

# Optimizing Profit Margins in a Changing Retail Grocery Industry



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## Introduction

When the colorations in a chameleon’s environment change, it adapts by changing the color of its skin.<sup>1</sup>

Business is no different.

When Netflix started in 2007, it delivered DVDs to consumers’ doorsteps. Recognizing the impact of high speed Internet, online subscription sales and streaming, Netflix morphed itself into a subscription streaming service and moved with the market.<sup>2</sup>

Ironically, Netflix approached Blockbuster to form an alliance in 2007, but was rebuffed. Blockbuster stuck with brick and mortar DVD retail sales, did not move with the market and ultimately failed.<sup>3</sup>



Red Box learned from both. It’s moving into online video streaming, but it continues to thrive with a physical DVD delivery model, succeeding because it recognizes that there still is a physical marketplace for DVDs, as long as the company protects its profit margins by using a vending machine-style physical delivery model instead of investing into large retail properties. Red Box is an example of a company that is adapting and moving in step with the online market while still maintaining its physical presence.<sup>4</sup>

In many respects, retail grocery stores are in a similar situation. Not only must they respond to a changing market, but they must act strategically and operationally to grow their businesses, transform themselves, protect their product profit margins—and offer a compelling value to their customers that offsets new competitive challenges, such as Amazon’s entry into the food and beverage market with its acquisition of Whole Foods.<sup>5</sup>

This paper focuses on how retail grocers can improve product profit margins by reducing food waste, a major margin eater; paying attention to other margin-eating factors in their fresh food supply chains; and protecting the strength of their brands in their customers’ eyes. It does this by:

- Examining the farm to table fresh food supply chain and targeting those areas in the supply chain that contribute the most profit “bleed.”
- Outlining a series of steps that retail grocers can take to eliminate these holes and improve supply chain performance.
- Examining how food retailers can build brand value by capitalizing on their natural strengths and innovations.

By taking these steps, retail grocers can get away from historical budget practices like factoring in an automatic 30% loss of produce due to waste.

They can replace this practice with proactive measures that reduce food waste altogether—and improve the bottom line.

## Taking a look at the fresh food supply chain and its profitability vulnerabilities

In a simplified sequence of events, the fresh food supply chain begins with producer-farms and flows through shippers, wholesalers/distributors, retail outlets and consumers. Minimally, this means that many hands touch the process, and that everything needs to go right in each supply chain transaction for consumers to be consistently satisfied and for food retailers to realize acceptable product profit margins.

Unfortunately, everything *doesn't* always go right. Here are some key points along the supply chain where trouble spots emerge that can impact profits:

### *Harvest and cut-to-cool process*

The best way to preserve freshly picked produce freshness is to harvest the produce in the field and immediately begin cooling it to remove field heat. This process is known as harvest cut-to-cool. It is absolutely essential for food freshness preservation in every farming operation and particularly in warmer climates or at warmer times of day.

Harvest cut-to-cool is a necessity because produce has an inherent “freshness capacity.” Depending on how and when produce is picked in the field, this capacity can vary from pallet-to-pallet of produce, even if the produce pallets being picked leave the farm at the same time and carry the same “harvested on” or “best by” dates.

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Lack of supply chain visibility makes it more difficult to avoid food waste and to manage for profit

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Retailers experience profit risk on the farm and in the cut-to-cool process because they often don't have visibility of what is happening at this early point in the fresh food supply chain. This lack of visibility makes it more difficult to avoid food waste and to manage for profit because you don't know if the harvesting and cut-to-cool processes are being diligently followed for every pallet of produce you receive—nor do you know which pallets have shorter shelf lives because they were left in the field, or they were being picked at mid-day when heat is a compromising factor. This lack of visibility increases retail product profit margin risk because retailers have no way of predicting or preventing the food waste at the pallet level that squeezes product profit margins.

Here is an example use case:

Zest Labs performed an analysis of data collected on California strawberries harvested during the warm summer months of August and September. The analysis revealed that pallets experienced very different cut-to-cool times. Some were also exposed to high temperatures for long periods of time before reaching the packing house.

There were also other factors to consider. For example, strawberries picked in the cool, early morning hours were likely to have longer shelf lives than strawberries picked during the middle of the day, when the heat was most intense. Despite these variegated factors, all of these strawberries shipped out as a single lot and were labeled by the producer with the same “best by” or “harvested on” dates. There was no way of telling through visual inspection which strawberries were picked when, and which were more prone to early spoilage and needed to be moved to market sooner.



