Feeding the Food Supply Chain With Data

The Startup Lab at GS1 Connect

GS1 Connect® is the annual user conference and exhibition hosted by GS1 US® that highlights the use of GS1 Standards to help drive innovation and business opportunities. Since 2019, the Startup Lab at GS1 Connect has been showcasing emerging technologies that provide GS1 US members with new ideas and solutions.

The Challenge

One-third of all food is wasted before it is consumed. Strella Biotech attributes this waste to two inefficiencies in the food supply chain: lack of data about the quality of perishable products and siloed supply chain partners (in other words, any data each partner generates is rarely passed down to other players as the product moves).

Without access to that kind of information, the produce supply chain defaults to traditional first-in first-out (FIFO) inventory management—an approach that works very well for static commodity objects that do not have a dynamic shelf life. However, for perishable commodities—products with shelf life that is not necessarily linear—FIFO is inefficient at minimizing shrink and maintaining consistent quality. Consider, for example, that a traditional FIFO system will always prioritize yesterday's avocados ahead of today's shipment even though the quality of the newly arrived fruit may be better.

Monitoring U.S. produce represents a nearly $7 billion market opportunity for Strella Biotech.

The Innovation

"If you've ever put an unripe banana next to a ripe one, you see that it ripens a lot faster than if it was by itself," explains Katherine Sizov, Founder and CEO, Strella Biotech. "This is because fruits communicate with each other using gases as they ripen. We've created technology that allows us to intercept those communications. We couple that with IoT and actionable decision support to help our customers make better supply chain decisions."

With these innovations, Strella Biotech enables first-expired first-out (FEFO) inventory management. This approach to store distribution removes in-store pressure to manage produce inventory, as well as the associated labor costs. When upstream decisions lead to shipments delivered in order of expiration, grocery employees can then follow the much simpler, more repeatable FIFO methodology.

First-Place Winner

Strella Biotech was selected as the first-place winner of the 2021 Startup Lab Pitch Competition based on product originality, usability, societal impact, and other criteria. It emerged as the first-place winner among a field of eight startups.

Technology Focus
IoT, Artificial Intelligence

Industry Application
Grocery, Foodservice

Business Processes Impacted
Inventory Management
Traceability
Quality Control

The Power of Partnerships

Companies like Strella Biotech can help GS1 US members, solution providers, and partners maximize adoption and use of GS1 Standards, enabling scale, efficiency, and innovation.

Strella Biotech offers these benefits to packers, importers/exporters, and retail grocers:

- Unlock new and smarter decision-making. Data from Strella Biotech informs business decisions for logistics, demand planning, calculated turns, dynamic pricing and promotions, as well as supporting online differentiation and customization for consumers with varying preferences.

- Reduce waste and lost revenue caused by maturity-related issues. Strella Biotech's solution monitors packer storage rooms and provides inventory sequences based on maturity so that the most mature fruit can advance first in the supply chain.

- Improve quality management. At present, quality is measured through very manual processes. Quality control teams perform physical sampling of produce as it moves from enterprise to enterprise. These samples are statistically insignificant and require human intervention. Often, the quality checks occur too late; the change in the fruit must occur before it can be observed through sampling.

- Avoid high in-store labor costs. Because Strella Biotech enables FEFO inventory management, it removes in-store pressure to manage product inventory. With shipments delivered in order of expiration, retail grocers can revert to traditional FIFO management.

GS1 US's Role

Strella Biotech is already engaging with GS1 Standards by tracking Serial Shipping Container Code (SSCC) numbers to identify which lots are moving from enterprise to enterprise. Doing so makes it possible to tie Strella's maturity data to certain lots and thus make maturity-driven decisions. Looking ahead, the organization plans to do a deeper dive into all available GS1 Standards—especially Electronic Product Code Information Services (EPCIS) and other standards in the "Share" category.

"Strella Biotech is an exciting example of true innovation in the grocery supply chain," says Melanie Nuce, Senior Vice President, GS1 US. "Strella's proprietary sensors and data analytics—supported by GS1 Standards—have the potential to revolutionize the way packers, distributors, and grocers monitor produce maturity and quality. It is a prime example of the power of capturing and sharing data throughout a supply chain."

Innovate with Us
Learn more about innovation at GS1 US.

About Strella Biotech

Strella Biotech uses proprietary sensors + IoT networks + data analysis to interpret shelf life.

Before produce changes in quality, it emits gases that Strella sensors can detect. Stella Biotech translates those emissions, applies environmental and upstream datapoints, and analyzes fruit behavior to determine fruit maturity. The company believes in working hand in hand with clients to help make the best supply chain decisions for their businesses.

By feeding supply chain decision-making with data, Strella Biotech aims to help customers make money while reducing food waste and increasing the quality of the produce people consume.
To learn more, visit **www.strellabiotech.com.**

About GS1 US
GS1 US is a neutral, not-for-profit information standards organization that drives industry collaboration through the use of GS1 Standards—the most widely used supply chain standards in the world. The U.P.C.* barcode, the most recognizable example of a GS1 Standard used to power commerce, is scanned more than six billion times per day globally. More than 25 industries rely on GS1 US to uniquely identify products, places, and other assets, and GS1 Standards to create a foundation for emerging technologies that improve security, visibility, interoperability, and trust in the supply chain. Unique identification makes it possible to take advantage of the technologies of the future—connecting consumers, patients, businesses, and products.
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