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## What is driving the call for traceability; where does the consumer sit?

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### ABSTRACT

Traceability has increased in importance for market access over the last couple of decades. This has been driven by the BSE and other food scares. This paper reviews the history of traceability, including changing consumer preferences, and the change in legislation which has also been an important factor behind this demand. The paper then reviews various studies that have assessed consumer preferences and their willingness to pay for traceability and/or Country of Origin Labelling (COOL). In general, consumers are willing to pay extra for traceability. The reasons behind this appear to be primarily driven by demands for food safety, especially in relation to certain food scares such as to avoid BSE beef. New Zealand is in an excellent position regarding its ability to comply with these requirements.

**Keywords:** traceability; consumer; credence; COOL.

### INTRODUCTION

The demand from overseas markets for traceability is becoming more and more recognised in New Zealand (NZ), especially if we wish to access high value markets such as the United Kingdom (UK) market. Typically, retailers are driving this change with companies such as Sainsbury's and Tesco's (UK retail chains) even visiting farms, and schemes such as EUREPGAP<sup>®</sup> established by European retailers, that requires considerable on-farm certification covering social factors, environmental compliance, animal welfare issues and farm practice. Where has this come from and what is driving this change?

Clearly a crisis such as the BSE outbreak in the UK, so badly handled at the time, increased the scepticism of consumers towards food safety regulators and scientists. Add to this listeria, salmonella and *E. coli* outbreaks which have all contributed to the general concern regarding food safety. In addition, changes in UK legislation altered the liability of retailers and meant they became liable for the safety of food sold in their stores. This has extended to other countries with the European Union (EU) introducing legislation enforcing traceability of ingredients from January 2005 in the EU under the general food law (EU 2002). In the United States of America (USA), since 2004 it has been mandatory for retailers to inform consumers about the country of origin for a number of products including beef, lamb and pork (Umberger *et al.*, 2003). Thus, it is unsurprising that retailers generally have become much more stringent in their requirements for on-farm practice and guaranteeing food is safe and of high quality.

The retailers' requirements for traceability are also reflected in the growth of compliance schemes such as the EUREPGAP<sup>®</sup> scheme. This is a European-based market driven certification scheme which is developing

as a requirement for exporters who wish to target high value markets within Europe. The scheme was developed as an attempt to reassure European consumers as to food safety following several food safety scares including BSE, pesticide concerns and the introduction of genetically modified (GM) foods. EUREPGAP<sup>®</sup> verifies and ensures best practices in agriculture and its scope is solely concerned with on-farm practices, with other codes of conduct covering off-farm practices.

However, where does the consumer fit in with all this and how do they perceive food safety and traceability? Does origin of food matter? A number of factors have arisen in relation to this, not only around traceability, but also origin, with the rise of the food mile concept in the UK. This concept is a considerable risk to NZ and is based on incomplete information. In any case it does illustrate how a simple concept, however spurious, can gain credulity and threaten our exports.

### Consumer preferences

Accompanying the decline in relative income spent on food has been a change in consumer preference as to the type of food consumed. Over the course of the last century food went from being a scarce resource to one of which there was an overabundance in the developed world. This has resulted in consumers' preferences moving away from the nutritional aspects of food towards other attributes (Sijtsema *et al.*, 2002). An example of this trend has been the growth of the organic movement, fuelled by consumer demand for food products that are perceived to be healthy, safe and environmentally friendly (O'Donovan & McCarthy, 2002).

The development of 'new' food products such as organic, functional and GM foods has altered the way in which some consumers act. Greater involvement is

required in the purchase of these items when compared with conventional food, as a range of different attributes are present in the food. The processing and evaluation of additional information by consumers is a likely consequence. As such the motivators of the purchase of 'new' foods are likely to differ from those that apply to conventional foods.

It has been argued that consumers do not value products *per se* but the attributes or characteristics of a product (Lancaster, 1971, p.7). Each product should be considered as comprising several different attributes that provide utility rather than considering the product as a single entity (Griffiths & Wall, 1996).

Lancaster theory posits that consumers do not choose a product simply on the basis of price comparison. They also factor in the perceived benefits to themselves that are derived from the purchase (consumption) of different product attributes (Dalglish, 2003). In this manner, an apple will vary from other varieties of apple not only in terms of basic product attributes such as taste and quality, but also in terms of the additional benefits that are claimed for the product. Thus an apple may also possess attributes such as greenness, status and safety. In this sense consumption can be seen as an activity that extracts characteristics from goods (Gravelle & Rees, 1992).

The income elasticity for attributes of food, which stress quality, especially in terms of food safety and environmental factors, have high and even greater than unitary income elasticity, indicating that as we get richer we are actually willing to spend more on commodities with these attributes. Therefore if NZ wishes to continue to target the developed countries' high value markets it is important to give attention to the attributes of food these markets demand. Thus at higher levels of income other food attributes such as the variety and the healthiness of the product assumes greater importance (Steenkamp, 1996).

### **Credence attributes**

There are several agricultural product attributes with relatively high-income elasticity, which are related to the way that commodities are produced. It is important to understand that these attributes are those that are perceived to exist by the consumer and are often derived from the means of production. These include healthiness, food safety, greenness and sustainability, naturalness and taste. The motivation for purchasing food products with low input production methods may be derived from either ethical or environmental concerns. However, most studies have identified that perceived health benefits are more likely to motivate purchase (Wier & Calverley, 2002). These attributes are not readily apparent to the consumer at the point of purchase. As such they are considered to be credence attributes.

