness, understanding, perceptions, relative importance and value of country-of-origin information. An extensive review of scientific, academic literature, industry and government reports was completed, including over 200 articles and reports. A relatively small proportion of the literature on CoOL provided information on the specific aspects (e.g. use, awareness, relative importance, willingness-to-pay) required by FSANZ, and an even smaller share were Australian relevant.

An important conclusion of the literature review, particularly those studies which involved consumer research, is that consumers are heterogeneous in their preferences for food labelling information and particularly in how they value of country-of-origin information. Thus, we should be careful when attempting to use the findings from consumer food studies conducted in other countries to extrapolate the relative importance and/or value Australian consumers' place on credence information in food products.

Consumers use a combination of intrinsic and extrinsic cues to form quality expectations. Increasingly consumers are using extrinsic cues to form perceptions about quality (Grunert, 2006 and Umberger et al., 2009a and 2009b). Extrinsic information, particularly country-of-origin becomes more important to consumers when purchasing products that are relatively less processed or fresh (Luomala, 2007).

From a policy and market failure perspective if consumers use country-of-origin *cognitively* to predict quality and/or gain confidence in their food, then providing them with origin information is very important. If country-of-origin information is not provided, consumers may be less able to predict the quality of the beef and meat or simply they may feel less confident in their ability to make choices. It is possible that they avoid purchasing certain meat products entirely (Caswell and Mojduszda, 1996).

The following are some key findings of the Australian studies examining consumers' awareness, use, perceptions, relative importance and value of country-of-origin information.

- 17% and 80% of Australian consumers indicated they were *aware* of country-of-origin information on food and drink products they purchased when asked using unprompted and prompted methods, respectively. Country-of-origin was the fourth most frequently mentioned labeling element in both prompted and unprompted scenarios. A higher share of consumers mentioned ingredient information, nutrition panel information, use by date and fat content than country-of-origin (FSANZ, 2003).
- The majority of Australian consumers (64%) indicated they are *not aware* of the origin of their beef when purchasing it at retail markets (Umberger and Mueller, 2010).
- Roughly one-half (49%) of consumers reported they used country-of-origin information when making food purchase decisions. A higher share of consumers reported using date mark (85%), ingredients list (66%) and nutrition panel information (66%) (FSANZ, 2003). When a larger list of product elements were

considered, 59% of consumers indicated they used country-of-origin information (FSANZ, 2008) – a higher share of consumers indicated they used date mark (73%) and fat content (62%).

- 19% of consumers indicated that country-of-origin information is not very clear (FSANZ 2003).
- Roughly 70% of Melbourne and Sydney consumers believe that it is at least ‘quite’ important to be provided with information on the country-of-origin of food products sold in the deli and seafood sections of supermarkets. Interestingly, CoOL was rated as ‘quite important’ or ‘very important’ by a larger share of consumers who were 55 years of age and older (Ware and Varigos, 2006a and 2006b).
- Only 8% of Australian consumers consider Australian country-of-origin to be the most important attribute when purchasing beef for consumption at home. However 30% indicated that they did consider country-of-origin when purchasing beef. Price, cut, use-by-date and lean/fat content were considered most important (Umberger and Mueller, 2010).
- Coveney (2007) found that labelling food products with a “Made in Australia” logo increases consumers’ trust with respect to the safety because they perceive Australian food standards to be relatively higher than many other countries that might import food.
- Country-of-origin labeling was a statistically significant determinant of Australian consumers’ purchase decisions for prawns, but not for beef (Mueller et al., 2009 and Umberger and Mueller, 2010). In fact, the importance of extrinsic credence cues in Australian consumers beef purchase decisions were relatively small compared to marbling, fat and price.
- Only a small proportion (roughly 17%) of Australian beef consumers were willing to pay a small premium for beef that was guaranteed to be Australian beef. The premium was also very small (2%). This segment had a higher share of older (over age 50), quality concerned and price sensitive consumers.

Although only a small share (<20%) of consumers appear to be willing-to-pay for country-of-origin information, the literature does support the notion that at least some Australian consumers do use country-of-origin information when making food and meat purchase decisions. Consequently, considering that a share of Australian consumers use country-of-origin information when making beef, lamb and chicken meat purchases, and given that CoOL is currently not a mandatory requirement for unpackaged beef, lamb and chicken, there are possible issues of market failure, specifically related to asymmetric information and potentially public goods.

Introduction and Background: Country-of-Origin and Food Labelling

Increasingly, countries such as Australia are requiring food producers, manufacturers and retailers to provide consumers with information on the country-of-origin of food products and food ingredients. The proliferation and interest in country-of-origin labelling (CoOL) has been driven largely by increasing international trade of food products and food ingredients and consumers' and producers' concerns about the impact of imports on the domestic food supply. For example, the technical quality and safety of imported food products may differ from domestic products because of variations in the production and quality assurance systems and food safety requirements across countries. Regardless of any actual technical differences that may exist, consumers often perceive differences in the quality and safety of food products from specific countries (e.g. Coveney, 2007; Ehmke et al., 2008. Loureiro and Umberger, 2003). Additionally, some countries may be able to provide certain food products at a relatively lower cost and as a result, imported food products may gain domestic market share (Carter et al., 2006; Crespi and Marette, 2001; Loureiro and Umberger, 2007; Lusk et al., 2006; Davies and MacPherson, 2010; Priestley, 2005).

Currently, Standard 1.2.11 of the Australia New Zealand Food Standards Code (the Code) requires CoOL of packaged foods and certain unpackaged foods sold in Australia. However, Food Standards Australia New Zealand (FSANZ) is currently assessing the impact of changes to the Code which could require country-of-origin information also be provided on unpackaged beef, lamb and chicken meat.

In order to understand the impact of this proposed change, FSANZ commissioned this extensive review of the literature on CoOL. Specifically, FSANZ requested information related to the following aspects of CoOL: consumer preferences, understanding, and use of CoOL; the importance of CoOL relative to other product attributes; measures of willingness-to-pay for CoOL; and the impact of CoOL on purchase decisions. FSANZ also requested that the studies reviewed in this report be relevant to Australian consumers, meat products, and retail sale situations marketing unpackaged beef, lamb and chicken meat products (including supermarkets, butchers, delicatessens).

A broad range of academic journals as well as government and industry publications were searched using several scientific search engines. Hundreds of articles on various aspects of CoOL were reviewed. The most relevant studies are referenced within the text of this report, or else provided in the reference lists. Very few studies were found in the literature which explicitly address one or more of the required aspects of CoOL with respect to Australian consumers' and meat products. Thus, when Australian-specific literature is unavailable (e.g. willingness-to-pay) the results of relevant consumer studies are provided. We do, however, caution using the results from non-Australian samples to extrapolate the value of CoOL to Australian consumers for economic analysis.

