United Fresh
Technical Advisory Group

Experiences of Traceability within the Domestic Fresh Produce Industry of New Zealand June 2018

Scott Morrison, *MSc, BSc. Traceability Sampling Coordinator, The AgriChain Centre*

Anne-Marie Arts, *B. Hort. Sci., Dip. Bus.(Mktg), NZCQA, MBA, Managing Director*

Introduction

Achieving effective internal and external traceability is an issue in fresh produce supply chains globally. Internal traceability relates to information concerning the production and process history of produce within a business or discrete business unit. External traceability describes product and process information that is shared between business partners as produce moves along the supply chain.

Effective traceability from grower to consumer is now a requirement of the Food Safety Act 2014 and the Food Safety Law Reform Bill 2018. Systems need to be robust at all times so that they can be effective in a time of crisis.

The purpose of this paper is to discuss the effectiveness of traceability within the New Zealand domestic fresh produce industry. A range of sampling programmes undertaken in New Zealand has provided a wealth of information on how traceability operates in the domestic fresh produce industry.

New Zealand's horticultural industry is worth an estimated $7.3 billion dollars (excluding wine) and the domestic fresh produce industry, at the farmgate level, is worth an estimated $2.24 billion (HortNZ 2018). The industry supports 5,500

commercial growers that span 22 Product Groups and more than 100 crops (HortNZ 2017).

The issue for fresh produce is the lack of an across the board applicable critical control point such as cooking, to kill harmful pathogens that may be on the produce. Fruits and vegetables which are consumed raw or unpeeled therefore carry a higher risk. In the event of a food borne illness outbreak, the need for effective traceability systems is therefore paramount.

An extreme example of the need for effective traceability was highlighted in Germany in 2011. In total, 53 people died due to exposure to *E. coli 104* and 800 people suffered from hemolytic uremic syndrome from the outbreak (Robert Koch Institute 2011). The outbreak was initially incorrectly attributed to Spanish cucumbers. The source of the outbreak was later correctly traced to a producer of bean sprouts, the seeds of which originated in Egypt (Robert Kock Institute 2011). However, the reputation lost to Spanish cucumbers cost the industry an estimated US $200 million per week, for the five weeks until the incident was resolved. Traceability information is crucially important to ensure source identification and product recall in the event of a food safety incident.

In 2014, New Zealand experienced an outbreak of Yersinia pseudotuberculosis. Between 1 September and 7 October, 334 cases of yersiniosis were reported, of which 217 were attributed to Y. pseudotuberculosis. 65 cases were hospitalized. Y. pseudotuberculosis outbreaks are rare globally and until 2014 unprecedented in New Zealand. To date, it has not been possible to identify the source of the outbreak.

The producer of a product has the potential to have complete traceability, if it is recorded, and that information is passed along the supply chain. However, as product moves along the supply chain, from packhouse through to the consumer, traceability information is typically not easily transferred with the product.

What we know about traceability in New Zealand

A range of domestic fresh produce sampling programmes are undertaken in New Zealand and provide a wealth of information on how traceability works. The sampling projects undertaken are a test of industry-wide traceability systems in a "peace time" environment. Some of those systems have been found to be lacking. Every sample taken should, in theory, be able to be traced back to the grower and the pack or harvest date of the product at a minimum. Ideally, information such as packhouse information, grower information, grower contact details and field/paddock code should also be available. Products without traceability information may well be omitted from collection in several sampling projects. This is a concern from a wider industry perspective because it indicates that the domestic fresh produce traceability systems are not as robust as we would like to think.

Product is sourced and sampled at every available link of the supply chain from growers, to packhouses, wholesalers, and retail including "Farmers Markets" and roadside stalls. Major market wholesalers' systems hold information, such as; the product type, the grower name or code and product details (count, size, quality, etc). However, each of these internal traceability systems are completely distinct from each other and information cannot be transferred in an automated way. In other words, the **external** traceability between supply chain participants is challenging.

Larger markets often use a comprehensive system that allocates a sticker per outer with product, grower information and a barcode to the packaging material of the product. This barcode is scanned as stock enters the wholesaler, and then scanned again as each crate is removed from stock/purchased. This is a time and cost-efficient way to track stock. Some specialist wholesaler's employ a system where each product type has a code, however this code is not represented or tracked using a barcode or sticker of any kind. This system relies on the warehouse managers and handlers having a working memory of every product's code that is currently in stock. This system has minimal traceability and relies on the traceability details already on the product and packaging material as it arrives from the supplying market. This system is relatively informal and presents a greater risk if a food safety incident is reported, as traceability relies upon the upstream supplier's records in this case.

The transfer of fresh produce between wholesalers to fulfil customer orders is common practice. Internal traceability weaknesses of one wholesaler can potentially affect the wider supply chain. This is especially the case if the product is repacked and relabelled.

Commodities have also been observed to have significant differences in the amount of traceability information available. For example, potatoes and kumara have been observed to maintain reasonably consistent traceability information, largely because traceability information is printed on the packaging material of potatoes and kumara pre-packed bags. Conversely, the increased range of speciality vegetables available now in New Zealand includes a number of products where traceability is often observed as marginal.

It is well known that the retail step of the supply chain is the most challenging to maintain traceability, particularly for products sold loose.

Common issues observed are:

- Pre-packed products with zero traceability, especially for road side sales, as well as products packed in the rear store of retailers.
- Different growers' product in the same loose display in retail shops.
- Reusable crates with old labels still attached, creating traceability confusion.
- Loose stacked product stored in crates or boxes without any traceability details.
- Packed on dates that are not correct, i.e. they reflect the dispatch date rather than the packed-on date.
- Loss of traceability if products are traded between wholesalers and then repacked for another customer into different packaging.
- Low retention of traceability as produce moves through the supply chain.

Where to from here?

The Sustainable Farming Fund funded United Fresh traceability project is scheduled to commence in July 2018. One focus element is upon the attitudes and perceptions towards effective traceability, and preparing guidelines to assist the industry in achieving effective traceability. This is not about plants, equipment or expensive systems, rather, it is about testing the underpinning methodologies needed for a robust traceability system across an entire supply chain.

The intention is to trial internationally accepted and used produce specific GS1 standards of information management, to test traceability across the domestic fresh

produce supply chain. This will be undertaken on both a packaged crop, as well as a crop generally sold loose-packed. The planning is well underway, and we will be seeking logistical support for the project.

We welcome industry support for the upcoming Sustainable Farming Fund project. If you have any questions, please contact Anne-Marie Arts on: amarts@agrichain-centre.com or 0800 24 74 24.

References

Horticulture New Zealand, 2018. Annual Report 2017, We grow.

Horticulture New Zealand, 2017. Fresh Facts 2017.

Robert Koch Institute, 2011. Report: Final presentation and evaluation of epidemiological findings in the EHEC O104:H4 outbreak, Germany 2011.

Ministry for Primary Industries. Outbreak Source Investigation Yersinia pseudotuberculosis 2014.