Credence attributes are one aspect of a tri-partite typology of product attributes that consumers may value in a product (Nelson, 1970; Darby & Karni, 1973). Credence attributes are product attributes that cannot be easily detected by the consumer and may include the absence of pesticides and herbicides, the presence or otherwise of GM organisms and the level of ecological sensitivity involved in the production process. Thus characteristics such as Country of Origin Labelling (COOL) are considered as credence and truthful labelling is seen as important for consumers to judge the product (Caswell, 1998).

As consumers are unable to discern the presence of credence attributes at the point of purchase it is necessary that they be informed as to the presence of these attributes. The literature frequently advocates eco-labelling as a market-linked tool that addresses the asymmetrical information problem by conveying information to consumers about the environmental impact of goods (Bougherara & Grolleau, 2002). Thus eco-labels, in an ideal world, are perceived as providing a mechanism whereby consumers are informed of attributes for which they may be prepared to pay a premium. These attributes may be either environmental in character or perceived benefits such as food safety that are viewed as collateral to the means of production. These include traceability and COOL.

### **Country of origin**

The start of the recent move towards traceability and COOL began in earnest with the BSE crisis in the UK in the late 1980s and 1990s. This had a huge impact on the purchase of meat with, even in 1991, a third of consumers changing their consumption of beef (Tilston *et al.*, 1992). In March 1996, the release of information on a link between BSE and young people caused a further drop in consumer confidence in beef with a 40% fall in consumption, and some manufacturers reporting a 70% decrease in demand (Palmer, 1996). In October of the same year beef consumption was still lower than prior to the information becoming available, but by only 17%. In 1996, despite relative price changes, lamb purchases in the UK had increased by 20%, pork purchases increased by 47%, and increased purchases of chicken and turkey were even higher. Even in the United States of America (USA), in 2003 a BSE scare caused 22% of consumers to change their beef consumption (Thilmany 2004). This study also found that 34% of consumers thought that the most desirable beef attribute was whether or not it had been tested for 'mad cow' disease whereas only 3.8% thought traceability to farm was the most desirable attribute. This does pose questions regarding how much of the call for traceability is due to a desire to avoid high risk factors such as BSE-infected meat rather than the concept of traceability *per se*.

There have been various studies around the world assessing how consumers perceive labelling, traceability and COOL. A review of some of these is presented below.

A study of consumers in Chicago and Denver in 2002 assessed consumers' willingness to pay (WTP) for COOL of beef. The study found that nearly three quarters of consumers were willing to pay a premium of between 11% and 24% for COOL of beef. In an auction experiment this WTP was revealed to be 19%, which verified the survey results (Umberger, 2003).

In 2002, a further study of USA consumers in Colorado found that they were WTP \$184 per year for COOL and between 38% and 58% extra for USA-labelled steak or hamburgers (Loureiro & Umberger, 2003).

A study of French, German and UK consumers' attitudes to labelling of beef in 2000 indicated that in France and Germany origin of beef was more important than other product attributes, including quality. In the UK however, COOL was less important than quality characteristics such as colour, fat content and price (Roosen *et al.*, 2003).

A study of Irish consumers was carried out in June 2002 by Shannon Showcase on behalf of Agri Aware in order to provide detailed information on the attitudes of consumers to food. The information was collected in 10 locations throughout Ireland, to reflect a mix of urban and rural consumers. The study found that 87% of consumers stated that the country of origin was important but it was only rated as the sixth most important factor when purchasing food. Two-thirds (64%) of consumers actually checked the country of origin when purchasing meat, with women and older consumers more likely to do so. Over seven out of every ten consumers said that they would pay more to guarantee food traceability, safety and assurance, with half willing to pay a premium of up to 5%, but only 7% were willing to pay more than 10% as a premium. In a direct choice between price and a high quality traceable product, 78% of consumers said they would opt for quality when shopping or eating out. Some 62.4% of consumers considered that there was not enough information provided on the labels of meat products and the majority of these wanted more details on the country of origin, (Shannon Showcase, 2002).

Gjerde *et al.* (2004) cited research by two USA retailers who found consumers willing to pay 12% to 15% more for source-verified products carrying identifiable positive attributes. They also cited a recent EU study which found that just over half of consumers stated they would pay between 5% and 10% more to have higher quality meat and vegetables, and would trust them more if the EU could guarantee the origin of the product or the way it was produced.

## CONCLUSION

Traceability and COOL are becoming more important. This has been driven primarily by the reaction to the BSE and other food safety crises and the ensuing changes in legislation. Consumers do seem to value traceability and COOL but not as their prime criterion when purchasing. It is also difficult to determine how much of this is related to avoiding specific health risks, such as BSE-infected meat, as opposed to just wanting the COOL. However, while there is a general preference for home-produced meat, as has often been the case, other factors such as food miles (Hird *et al.*, 1999) may be fuelling this. NZ has advantages given its well accepted and transparent production systems, a willingness to engage in traceability requirements and an excellent reputation for quality. However, the risk to NZ is that it is not only an exporting nation but it is a long way from its markets. Market assurance schemes such as EUREPGAP® substantiate the trend not just towards traceability but also to authenticating how food is produced for export markets.

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