Moreover, nearly all of the previous studies used direct estimation methods, such as rating, ranking and contingent valuation methods to examine the importance and value Australian consumers place on country-of-origin information when purchasing unpackaged meat products. However, the relative importance and value consumers place on credence information in these types of studies is typically overstated or biased as a result of

experimental design issues (Gao and Schroeder, 2009; Lusk and Shogren, 2007; Umberger and Mueller, 2010). As such, further research is necessary to fully understand whether the benefits of increasing the CoOL requirements for meat products would exceed the estimated costs of changes. For example, a non-hypothetical revealed preference study or discrete choice experiment simulating realistic unpackaged meat retailing scenarios and representing the relevant alternate CoOL scenarios would provide additional in-depth insight on how Australian consumers make choices both with and without country-of-origin information. Ultimately, this type of research would provide a more accurate estimate of the relative importance and value of CoOL information to Australian consumers when purchasing the relevant meat products. This information, although currently unavailable, is essential for estimating the “potential benefits” component of an economic cost-benefit analysis.

Mandatory versus Voluntary Food Labelling Programs and Country-of-Origin

The food industry, policy makers and academics have long debated whether food country-of-origin labelling (CoOL) programs should be mandatory or voluntary, what entity should oversee the regulation, and which food products should be labelled with origin information. Opponents of mandatory labelling contend that the direct costs of mandatory CoOL programs (e.g. costs of segregation, labelling and enforcement) are substantial and would outweigh the social benefits. For example, in 2006 the Centre for International Economics (CIE) conducted a feasibility study examining the economic costs and benefits that may result from extending the Australian CoOL provision to include certain packaged fruits and vegetables. The CIE found that the large costs of such an extension would adversely impact the Australian fruit and vegetable industry and would only benefit a small proportion of consumers (CIE, 2006).

Conversely, proponents of mandatory CoOL claim that more extensive and/or mandatory labelling would provide domestic producers with a competitive advantage and consumers with valuable information about the quality and safety of their food products allowing them to make better informed food purchasing decisions (Davies and MacPherson, 2010; Umberger et al., 2003). As Carter et al. (2006) and Umberger (2004) discuss, price premiums for domestic country-of-origin food products may exist if consumers believe domestic products are higher quality and superior to substitute products, and if domestic producers can restrict entry and/or or control supply in the long-run.

In their 2006 feasibility study, the CIE suggested that the potential private benefits arising from additional CoOL information “...will depend on how highly consumers value that extra and more specific information (CIE, p. 18, 2006).” They found that with respect to the additional CoOL information for fruits and vegetables, only a small proportion of the Australian market would value the extra information. They go on to state that food manufacturers and retailers are already *voluntarily* providing products with this information to consumers who value it.

The Case for Government Intervention in Food Labelling

Regardless of the debate, it is important to consider the policy-relevant case for increased government intervention in food labelling. In a seminal article on the role of government labelling policies in consumer food markets, Caswell and Padberg (1992) suggest that policy-makers must evaluate how alternative labelling methods impact consumers’ confidence in their food supply, knowledge and understanding of the dietary and health implications of consuming a food product and their overall behaviour with respect to food consumption.

Consumers use a variety of available visual cues to form perceptions and attitudes about the quality of retail meat products. Ultimately these visual cues influence their meat purchasing decisions (Caswell and Mojdzusda 1996; Grunert 1997; Caswell 1998; Umberger 2007). These cues can be either intrinsic (e.g. colour, size, fat content or leanness) or extrinsic (e.g. price, brand, nutrition, origin, or production and process information). Intrinsic attributes are inherent in the meat product and cannot be changed without altering the product itself. Conversely, extrinsic attributes – such as country-of-origin – can be strategically changed by

food producers, processors, retailers and marketers without changing the physical properties of the product.

Product attributes can also be classified as “search”, “experience”, or “credence” attributes. For fresh and unpackaged beef and meat products, quality cues typically available at the point of purchase such as leanness, marbling or fat content and colour are intrinsic “search” attributes. Experience quality attributes are related to the consumption experience – these include palatability and food safety aspects. Alternatively, country-of-origin and the production processes (e.g. organic, natural, grass-fed) involved in producing meat products are credence attributes, meaning the consumer cannot determine if the attribute exists when purchasing or even consuming a product (Caswell and Mojduszka, 1996; Caswell, 1998). Therefore, truthful labelling of credence attributes is necessary for consumers to use this information when making purchasing decisions (Darby and Karni 1973; Caswell and Mojduszka, 1996). In other words, labelling of credence attributes is necessary so that consumers can use them as visual cues.

Credible labelling of credence attributes often requires government intervention and oversight in food labelling programs to avoid market failures related to asymmetric information or public goods. Umberger (2004) discusses that auditable traceback systems are required for extrinsic credence attributes to be verified and labelled and that government oversight is often necessary to ensure traceability systems function efficiently. Golan et al. (2001) and McCluskey (2001) explain that for credence good markets to function efficiently, third-party monitoring and certification are often required to discourage fraudulent behaviour within the supply chain, establish uniformity in labelling and certification procedures and reduce informational asymmetry.

Caswell and Mojduszka (1996) and Caswell (1998) explain that mandatory labelling of credence attributes can benefit society if asymmetric information exists among buyers and sellers and labelling policies reduce the asymmetry problem (e.g. integrity of food labelling improves), if the information provided through labelling increases consumers’ demand for the product (e.g. consumers are willing to pay for country-of-origin information), and if there is a public good to providing the information (e.g. increased food safety or enhanced quality, and/or consumers value country-of-origin information but are not currently able to access the information).

The following sections of this report are designed to provide insight on whether or not Australian consumers would benefit from more extensive CoOL of unpackaged meat products. Specifically the role and value of country-of-origin information in consumers’ food and meat purchasing decisions is considered.

The Role of Country-of-Origin in Consumers' Meat Purchase Decisions

Luomala (2007) and Shiv and Fedorikhin (1999) state that it is both difficult for consumers to explain, and complicated for researchers to measure, the role that origin plays in consumers' decision-making processes. This is because the unconscious processes are intertwined with conscious (strategic) processes that occur when origin information is presented to consumers.

Yet, the impact of origin on consumers' perceptions about food quality and choices is typically categorized as cognitive, affective or normative (Ehmke et al., 2008; Shimp and Sharma, 1987; Verlegh and Steenkamp, 1999; Verlegh and van Ittersum, 2001).

The *cognitive* aspects of origin with respect to food relate to consumers' beliefs associated with the value/price, quality, safety, cleanliness, and healthfulness of food products from specific geographic locations. For example, consumers often assume that food products originating from their own country are of higher quality or safety. Likewise, consumers may perceive products from specific regions as being more environmentally friendly or "green" (Ehmke et al., 2008; Shimp and Sharma, 1987; Verlegh and Steenkamp, 1999).

Affective aspects of origin are related to the emotions or feelings that consumers associate with a specific geographical place or origin. Often consumers have symbolic (e.g. status, authentic, exotic) or cultural (e.g. tradition) associations with food products from certain geographical locations. For example an Australian consumer whose parents or grandparents emigrated from Italy may have a strong positive association with wine from Italy or other Italian food products. Conversely, a consumer who immigrated to Australia from Japan is likely to have different associations with Italian wine (Ehmke et al., 2008; Shimp and Sharma, 1987; Verlegh and Steenkamp, 1999).

The personal and social norms of consumers (e.g. ethical/moral, political, and economic reasons) explain the *normative* affects of origin on consumers' food choices and attitudes. Consumers who are concerned about the environment may be less likely to purchase food products from a country with a reputation for being environmentally irresponsible. Ethnocentric consumers may feel a moral obligation to purchase only domestic products. Conversely, consumers may be more likely to purchase a product from a developing country or local farmer for sympathetic or *altruistic* reasons if they perceived purchasing products from that country would benefit a struggling society or group of people (Ehmke et al., 2008; Shimp and Sharma, 1987; Verlegh and Steenkamp, 1999).