## **Transportation**

Visibility of produce freshness capacity—and waste avoidance—doesn’t stop at the farm.

In many cases, produce ships from the farm to a warehouse or distribution center before it is sent on to retail stores. Retailers might not have visibility of in-transit factors that also contribute to premature spoilage and to other conditions that erode product profit margins.

Transportation risk management begins at the point when pallets are loaded from farm or pack house to truck, with produce being loaded into refrigerated trailers.

To promote food safety and freshness, the Federal Motor Carrier Safety Administration (FMCSA) mandates the use of data loggers in commercial trucks to record safety, performance and environmental data from multiple points throughout the truck and trailer as a means of monitoring for food preservation, safety and performance, as well as for recording how long drivers are out on the road without a break.<sup>6</sup>

For food retailers, these data loggers have helped with transportation safety and also with monitoring the real time status of tracking and keeping produce cool in the trailer while it is on board trucks. Unfortunately, data loggers don't get down to the pallet level when it comes to monitoring food for freshness. Without this pallet level visibility, transporters, and ultimately retailers, lack precision data that can be acted on to prevent waste and preserve profits.

Since data loggers are employed for a myriad of monitoring tasks that go beyond temperature and humidity monitoring for food freshness in truck trailers, they can fall short when it comes to precision monitoring of foods for freshness because their use is spread over a wide variety of different applications and is not specifically designed for food waste prevention alone. For instance, data loggers can be deployed to notify a driver when a door is left open that could compromise the freshness of a produce cargo, or to monitor the temperature at certain locations within a truck trailer, but they can also be deployed to monitor how long a driver has been on the road without a break. What a data logger *can't* do is tell you with precision how compromising factors during transit affect each pallet's shelf life.

The new federal safety focus on reduced drive times for drivers and for which data loggers are used, also place limits on-road hours and introduce supply constraints for everyone who depends on trucking. This raises transportation rates, a problem that exacerbates when the trucking industry is experiencing a 50,000 driver shortfall nationwide, according to American Trucking Associations' statistics.<sup>7</sup>

Together with food waste risks, driver shortages and rising transportation rates impact retail grocery product profit margins.<sup>8</sup>

### **Warehousing and docks**

Fresh food spoilage management and profit margin protection continue to be problems as goods leave trucks and are unloaded at warehouses, distribution centers, and loading docks at retail stores.

Many warehouse management systems (WMS) in use at warehouses and distribution centers don't track operations in the yard. Consequently, if a crew gets busy, it can forget about the truck trailer of lettuce that is sitting in the yard for several hours in 90-degree weather. The impact on shelf life and associated spoilage risk can also increase at retail store unloading docks, because crews get busy and produce isn't always unloaded promptly and placed in proper cooling conditions.



Within warehouses and distribution centers, there are additional fluctuating environmental conditions that can affect food shelf life. Warehouses might fail to zone-cool areas of their facility so that certain types of produce are placed in the right cooling zones.

## How to win the operational war on profit margin bleed

There are numerous points along fresh food supply chains where vulnerabilities exist, and this paper has discussed several of them.

Knowledge of where these supply chain profit margin bleed “holes” are is the first step in crafting an operational plan of attack to reduce vulnerabilities so you can actively manage profit risk and improve your profit margins. Refusing to accept the conventional 30% loss of produce to spoilage is a second step.

### *Preventing food spoilage in the fresh food supply chain*

The reason that produce spoils during transit, at warehouses, and at retail stores differ widely. However, another common thread that they share is that produce is trackable and traceable. A plethora of sensors, data loggers and track and trace solutions are on the market that can inform suppliers, distributors and food retailers where a given item is at any point in time. These systems and devices can issue actionable alerts when temperatures or other relevant environmental factors such as humidity for specific types of produce fall out of range. Examples might be when a seal on a container is broken or if refrigeration in a warehouse begins to fail. When these environmental monitoring technologies are linked into a supply chain that suppliers and retailers can all participate in, they create visibility and deliver actionable insights that can assist retailers, suppliers and distributors in preventing food waste and in improving their product profit margins.

Unfortunately, these solutions don't go far enough when it comes to proactive profit margin management for waste, nor do they go far enough when it comes to giving growers, shippers, warehouses and retail stores precision freshness readings for produce on pallets that might have been left in the field at warm temperatures too long during the cut-to-cool process, even though they shipped at the same time as other pallets that did not have temperature exposure. In a case like this, all pallets will likely be labeled with the same “best by” or “harvest” dates, even though a subset of them had been left out at temperatures that would cause them to spoil sooner.

