



FRESH HUB - 23 July 2020 – Fresh Produce Survey

Welcome to the July 23rd Fresh Hub Newsletter.

In this edition we examine the theme of Fresh Produce Survey with a spotlight on using the right tools to help improve data consistency.

- [Information Technology & the Fruit Trade](#)
- [Penetrometers- Am I Doing It Right?](#)
- [Relevant Links for Information on Using the Right Tools](#)

Information Technology & the Fruit Trade

Information Technology has always been a keen interest of mine. On my first day at work as a produce buyer for a national supermarket chain, I was handed a bunch of photocopied A4 pages, a pencil, a black and red ballpoint pens, a ring-binder to keep the paper in and got told to get on with it.

When I asked why I had to take manual records first before entering the data I was generating into a computer, I earned a serious round of laughter from my new colleagues and one of them added, "you might as well forget any notion you have about getting your hands on a computer, because they are just too slow for us. And anyway, the IT Department won't issue one to any of us, because they think we are thick."

It was 1987, and information technology tools seemed to be the domain of a select few, and not for the common man.

In 1989, I was appointed Produce Merchandise Manager. My first action was to implement the conversion from paper systems to PC based procurement. Apart from the odd teething problem, it worked just fine, and the produce buyers and IT boffins learned to co-exist.

In 1997, the supermarket chain I was working for merged with another regional group to form a national business, and the buying offices were merged. I had the fortune to lead the Fresh Produce merchandise & procurement team for the entire company. On my first trip to the main buying office of our erstwhile competitor, I encountered the following situation:

The buyers had all been issued with computers three years prior. The machines were in pristine condition, due to the fact that they were sitting switched off on the buyers' desks, acting as rather large & expensive paperweights, instead of being used for their intended purpose. Meanwhile, the buyers were busy running around with their hands full with ring binders, A4 paper, and - wait for it - four different colour ballpoints, one for each wholesale merchant they were purchasing from!

The explanation offered was that "computers were a hinderance to the business. No self-respecting produce buyer could cope with negotiating price and entering data at the same time." Meanwhile, my original produce buying team had now had 8 years of experience in doing just that...



Within a week, the computers had been turned on, and the buyers had undergone a crash course on how to allow 1997's modern technology to contribute to making their lives easier. Fast forward to today...

Computers are not just a part of the landscape, but are in the process of getting smaller, smarter and, ultimately, putting on a disappearance act! We are now living in the era of the Internet of Things. Tablets, csv files, the cloud and 'on the run' internet connectivity are the norm. The opportunities for technology based innovation are endless, and The AgriChain Centre is in the thick of this innovation, providing data to its survey clients in a way that was unthought of even 5 years ago.

Dr Hans Maurer

Penetrometer- Am I Doing It Right?

Product firmness is one of the most important attributes consumers associate with eating quality and freshness. While every consumer might have different preferences, the general consensus is that a too soft / too hard piece of fruit or vegetable has passed the use by date, or it is not ready to eat.

From a grower perspective, knowing the firmness of a product helps in deciding the optimum time for harvest, so the product achieves the best eating quality by the time it reaches the consumer.

Firmness can be roughly assessed by squeezing the fruit between two fingers. However, this provides an approximate indication of the firmness, which is subjective, and at the same time, does not pick up on small firmness changes over time, particularly during the ripening process.

A more accurate and objective way to measure firmness can be obtained by using a tool called a penetrometer. A penetrometer provides a reliable measurement in Kgf, which is internationally recognised as a unit for determining the firmness of a product.

The use of penetrometers is simple. However, our experience teaches us that quality control staff do not always understand correct measurement procedures. Commonly asked questions by QC staff are: "how much should I peel the fruit?", or "how strong should I push the probe into the fruit, and when should I stop?", or "what tip size should I use for the different products?"

Here is a simple step by step guide on how to use handheld penetrometers correctly:

- The 3mm tip is used on small fruit like berries, 8mm tip is used on Peaches, Pears, Avocados and Kiwifruit and the 11mm tip is used on Apples.
- Peel one side of the product with the provided peeler by removing one slice of skin.
- Hold the fruit firmly and place it on a hard surface.
- Zero the penetrometer.
- Place the tip of the penetrometer on the pulp of the product and push it down slowly and gradually until you reach the line which is approximately $\frac{3}{4}$ of the length of the tip.
- Pull it out slowly and read the measure on the dial.
- If possible, repeat the process on both sides of the fruit for accuracy.



If you would like to know more about using penetrometers or other quality management tools and systems, contact Max Ciccioni to discuss your requirements, on 027 4451 309 or mciccioni@agrichain-centre.com

Relevant Links for Information on Using the Right Tools

- A 2019 Fresh Plaza article entitled "Smart Technology to Optimize Quality Control" reports on how technology out of the Netherlands is being used in the quality control and sorting of capsicums. [The article can be accessed here.](#)
- A 2015 article from Malaysian researchers entitled "Principles, Methodologies and Technologies of Fresh Fruit Quality Assurance" examines the principles of fruit quality and some of the equipment used to measure and achieve the required quality. [The article can be accessed here.](#)
- In 2019, the Fresh Produce Safety Centre Australia & New Zealand released Guidelines for Fresh Produce Food Safety. Section 10 of this guideline provides information on managing tools and equipment. [The guidelines can be accessed here.](#)
- A master's student at Michigan State University in the Department of Horticulture, discussed the importance of measuring fruit firmness with the Vegetable and Speciality Crop News in 2019. [The article and recording can be found here.](#)
- A short food quality tutorial on how to use a penetrometer to assess the quality of fresh produce [can be viewed here.](#)