Luomala (2007) studied Swedish, German and French consumers associations with origin and food and found that cognitive aspects of origin are particularly important to consumers when purchasing food as they are related to a consumer's level of confidence in the quality of a food product, including its safety, healthfulness, and cleanliness. For example, if consumers previously had positive quality experiences with a food product from a specific geographical location then they are more likely to re-purchase similar food products from that geographical location. However, if the experienced quality of a product labelled to be from a specific location was poor, or if they obtained a food-borne illness from a product they know was from a specific country, then they are less likely to purchase other products labelled with that location in the future. Over time, consumers' positive (negative) experiences including

food consumption and travel experiences, as well as media reports about relevant issues related to the location help to cultivate (diminish) consumers' confidence in the geographic location.

Luomala (2007) also points out that consumers' food choices are affected by a strong interaction of cognitive, normative and affective origin-related associations. Interestingly, consumers attach less importance and meaning to origin when a food product is more processed (Luomala, 2007).

U.S. consumer studies conducted by Schupp and Gillespie (2001), Umberger et al. (2003), and the USDA/FSIS (2000) support the findings of Luomala (2007) and Shiv and Fedorikhin's (1999) that the consumers' interest in CoOL of beef is multi-dimensional. U.S. consumers desired CoOL of meat because of food safety concerns regarding imported beef, a desire for more information about the source and origin of their meat, perceptions that domestic beef was of higher quality, fresher and safer than imported beef, a desire to support domestic producers, and a belief that consumers simply have the "right-to-know".

A report by Oxford Evidentia (Davies and MacPherson, 2010) provides a synthesis of the most frequent reasons British consumers' are interested in origin information on food: "preference for buying British/supporting British farmers (34%), food miles/distance food has travelled (17%), prefer to buy locally (17%) (Davies and MacPherson, 2010, p. 8)." A relatively smaller share of consumers (10% or fewer), stated reasons which suggested they associated country-of-origin with quality, safety, freshness or ethical issues (e.g. politics, animal welfare). Therefore, British consumers interest in CoOL is also multi-dimensional.

A study by Watson and Wright (2000) examined the link between ethnocentrism and New Zealand consumers' preference for products from countries which share cultural characteristics when consumers have no domestic alternative for the product in question. In their study of 421 New Zealand consumers, they found that when domestic products were available, ethnocentric consumers preferred the domestic alternative followed by the alternatives from the culturally similar countries. Ethnocentric consumers preferred electronic products from culturally similar countries (Germany and the U.S.) over those from dissimilar countries (Italy and Singapore).

There are no known published studies in the country-of-origin literature which explain whether cognitive, affective or normative reasons are more likely to motivate Australian consumers' interest in having country of origin information provided on their food products. Only one study, Coveney (2007), specifically examined the role of origin in Australian consumers' perceptions of food quality. In his study of South Australian consumers, Coveney (2007) found that labelling food products with a "Made in Australia" logo would generate significant consumer trust with respect to the safety of the food product because respondents in the study were generally satisfied with the Australian food standards relative to those in other countries. "Asia in particular was regarded to be a source of foods that might not come up to safety standards and therefore did not warrant trust (Coveney, 2007, p. 241)."

Consumers use a combination of intrinsic and extrinsic cues to form quality expectations. As Grunert (2006) and Umberger et al. (2009a and 2009b) point out, consumers are increasingly using extrinsic cues to form perceptions about quality. If consumers use country-of-origin cognitively to predict quality and/or gain confidence in their food, then providing them with origin information is very important. If country-of-origin information is not provided, consumers may be less able to predict the quality of the beef and meat or simply they may feel less confident in their ability to make choices. It is possible that they avoid purchasing certain meat products entirely. Consequently, the literature reviewed above supports the notion that if country-of-origin information is used by consumers and it is not available to consumers, there are issues of market failure, specifically related to asymmetric information or even public goods. The following section further supports the notion that at least some Australian consumers do use country-of-origin information when making food purchase decisions.

Awareness, Use and Understanding of Country-of-Origin Labels on Food

We are aware of five studies which assess at least one aspect of Australian consumers' awareness, use and understanding of country of origin labelling with respect to food and meat products (FSANZ, 2003; FSANZ, 2007; Umberger and Mueller, 2010, Ware and Varigos, 2006a and 2006b). The Australian-relevant results of these studies are highlighted in the three italicized sections beginning on the following page, but first, brief overviews of the methodologies used in each study are provided.

Methodological Overview of Australian Awareness, Use and Understanding Studies

In 2002, NFO Donovan Research was commissioned by Food Standards Australia New Zealand (FSANZ) to conduct a quantitative baseline study of Australian and New Zealand consumers. The study was conducted in August and September, 2002 via door-to-door interviews of 1940 consumers in cities throughout Australia and New Zealand. This study, cited as FSANZ 2003, is the most comprehensive study of Australian and New Zealand consumers' general *awareness, use* and *understanding* of multiple food elements.

In February 2006, TNS Social Research consultants (TNS) conducted surveys to address industry concerns related to a specific section of CoOL Standard 1.2.11 regarding products sold in chilled, glass-fronted delicatessen and seafood retail display cases. This study is referred to as Ware and Varigos 2006a. Food retailers were alarmed about two aspects of the Standard: 1) the more extensive requirements of Standard 1.2.11 stipulating all unpackaged products in delicatessen and seafood cases display country-of-origin information, and 2) the increase in font size to 9 mm from the previously allowed 5mm or 2.5 mm font sizes. They believed these new requirements would be overly burdensome and costly due to the required upgrades of ticket counters, and they contended the changes would make food purchasing decisions more difficult for consumers due to diminished space available for displaying products and describing other attributes of the product. Consumers (n=106) were intercepted and interviewed at seafood and deli counters at a large Melbourne food retailer. Respondents were shown deli cases that contained products with country-of-origin information displayed using the relevant font sizes. They were asked whether the 9 mm font size impacted their ability to visually evaluate the product and their ability to read the country-of-origin and price information. Consumers were also asked to indicate the importance of knowing the country that food in the deli and seafood sections of the supermarket was made and to rank the importance of product appearance, price and knowing where the product come from when purchasing ham from the deli/seafood section of the supermarket.

A second phase of the Ware and Varigos 2006a study was conducted by TNS in Sydney during May 2006. This study is cited as Ware and Varigos 2006b. The methods used in Phase II were similar to Phase I, but this time 200 consumers at a Sydney supermarket seafood and deli counter were surveyed. The 2.5mm font was replaced in the comparison with 3mm font.

A more expansive study conducted by TNS Social Research consultants (TNS) for FSANZ, used quantitative online survey methods to assess Australian (n =1200) and New Zealand (n = 800) consumers' attitudes, behaviour and confidence with respect to their food supply

(FSANZ, 2008). However, this study (cited as FSANZ 2008) only assessed consumers' *use* of country-of-origin information when purchasing food.