Similar situations exist during transit, in warehouses and even on retail loading docks. Because all pallets receive the same “best by” date, no one has direct visibility into what is going on with pallets at an individual level, so they can expedite pallets with lower freshness scores quickly to nearby markets and ship the produce with longer shelf lives to more distant destinations.

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The Zest Labs ZIPR™ Code addresses this problem by using sensors combined with proprietary algorithms that dynamically calculate the actual freshness score of each individual pallet of produce based on the specific product types, the growing location and actual harvest and processing conditions.

Zest Labs' Zest Fresh™ is an end-to-end fresh food supply chain solution that gives growers, shippers and retailers total visibility of every farm to table food transaction. Within this fresh food supply chain network, each individual pallet of produce has its own unique ZIPR Code, which continuously calculates the freshness of each individual produce pallet as it moves through the supply chain.

Growers, distributors and retailers can immediately see which pallets are most perishable and need to be sourced to markets faster. They can also proactively make decisions as to where to ship these products, shipping pallets with higher freshness scores to more distant locations and sourcing products with lower freshness scores to closer retail locations. The solution has been shown to improve delivery freshness and reduce shrinkage by 50% or more.

The net result is improved supply chain visibility, greater ability to proactively avoid waste, better product profit margins—and improved bottom lines.

### ***Working with your suppliers***

Since Zest Labs ZIPR™ Codes on individual produce pallets are continuously recalculated throughout the farm to retail process, retailers get granular visibility into their fresh foods supply chains, and into which suppliers consistently do the best job in managing food freshness and preventing spoilage. The same system can assist retailers in identifying suppliers that have difficulty preserving food freshness. Retailers can work with these suppliers to help their suppliers improve performance. This can be done by providing suppliers with specific metrics, goals and performance results.

By providing metrics and results across the fresh food supply chain, growers, processors and retailers can lower spoilage risks, improve product freshness and proactively improve product profit margins. This is also an area where a third party specializing in supply chain implementation and management, metrics and performance achievement can provide specialized expertise and assistance.



## Protecting your brand

Internet of Things (IoT) sensors and solutions like Zest Fresh™ can also help you to identify food spoilage risks as they emerge along the fresh food supply chain. One of the things they do is assist in tracking and tracing foods when an issue like contamination arises. This is critical to protect the safety of your customers and the value of your brand—and it can have significant financial implications if it isn't done.<sup>9</sup>

To enable food track and trace from farm to table, it is also helpful to seek out solutions that support blockchain technology.

With blockchain, as each transaction occurs along your supply chain, that transaction is encoded into a block of digital data and uniquely signed or identified. Every individual transaction that occurs in the supply chain is represented as a block in a chain. Each block is connected to the block that occurred before it and the block that followed it. The sequence of blocks is chained together, and no block can be altered or inserted between two existing blocks. The end result is a secure and immutable log of events that enables you to track and trace each shipment and intercede if needed.

## Reinventing strategy for next generation retail

By managing for food freshness at the pallet level and at every point of the fresh food supply chain, and providing visibility and actionable insights to producers, shippers, warehouse, retail stores and every other supplier stop point along this supply chain, food retailers can systematically reduce waste, enlist their suppliers and business partners in the process, and improve product profit margins and financial bottom lines.

They can work with farm producers, processors, transporters, distributors and wholesalers when they receive alerts and indications of food freshness status that are below what they expect, and they can also detect and predict patterns of food freshness and spoilage risk that enable them to take action proactively, so waste can be avoided by routing more perishable foods to more proximate markets, or by aligning inventory so that foods with lower freshness scores are sold first.



Understanding and proactively preventing food waste before it occurs benefits any food distribution and retail strategy, whether it is brick and mortar, e-commerce, direct from farm to home, or any other combination. Retailers can also build on the many years of expertise they already have in brick and mortar food distribution cold chains — a discipline that their online

competitors are still learning — given their limited experience with the brick and mortar retail market.

When grocery retailers use fresh food supply chain and IoT solutions like Zest Fresh™, which also includes blockchain technology, they also add transactional track and trace mechanisms that can account for every transaction along the food supply chain. End-to-end track and trace that is powered by Internet of Things sensor technology, food freshness grading, and secure transaction logging of every event that occurs in the fresh food supply chain, provides grocery retailers a visible and measurable way that they can work with all of their suppliers to enhance on-time, most-fresh performance and reduce waste.

Collectively, these techniques improve product profit margins. Just as significantly, they build consumer faith in your brand, and that's priceless.

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