10 Limitations of Traditional Temperature Data Loggers

And Why They're No Longer Adequate for the Cold Chain

Are you using a legacy temperature data logger? Maybe it's a USB model or perhaps something using a paper chart? If so, you're making important decisions based on limited data.

Most legacy temperature data loggers on the market today were designed only to document "cold chain compliance." That is, to determine if the trailer (or railcar) where the products were kept maintained the proper temperature in transit. Using these types of data loggers has several flaws:

- These loggers only provide forensic data, after-the-fact, about temperature excursions during segments of the product's journey. Because they're telling you a problem already exists or an excursion occurred, all you can do is react to a problem rather than prevent it. Ultimately, their benefit is to assign blame about who's responsible for a cold chain failure – and that blame is often assigned to the wrong party.
- They typically aren't used to monitor product from harvest to retail but only segments of the fresh supply chain journey, such as shipper to distribution center. This provides an incomplete history of the condition of the product and its remaining shelf-life.
- They're used at the trailer level and don't monitor or track the condition of the individual pallets on the trailer. Research has shown that temperatures vary from pallet-to-pallet based on post-harvest conditions and inconsistent temperatures in transit. These variations impact shelf-life.

The Bottom Line: Because legacy logging devices only record historical data, they cannot provide the information you need to proactively manage freshness and shelf-life, reduce waste, ensure delivered freshness or enable traceability in the event of a recall. In fact, these old-style devices may even provide you with a false sense of security about the safety and freshness of the product you receive because they provide incomplete information that can lead to bad decision making.

Is your data logger as antiquated at this old thermometer?

Here are 10 limitations of traditional data logging devices and why they're inadequate for reducing waste and improving delivered freshness:

1. **They may only monitor one segment of the supply chain providing incomplete visibility and information.** Traditional data loggers are generally not used with the product through the entire supply chain – from harvest to the store. Instead, they are often used for only a single leg (such as from shipper to the distribution center), limiting the value because you can only tell if the product had a temperature excursion during that portion of the journey. If the product had an excursion on another leg, you wouldn't know it, making the value dubious unless you aggregate data from multiple loggers – a labor-intensive and error-prone process.
2. **They are not autonomous,** so someone must retrieve the logger to read and collect the data. This requires manual intervention and increases labor costs and the chance for mistakes. There's no broad or automated visibility. You just have to keep forwarding emails with the data.
3. **Most are single use refrigeration compliance tools**, which are more expensive than reusable IoT temperature sensors that can have a functional life of three years or more, significantly reducing costs.
4. **Many models puncture the package** for the read connection. This makes the device unusable for additional shipment legs.
5. **Traditional loggers cannot provide you with track-and-trace data** to improve food safety and support more effective and efficient recalls.
6. **They cannot easily be associated with PTI, EPC or LPN data.** This makes it difficult to associate other product information with the data collected by the logger.
7. **They leave you a binary choice** (if used at the trailer level instead of the pallet level) when you receive the trailer: accept or reject. There's not enough information to enable more effective decision making. The result is increased (and potentially unnecessary) waste because some pallets in a shipment may be good while others may be bad. If you sample a bad pallet, you may be rejecting good ones. If you sample a good one, you may be accepting bad ones.
8. **They may not be able to alert you** when a pallet is at risk of an excursion to enable you to take preventative action. This again results in increased (and potentially unnecessary) waste.
9. **Traditional loggers cannot tell you when a pallet has shipped** or left the pack house or distribution center or help to promote on-time deliveries.
10. **They cannot be used to dynamically calculate remaining freshness** (shelf-life). As such, you cannot proactively manage your fresh food supply chain.

In short: These legacy devices were great technological innovations when they were first introduced, but they don't address today's increased requirements for food safety, freshness, transparency and waste reduction.

Introducing Zest Fresh

Zest Fresh™ is not a data logger. It is an autonomous cloud-based shelf-life and freshness management solution unlike anything else on the market today. Zest Fresh uses reusable wireless IoT sensors to autonomously collect data for the entire supply chain from harvest to retailer (or any leg you want to manage). Zest Fresh then utilizes data about the time, location, conditions and temperature beginning with the harvest and through processing and distribution

to dynamically calculate the remaining shelf life for each pallet of produce. It immediately alerts you when there is an issue, so you can maximize value and freshness.

By tracking the handling and dynamic shelf-life of each pallet from the field, Zest Fresh enables seamless matching of a retailer's freshness requirements (for example, two days of shelf-life for sale and five more for customer consumption) with the actual produce freshness. Time, temperature and location are wirelessly monitored for each pallet of produce providing complete visibility to the pallet's adherence to the grower's process and determining the best fit to pending retail customer needs. Tags can be easily associated with product information to provide comprehensive data about the pallet and the product.

Zest Fresh uses autonomous IoT sensors and cloud-based analytics to improve delivered freshness at the pallet level

All of this is available through dashboards, mobile apps and exception-driven alerts, allowing you to proactively track and manage the freshness, status and safety of your product through the entire supply chain to facilitate intelligent decision making.

By modernizing your cold chain monitoring with Zest Fresh, you'll improve delivered freshness, reduce waste, and improve product margins and food safety capabilities with true, cloud-based track-and-trace – with blockchain support.

For more information on Zest Fresh and how it can improve your fresh food supply chain please contact us at:

+1 408-200-6500

info@zestlabs.com

Or visit us at:

www.zestlabs.com