A recent (unpublished) study by Umberger and Mueller (2010) focused specifically on beef. Umberger and Mueller (2010) included questions to assess consumers' awareness and the relative importance they place on origin. This was only one section of a large online survey designed to gain information on consumer behaviour and preferences with respect to differentiated beef products. The results are based on a representative sample of 1881 Australian beef consumers conducted during mid-2009.

Awareness

When respondents in the FSANZ 2003 study were asked to indicate the type of information that can be found on the food and drinks purchased (unprompted awareness), 17% indicated they were aware of country-of-origin information. Country-of-origin was the fourth most frequently mentioned labelling element compared to ingredients (49%), nutrition information panel (NIP, 40%), use by date/ date mark (25%) and fat content (17%). The FSANZ 2003 respondents were shown 16 pictures of different types of information found on food packaging/ labels and asked to indicate which ones they recognised (prompted awareness). Date mark (93%), ingredients list (89%) and NIP (86%) were recognized by a relatively larger share of respondents compared to 80%, 70% and 65% recognizing country-of-origin information, nutrient claims and preparation/ storage instructions (65%) (FSANZ, 2003).

Umberger and Mueller (2010) asked respondents to indicate what type of origin information they were usually aware of or provided with when purchasing beef products. Respondents were asked to tick all options that were applicable (prompted awareness). The attribute list included: 'country-of-origin', 'state-of-origin', 'region-of-origin', 'farm-of-origin', or 'I am generally NOT aware of the origin'. Interestingly, only 23% of consumers indicated they are aware of the origin of their beef, even though country-of-origin is required to be indicated on packaged beef products sold in supermarkets. In fact, the majority of consumers (64%) indicated they are generally *not* aware of the origin of their beef.

Use of Country of Origin Information

Respondents in the FSANZ 2003 study were also asked to consider 15 labelling elements and indicate which ones they used when making food purchase decisions (even if they used the information only occasionally). Country-of-origin information was used by 49% of the respondents, which again is the fourth highest share of respondents, compared to date mark (85%), ingredients list (66%) and NIP (66%). Respondents were also asked to indicate the three elements they used most when purchasing food and again country-of-origin was the fourth most frequently noted labelling element with only 19% of respondents using country-of-origin most, compared to 68% using date mark, 52% using NIP, and 49% using ingredients list most frequently (FSANZ, 2003). A drawback of this FSANZ 2003 study is that it focuses only on food labelling elements and does not compare these to relevant product attributes such as price, brand or quality. It is likely that inclusion of this information would change the relative use of country-of-origin.

Respondents in the FSANZ 2008 study were asked to consider a list of 32 information options (including an 'other' and 'none' option) and to indicate what particular information they looked for when purchasing a food product for the first time. Country-of-origin (59%) had the third highest proportion of Australian respondents indicating usage, compared to use by date (73%) and amount of fat (62%). Sugar content (57%), ingredients list (53%), and saturated fat (50%) were also listed by at least 50% of the respondents. A significantly larger proportion of Australians looked for country-of-origin information than New Zealand consumers (only 43%). Like the FSANZ 2003 study, this study only examined labelling elements, not other potentially important food product attributes such as price or other quality indicators.

Consumers in the Ware and Varigos (2006a) study were asked directly to indicate the importance of the font *size* used in the country-of-origin label /information when viewing products in chilled delicatessen cabinets. Roughly three-quarters (74%) indicated the font size was 'quite important' to 'very important' in their ability to evaluate products in the deli cabinet and make purchase decisions. Yet, the majority of respondents, 97%, 98% and 75%, stated that they were able to identify the country-of-origin information when the 9 mm, 5 mm and 2.5 mm fonts were used on the country-of-origin labels, respectively. Interestingly, one-third of consumers stated that the 9mm font restricted the ability to view the product, versus only 2% and 5% for the 5mm and 2.5mm, respectively. Compared to Phase I (33%), a higher share of Sydney consumers (50%) stated that the 9mm font restricted the ability to view the products in the deli and seafood cases. However, 45% of respondents preferred the 9mm font the most, compared to 37% and 18% indicating that the 5mm and 3mm font were, respectively their most preferred font sizes for CoOL. Respondents were asked to indicate the desirability of retail cabinets which used the different font sizes – the cabinet with the 5mm font was rated as 'most desirable' by the largest share of respondents (Ware and Varigos, 2006b).

Finally, when Melbourne consumers in Ware and Varigos (2006a) were asked if the proposed change to CoOL would make choosing deli items easier, and if it would alter the way they shopped for food in the deli/seafood section of the supermarket, 76% and 62%, respectively indicated that 'yes', CoOL would impact their shopping behaviour. Although the results of these two Ware and Varigos studies are not specifically related to whether or not consumers "use" CoOL they do shed light on the importance that the design of label information can have on consumers' ability to use the information.

Consumers' Understanding and Knowledge of CoOL Information

In the FSANZ 2003 study respondents were asked to rate the clarity ('clear', 'fairly clear' and 'not very clear') of food labelling elements. Country-of-origin information had the second highest proportion (19%) of respondents stating that the information was 'not very clear'. Only GMO declaration had a higher proportion of respondents (29%) indicating the information was 'not very clear'. However, only 4% of respondents indicated that they were '*...suspicious of imported products/foreign language*' (FSANZ, 2003, p. 17).

To examine if consumers could interpret the meaning of various types of country of origin information, respondents in the FSANZ 2003 study were shown three types of labels: 1)

'made in...', 2) 'product of...', 3) and 'made from Australian/New Zealand ingredients'. Sixty percent of respondents correctly identified that the 'product of...' label would contain the most Australian or New Zealand ingredients, whereas 31% and 3% of consumers incorrectly indicated the 'made in...' and 'made from...' would contain the highest share of domestic ingredients. It is interesting to note that a significantly larger share of New Zealand respondents incorrectly selected the 'made in...' label compared to Australian consumers (37% of New Zealanders versus 27% of Australians). This could be related to the fact that fewer food products in New Zealand are required to carry country of origin labels (FSANZ, 2003).

Relative Importance and Preferences for Country-of-Origin Labels: Food and Meat

Several studies, including the Umberger and Mueller (2010) beef study discussed in the previous section, have examined consumers' preferences for country-of-origin information as well as the *relative importance* that consumers place on origin information in food purchase decisions versus other types of labeling information or information about food attributes.

It is important to note that as Verlegh and Steenkamp (1999) found in their meta-analysis of country-of-origin labeling in the business and marketing literature that the relative importance of origin tends to be significantly smaller in studies comparing origin to other potentially important quality cues versus focusing solely on origin. A recent study by Gao and Schroeder (2009) also found that the relative importance and value of country-of-origin information to U.S. consumers when purchasing beef varies depending on the attributes considered in the evaluation exercise and the interrelationship of the attributes.

The relative importance and value of origin information in meat purchases also has been shown to vary across purchase locations (e.g. supermarkets versus restaurants) and countries. For example, European consumers in a study by Alfnes (2004) indicated that country-of-origin was important for beef purchased in grocery stores /supermarkets, but it was not important for beef purchased at restaurants.

Roosen et al. (2003) studied the relative importance and value that European consumers place on origin versus price, brand, colour, marbling or fat content when making beef choices. They found that origin was relatively more important than other attributes to French and German consumers, but for U.K. consumers, price, colour and fat content were more important than CoOL.

In a study by Umberger et al. (2003) U.S. consumers rated freshness, food safety inspection, colour, price, and leanness as the five most important attributes when purchasing beef. Country-of-origin information was rated as more important than environmentally friendly production methods, organic/natural production, and local production; however, its average rating score was only the ninth highest considering the 17 attributes evaluated. In two different U.S. consumer studies, Loureiro and Umberger (2003 and 2007) found origin information to be of similar relative importance in consumers' beef purchasing behaviour when considering various intrinsic and extrinsic attributes.

Umberger et al. (2003) and Ehmke et al. (2008) both provide further extensive literature reviews of various other international (non-Australian) studies involving the relative importance consumers place on country-of-origin when making meat and other food purchasing decisions. Additionally, the Reference section of this report provides citations for other literature. The following paragraphs focus only on studies which examined *Australian* consumers' preferences.

Jocumsen (2005) conducted consumer focus groups in Brisbane, Canberra, Melbourne and Toowoomba and then surveyed 234 consumers at shopping malls in Brisbane and Toowoomba to determine the relative importance of intrinsic cues (e.g. colour, fat, marbling) versus extrinsic cues (price, label information) to consumers when formulating perceptions of beef quality. Jocumsen (2005) found that consumers perceive that intrinsic cues (freshness, leanness, colour and marbling) provide more information on beef quality than extrinsic cues (place of purchase, country-of-origin, packaging, and brand). On average, consumers ranked country-of-origin as the third most important attribute after freshness, leanness, colour, marbling/fat and presentation when forming quality expectations. Origin was of equal importance to price, place of purchase, quality assurance labels, and packaging. Feeding methods and brand were least important.

To gain an understanding of consumers' awareness of and the relative importance of country-of-origin labels on retail food products, Miranda and Konya (2006) surveyed 473 Melbourne consumers as they exited a Safeway supermarket. Respondents were asked to indicate whether they generally paid attention to the 'country of manufacture' on product labels. Results from a binary logit regression model indicate that awareness of country-of-origin is one of eight important factors impacting purchase decisions for the respondents. Brand recognition and freshness were estimated to be relatively more important than country-of-origin in consumers' food choices.

To determine the relative importance of labeling country-of-origin to Australian consumers, respondents in the Ware and Varigos (2006a) study (discussed in the previous section) were asked to *rate* how important it is to '...to know from which country the food in the deli and seafood section of the supermarket was made?', 72% rated CoOL to be 'quite important' or 'very important'. Interestingly, CoOL was rated as 'quite important' or 'very important' by a larger share of consumers who were 55 years of age and older (82%). However, when consumers were asked to *rank* the importance of three product attributes: appearance, price and knowing the origin of the product to them when purchasing ham from the deli/seafood section (assuming comparable product quality), only 49% ranked origin as most or second-most important compared to 63% for price and 87% for product appearance. Clearly origin is relatively less important than the other product attributes when considering consumers' purchases of ham from the deli section of the supermarket.

Compared to Melbourne consumers, slightly fewer Sydney consumers (69% versus 72% in Melbourne) indicated that it was 'quite' to 'very' important for them to "...know from which country food in the deli and seafood section of the supermarket was made". In terms of relative importance, Sydney consumers also placed origin information at a relatively lower level of importance compared to product appearance and price – even when additional

attributes (e.g. frozen, whether the product was on ‘special’) were included in the comparison (Ware and Varigos, 2006b).

Umberger and Mueller (2010) asked respondents to consider a list of 22 beef attributes and to indicate the ‘most important’ attribute as well as any other attributes that they may also consider when purchasing a beef steak for consumption at home. Only 8% of respondents considered Australian country-of-origin to be the most important attribute, but 30% indicated that they did consider whether the product was Australian country-of-origin when they were purchasing beef steaks. A higher share of consumers indicated price (23%), cut (13%), use-by-date (9%), lean/fat content (9%), and budget /discounted price (8%) were the most important attributes. It is important to note that this study focused specifically on Australian origin and does not ask more generally about country-of-origin. Therefore it is unknown if consumers are more likely to consider origin in general.

Estimating Consumers’ Willingness-to-Pay for Origin Information in Food and Meat

Background on Economic Valuation Studies

Food labelling policy alternatives are often compared through welfare analysis which involves a Cost-Benefit Analysis (CBA) which estimates of both the economic costs imposed upon society as well as the potential economic benefits gained by society as a result of providing information. For example, in 2006 FSANZ commissioned a cost-benefit analysis to determine the feasibility of extending the existing country-of-origin labelling provision to include packaged foods which contain two or less fruits and/or vegetables and no other major ingredients.

The FSANZ feasibility study (FSANZ, 2006 and CIE, 2006) suggested that consumers would need to be willing to pay an additional 2.7% on average for processed fruits and vegetables to cover the estimated \$80 to \$160 million a year loss in national income that was predicted to occur if the CoOL provision was extended to include processed horticultural products. Unfortunately this study did not provide estimates of social benefits resulting from the proposed CoOL change. In fact, no known empirical studies have been conducted in Australia specifically to estimate the economic benefits of CoOL of food and/or meat.

Establishing estimates of the social benefits of new or proposed food labelling regulations is relatively challenging. This is due to the fact that 1) consumers tend to be heterogeneous in their utility for food labelling information and some consumers may value the information positively while others will discount the information or not value it at all, 2) it is difficult for consumers to articulate the value of food labelling information, 3) consumers may value the information, but it does not affect their purchasing behaviour (e.g. demand does not change), 4) the distribution of value through the value chain is ambiguous (Crespi and Marette, 2001).

Estimating consumers’ value for specific product attributes or information is a particularly difficult task if the product attribute or information being assessed is non-utilitarian, abstract, requires a sensory experience, is misunderstood and/or is used subconsciously (Lusk and Anderson, 2004; Lusk et al., 2005; Fitzsimons et al., 2002). All of these characteristics may apply when assessing consumers’ utility for country-of-origin information with respect to

meat products. Furthermore, some consumers believe that origin information should be provided free of charge – or that it is their “right to know” where their food comes from – therefore, it is difficult for them to establish a value (Lusk et al., 2005; Umberger et al., 2003; Umberger and Mueller, 2010).

The willingness-to-pay (WTP) approach to estimating value is typically used by economists to understand the impact of different information on consumers’ utility function because it is based on the well-grounded welfare economics theory. The following sections provide an overview of the main methods and approaches used to assess consumers’ willingness-to-pay for labelling information.

Issues with estimating Willingness-to-Pay for CoOL

In order to fully understand the benefits of new information to society, it is important to be able to estimate the *value* individual consumers place on having access to this information. Consumers will value information, such as country-of-origin labelling, if it increases their welfare or utility (Caswell, 1995 and 1998; Crespi and Marette, 2001; Krissoff et al., 2004).

Estimating consumer preferences and WTP for a complex attribute such as origin labelling is an arduous task because WTP estimates can be influenced by a number of experimental or study design factors, including (Gao and Schroeder, 2009; Lusk and Shogren, 2007):

- the methods used (e.g. stated versus revealed preferences, direct versus indirect);
- the context, framing and/ or presentation of attributes (e.g. information about attributes; number, combination and types of attributes, verbal versus visual presentation of attributes);
- the products being studied (e.g. meat versus wine versus electronics); and
- the sample studied (representativeness of the sample compared to the socio-demographics, attitudes and behaviour of the population in question).

Therefore, when conducting research to elicit willingness-to-pay results, it is important to understand how the methodology used can affect the WTP results estimated. Caution must be exercised when considering whether WTP estimates would actually hold up in the marketplace. The following section highlights the primary differences between stated and revealed preference methods and discusses the pros and cons of both methods. This is followed by a thorough literature review of studies which have estimated U.S. consumers’ willingness to pay for CoOL in meat and beef. This section is designed to illustrate how WTP estimates can vary dramatically as a result of all four design factors mentioned above.

Stated versus Revealed Preference Methods for Measuring Willingness-to-Pay

As mentioned above, one issue with estimating WTP values is that the estimates can be affected by the valuation methodology used. Specific methodological issues include: 1) whether the willingness to pay values are elicited using stated preference or revealed preferences methods, and 2) whether the experiment is binding or hypothetical in nature.

Stated preference methods are usually considered to be the most hypothetical estimates and include contingent valuation methods (CVM). In CVM consumers are asked *directly* how much they would be willing to pay to obtain origin information, or whether they would be willing to pay a premium for a product labelled with a specific origin (e.g. Certified Australian, “Product of Australia”). CVMs also include dichotomous choice questions where consumers are asked to indicate “yes” or “no” if they would be willing to pay a specific premium for a product labelled with specific information compared to an unlabelled product, as well as payment card methods where consumers indicated the most they would be willing to pay for information or to obtain a product labelled with specific information (Cummings et al., 1995, 1997; Hanemann, 1994; List and Gallet, 2001)

Cummings et al. (1995 and 1997) and List and Gallet (2001) address the issues related to hypothetical bias and CVM results as compared to actual purchasing behavior. Collectively they conclude that the WTP values for private goods (e.g. food products) estimated using CVMs are upwards biased, but the bias is generally smaller than previously suggested by Arrow et al. (1991). Furthermore, studies by Haab et al. (1999) and Loomis (1993) demonstrate that stated preferences correspond relatively well with actual market behavior.

Revealed preference methods (RPMs) are less hypothetical. In the strictest case they are non-hypothetical as they can involve consumers participating in binding market transactions. This methodology often involves the hedonic analysis of actual market data (e.g. retail scanner data). Unfortunately, when researchers are attempting to estimate consumer utility for information or products which may not currently exist in the market (e.g. changes in food labelling policy), eliciting non-hypothetical or actual preferences and/ or willingness-to-pay becomes difficult or impossible.

When market data does not exist, experimental methods (e.g. laboratory experiments, field experiments or experimental auctions) are an alternate RPM now frequently used to estimate WTP. Experimental auctions methods are well-established in the literature. Different types of experimental auctions such as the Vickrey *n*th price auction, random *n*th price auction and the Becker, DeGroot, Marschak (BDM) mechanism are considered to be less hypothetical, incentive compatible elicitation mechanisms in that they provide consumers with incentives to encourage them to reveal their actual preferences or willingness-to-pay. Lusk and Shogren (2007) discuss the pros and cons of each of these auction methods and the fact that the “right” elicitation mechanism depends on the research objectives and the budget available to conduct the research.

Experimental auctions tend to be relatively expensive compared to CVM because researchers are required to compensate participants for their time and to provide product for the participants to bid on. Furthermore, as Lusk et al. (2007), Lusk and Shogren (2007) and Umberger and Feuz (2004) point out, experimental design issues (e.g. auction type, endowment effect, number of panel participants) will affect WTP estimates.

Recently, there have been dramatic advancements in the stated preference methods available for measuring WTP which allow consumer preferences and WTP to be estimated *indirectly* through choice-based conjoint experiments and analysis using discrete choice experiments (DCEs). DCEs are becoming an increasingly popular alternative elicitation mechanism to

CVMs. DCEs are often preferred over direct measures because relative WTP values for multiple product attributes can be estimated simultaneously.

DCEs have also been shown to be relatively accurate at predicting consumers' actual market behavior (Lusk and Schroeder, 2004; Louviere, Hensher and Swait, 2000). Choice sets used in DCEs can be framed to closely resemble actual purchasing scenarios where consumers must choose from a set of products with different attributes. DCEs are consistent with random utility theory which assumes that the utility a consumer derives from a good is a function of the multiple attributes of the good.

DCEs are not without fault – the WTP estimates from DCEs have been shown to be affected by design dimensions including the number of choice sets, and the number, level, framing and combination of attributes (Gao and Schroeder, 2009; Hensher, 2006; Hensher et al., 2005; Islam et al., 2007; Umberger and Mueller, 2007).

Willingness-to-Pay Estimates and the Impact of Methods and Design: U.S. Consumers' Willingness-to-Pay for CoOL of Meat

Consumer willingness to pay for country-of-origin labelling of meat has been examined through several studies conducted in the United States. Umberger et al. (2002) used experimental auctions and found that U.S. consumers were willing to pay a significant premium of US\$0.70/pound for U.S. corn-fed beef relative to grass-fed beef from Argentina. This study is frequently cited in the literature as evidence that U.S. consumers are willing-to-pay for country-of-origin information. In actuality, because consumers only bid on the steaks after blind taste tests, the study does not indicate whether consumers would actually value the origin information when making purchasing decisions. Rather the study only shows that U.S. consumers can discern differences in flavour and “experience” quality and are willing to pay a premium to obtain a beef product that they believe is more palatable or higher quality.

In 2002, Loureiro and Umberger conducted the first known study to examine whether U.S. consumers value CoOL of meat (Loureiro and Umberger, 2003). CVM methods were used to estimate consumers' WTP for steak and hamburger (mince) products that were labelled with a specific domestic country of origin, “Certified U.S.”, compared to products with no origin information. The sample (n =243) was obtained through in-person interviews of consumers at supermarkets in Colorado (a U.S. state). Loureiro and Umberger (2003) found U.S. consumers were willing-to-pay premiums of 38% and 58% for “Certified U.S.” steak and hamburger. Additionally, Loureiro and Umberger (2003) found the Colorado sample of consumers was willing to pay an average of \$184/per annum/ household to have a mandatory country-of-origin labelling program.

Another study conducted in 2002 by Umberger et al. (2003) examined Chicago, Illinois and Denver, Colorado consumers' WTP using both CVM and experimental auction procedures. The results of the CVM portion of the study suggested that the majority of consumers (73%) would be willing to pay an average premium of 11% and 24% to have steak and hamburger labelled with country-of-origin. Yet when the same consumers participated in a non-hypothetical experimental auction and bid on both an unlabelled steaks and an identical steak labelled as “U.S.A. Guaranteed”, the consumers were willing to pay an average premium of

19% for the steak labelled with domestic country-of-origin. The consumers indicated cognitive (e.g. a preference for the general information provided by the label, food safety concerns related to imported meat), affective (e.g. a belief that the quality of meat from certain countries was higher) and normative reasons (e.g. a desire to support US producers) for valuing country-of-origin information.

A third, more expansive study conducted in 2003 surveyed a representative sample of U.S. households via mail and used both CVM and DCE methods to elicit WTP for country-of-origin information in meat (Loureiro and Umberger, 2005 and 2007). The first part of the survey used CVM methods similar to Loureiro and Umberger (2003) to estimate premiums for three meat products: beef steaks, pork chops and chicken breasts, labelled as “Certified U.S.”. They found consumers were willing to pay premiums of approximately 2.5% for pork and poultry and 2.9% for beef that was “Certified U.S.”. Although the WTP values were estimated using similar methods to Loureiro and Umberger (2003) and Umberger et al. (2003), the premiums for “Certified U.S.” found in this continental U.S. study are substantially lower. The analysis of consumers’ responses to the DCE, which compared consumers WTP for country-of-origin labelling relative to food safety inspection, traceability and tenderness guarantees indicated that consumers were willing to pay the largest premium (US\$ 8.07/pound) for USDA food safety inspected followed by country-of-origin labelled (US\$2.57/pound). The premium for country-of-origin information was about 1.35 times higher than the premium for “traceable to the farm” and 2.7 times higher than for “guaranteed tender” (Loureiro and Umberger, 2007).

Key Considerations when Evaluating Consumer WTP Values for Country-of-Origin Information

The breadth of U.S. consumer research related to country-of-origin allows us to demonstrate how WTP estimates can be affected by methodological and design issues. Note the following:

- a. Origin information is an extrinsic credence attribute, therefore the only way to measure the importance or value of origin information to consumers is through simulated shopping experiences where information is presented to consumers in a realistic purchase scenario – not through blind taste testing alone (e.g. Umberger et al., 2002 used blind taste tests only).
- b. The estimated WTP values for “Certified U.S.” decrease dramatically when the sample becomes more geographically representative even though similar valuation methods are used. For example, consider the values estimated through three studies which used similar contingent valuation (CV) methods, but different samples:
 - 38% and 58% premium for “Certified U.S.” steak and hamburger, respectively, estimated by Loureiro and Umberger (2003) with a Colorado only sample;
 - 11% and 24% premium for “Certified U.S.” steak and hamburger, respectively, estimated by Umberger et al. (2003) with a Colorado and Illinois sample;
 - Approximately 3% premium for “Certified U.S.” steak estimated by Loureiro and Umberger, 2005 with a U.S. sample;

- c. The value for country-of-origin information is *product specific* even within a product category (e.g. meat). For example, the value for country-of-origin information on steak was lower than for hamburger/ mince in both the Loureiro and Umberger (2003) and Umberger et al. (2003) studies. The values differed across beef, pork and poultry in the Loureiro and Umberger (2005) study.
- d. The value for country-of-origin information is context dependent. In other words, the value consumers place on origin information depends on what other quality cues are present and the interrelationship of the cues. For example, some consumers use origin as a proxy for food safety or eating quality. If additional cues are provided which consumers also used to form safety and quality perceptions then the value of country of origin information will change.
 - E.g. Loureiro and Umberger (2005 and 2007) found consumers were willing to pay more for safety guarantees than country of origin information, but they valued country of origin relatively more than “traceable to the farm” or “guaranteed tender”.

Australian Consumers’ Willingness-to-Pay for Country of Origin Information

Appendix A.1 includes approximately 20 published studies that examine some aspect of consumers’ willingness-to-pay for origin labelling. Appendix A.2 includes a summary table highlighting the information about each of these studies, including the country where the study was conducted, methodology (e.g. CVM, DCE, experimental auctions) and the WTP values estimated. Unfortunately, only three of these studies explore Australian consumers’ value and willingness to pay for country-of-origin (Mueller et al., 2009; Umberger and Mueller, 2010 and Ware and Varigos, 2006b). The following section provides a brief summary of these three studies.

The Ware and Varigos (2006b) study discussed in previous sections asked Sydney consumers “How much extra would you be willing to pay, if anything, to purchase a \$10 item from your most preferred deli cabinet compared with your second most preferred cabinet?” The cabinets differed only in how the country of origin information was provided (font size differed). This method of assessing willingness-to-pay is not well-established in the literature and it is an awkward method for assessing the value for COOL, therefore it is not surprising that approximately 90% of respondents were not willing to pay any premium to purchase based on font size (Ware and Varigos, 2006b).

In 2008, Mueller et al. (2009) conducted a DCE with 1,146 Australian seafood consumers to determine the relative importance and value they place on origin (Australian, Spencer Gulf, Thailand and China), health claims, environmental claims, production methods and freshness when purchasing prawns. They interviewed a representative sample of Australian consumers using an online panel provider to recruit respondents. Considering the aggregate sample, origin was the most important determinant of their choice (65%) followed by price (24%), freshness (11%), health claim and environmental claims (<1%). Over 60% of consumers clearly preferred the prawns labelled with Australian or Spencer Gulf origin over those from Thailand or China.

Mueller et al. (2009) unfortunately do not provide estimates of WTP for country-of-origin, rather they simply show how origin is the most important determinant of Australian consumers' prawn purchase choice and that domestic origin increases consumers WTP. It is important to note that the product examined and the "context" of the study may have impacted the relative importance of origin in this study. First, Mueller et al. (2009) studied prawns /seafood – currently a large share of prawns marketing in Australia are imported and this aspect of the prawn industry has received substantial media attention. The relative share of imports versus domestic product differs across meat categories (e.g. beef versus pork). Relatively little beef, for example, is imported. Secondly, the countries and region considered in the study (Australia, Spencer Gulf, Thailand and China) may have increased the value that Australian consumers place on domestic origin and Spencer Gulf prawns relative to Thailand or China prawns. For example, as Coveney (2007) showed, Australians have safety concerns about food products originating from Asia. If the Mueller et al. (2009) study compared domestic origin products to imported prawns from countries which Australians might trust more (e.g. Europe) then the relative importance of origin may be lowered.

A recent unpublished study by Umberger and Mueller (2010) used DCEs to examine a representative sample of 1881 Australian consumers' preferences and willingness-to-pay for a large number of intrinsic and extrinsic quality attributes in beef. Digital graphical enhancement techniques were employed to alter intrinsic steak product attributes and labeling information of interest and still simulate a realistic looking retail beef product. The price and non-price attributes and levels included in the DCE were chosen after conducting a substantial literature review, consumer focus groups, and interviews with numerous industry leaders. Intrinsic attributes included marbling (4 levels) and external fat trim (4 levels). Non-price, extrinsic attributes included: brands (national and regional), health (Heart Foundation Approved tick), forage (grass-finished, grain-finished), production (hormone and antibiotic free, environmentally sustainable, certified humane) and quality/safety certifications including Meat Standards Australia (MSA) and Australian-origin certified. On

Considering the aggregate sample of Australian consumers, country-of-origin was not a significant determinant of consumers' beef steak choices. Interestingly, compared to U.S. and European consumers, the Australian consumers in this study were willing to pay relatively small premiums for extrinsic credence attributes. In fact, for Australian consumers, intrinsic attributes are found to play an important a role in consumers' beef purchasing decisions relative to extrinsic cues. Only 17% of consumers placed a statistically significant value on Australian certified beef and the premiums were less than 2%. This small segment of consumers was older (over 50) than the sample average and expressed higher levels of concerns about their available supplies of beef being inconsistent quality. Although country-of-origin was a significant determinant in their choices of beef steaks, price (very price sensitive), low marbling and low fat trim were much more important factors in their choices. However, this segment of consumers does appear to use country-of-origin cognitively to predict quality (Umberger and Mueller, 2010).

Therefore, the results of this beef study suggest that although other studies have shown that the majority of Australian consumers might desire country-of-origin information, only a

small percent are actually willing to pay a premium for the guarantee of an Australian steak. Unfortunately, this study, like others cited did not directly ask consumers if they are willing to pay to have general country-of-origin information, it simply looked at the role that country-of-origin plays in consumers' beef purchasing decisions and whether consumers value Australian beef more than generic. Further research is required to gain a more thorough understanding of consumers actual WTP for origin information in meat purchases.

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Appendix A.2: Summary Table of Consumers Willingness-to-Pay for Country of Origin or Certified Origin

Study	Year	Location	Methods	Valuation Technique	Product	Mean WTP	Results
Alfnes and Rickertsen	2003	Norway	Survey	Auction	Beef	40.10 NOK - Domestic Hormone-free 38.18 NOK Irish Hormone-free 34.32 NOK U.S. Hormone-free 25.16 NOK U.S. Hormone-treated	Norwegian consumers prefer domestic to foreign production and hormone-free to hormone-treated beef. Irish beef is preferred to U.S. beef. A significant amount of consumers (25%) bid 0 for U.S. hormone treated beef.
Angulo and Gil	2007	Spain	Survey	CVM	Beef	5% for certified beef	Results indicate that only 27% of respondents are willing to pay a premium for labelled beef. The mean WTP estimate was found to be a 5% premium.
Beriain et al.	2009	Spain	Taste Panels	CVM	Beef	15% (US vs. Spanish, no info.) 8% (production conditions) 10% (production conditions and origin)	Results show that Spanish consumers rate U.S. beef higher under different product attributes, but prefer to purchase Spanish beef when origin is known.
Chern and Lin	2010	Taiwan	Survey	Auctions	Tea & Plums	83% to 109% for tea 55% to 66% for plum	Taiwan consumers prefer domestic teas and plums to those from China or Vietnam. The premium paid for domestic production generally declines following taste tests.
Chung et al.	2009	Korea	Survey	DCE	Beef	\$13.35/pound (Korea vs. U.S.) \$12.41/pound (Korea vs. Other)	COOL and use of GMO feeds are important determinants of price. Marbling and freshness are also important.
Dransfield et al.	2005	UK, France, Sweden, Denmark	Survey/ Taste Panels	CVM	Pork	Approximately 5% for own country versus imported	Consumer were asked to bid on pork with various visual (intrinsic) information and two extrinsic cues including country of origin and production system. The more information presented, the higher the WTP..
Ehmke et al.	2008	China, France, Niger, U.S.	Survey	DCE	Beef	\$0.33/pound (China vs. France) \$0.41/pound (France vs. U.S.) \$0.35/pound (Indiana vs. France) \$0.51/pound (Kansas vs. France) \$0.86/pound (Niger vs. France)	Results show that consumers generally prefer food produced domestically, but country of origin is less important than other production practices.
Gao and Schroeder	2009	U.S.	Survey	DCE	Beef	\$2.33-\$9.14 for a "Certified U.S." 12-ounce steak.	Consumers in IL and KS were willing to pay for 'Certified U.S.' but when more information was provided, the importance of origin as a proxy for quality was diminished.
Killinger et al.	2004	U.S.	Taste Panels	Auction	Beef	\$0.52 / 0.45kg (U.S. vs. Argentina SF) \$0.86/ 0.45kg (U.S. vs. Argentina Chicago)	Although steaks were paired based on similar Warner-Bratzler tenderness scores, consumers rated the domestic steaks as having greater tenderness. Preference for domestic or Argentine steak influenced willingness to pay.

Loureiro and Umberger	2003	Colorado, US	Survey	CVM	Beef	\$183.77/year \$1.53/pound or 38% (steak) \$0.70/pound or 58% (hamburger)	Females, primary grocery shoppers, and those with food safety concerns are more likely to support COOL
Loureiro and Umberger	2005	U.S. (Continental)	Survey	CVM	Beef	\$0.051/pound (chicken breasts) \$0.088/pound (pork chops) \$0.198/pound (steak)	Participants are willing to pay premiums ranging from 2.5% to 2.9%. Females and higher income consumers are more likely to pay a premium for Certified U.S. meat.
Louriero and Umberger	2007	U.S. (Continental)	Survey	CVM	Beef	\$2.568/pound (COOL) \$1.899 (Traceability) \$8.068 (Food Safety) \$0.953 (Guaranteed tender)	U.S. consumers place relatively more importance on food safety and origin-based labels than on tenderness.
Menapace et al.	2009	Canada	Survey	DCE	Olive Oil	\$9.48 CAD/Liter (COOL) \$4.74 CAD/Liter (GI) \$5.66 CAD/liter (PDO) \$4.48 CAD/Liter (PGI)	Consumers WTP for GI-labeled is higher than non-GI labeled products. Consumers value PDOs more than PGIs.
Morkbak et al.	2008	Meta-analysis	Meta-analysis	CVM and DCE	Meat & food products	5% - 111% for COOL 7%-28% for traceability 13%-120% for general food safety	There is a willingness among consumers to pay a premium for food safety. Valuable insights could be gained from studies which examine a larger number of attributes so rankings among attributes can be clearly observed.
Pouta et al.	2010	Finland	Survey	DCE	Broiler meat	30-92% lower for foreign products	Finnish consumers prefer domestically produced broiler meat. While COO was important, respondents also preferred food produced 'close' to their home country. COO is shown to be more important than production methods.
Schnettler et al.	2009	Chile	Survey	DCE	Beef	Negligible for animal welfare	Origin was most important attribute, followed by animal welfare claims and price.
Tonsor et al.	2005	UK, Germany, France	Survey	DCE		Country-of-origin was not significant,	London, Frankfurt and Paris consumers evaluated steaks with varying attributes including price, farm-of-origin and domestic versus U.S. origin, growth hormone-free, and GMO-free beef. Consumers were heterogeneous in their steak preferences. French and German consumers are more willing to pay a premium to obtain beef that is not fed GMO feed and both German and British consumers were willing to pay premiums for growth hormone-free beef. The premiums for domestic origin were not statistically significant.
Umberger et al.	2003	U.S.	Survey	Auction	Beef	\$0.42/pound or 10.5% (Steak) \$0.36/pound or 24.3% (Hamburger) 19% premium for "U.S.A. Guaranteed" steak	72% of the consumers prefer to purchase a product with a country-of-origin label. Reasons for this preference included perceived safety, a desire for information, and a desire to support domestic producers.
Yu and Gao	2010	Multi-country	Meta analysis	DCE and CVM	Beef	\$26.36/pound (Europe) \$33.43/pound (Asia) \$17.07/pound (U.S.) \$7.50/pound (Post BSE)	WTP estimates are higher when estimates are gathered using choice experiments compared to contingent valuation methods and decline by \$4.50/pound for every 100 respondents.

Appendix B: Additional Relevant Literature on Country-of-Origin Labelling

Consumers Attitudes, Perceptions, Usage, Knowledge, Behaviour Relative Importance Related to CoOL and Credence Attributes

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