

REPORT

How E-Commerce Strategies Can Reduce Wasted Produce

Progress on the Path to Cut Food Waste in Half by 2030



Executive Summary

There is an opportunity for growing e-commerce markets to support food waste reduction. Total e-commerce sales grew nearly 60 percent from March 2020 to May 2022.¹ This trend will likely continue for grocery: in 2021, grocery executives expected e-commerce penetration for their companies to more than double over the next five years.² At the same time, e-commerce companies that specialize in surplus or imperfect produce continue to grow in popularity, demonstrating consumer demand for imperfect produce via digital channels.

After a recommendation by the [Pacific Coast Food Waste Commitment](#) (PCFWC) Produce Working Group, the PCFWC worked with Cascadia Consulting Group (Cascadia) in 2021-2022 to explore how grocery retailers can leverage e-commerce solutions to reduce produce department waste. Cascadia researched potential solutions and recommended options for retailers to consider.

Although there is still limited data about any e-commerce practices traditional grocery retailers have used to reduce food waste, this study identified the following strategies:

- **Offer produce of varying conditions via e-commerce platforms and pair with educational messaging.** The research found that there is an opportunity to create an e-commerce channel for imperfect and overripe produce, especially if consumers are reassured that it is safe to eat and has environmental benefits.
- **Partner with existing e-commerce platforms to sell overripe items.** For retailers concerned about adding new internal processes or developing their own e-commerce channels, popular new third-party platforms can help them sell more food nearing the end of its shelf life that might otherwise go to waste.
- **Offer food subscriptions.** Recurring e-commerce grocery orders of products that consumers choose may enable retailers to more accurately forecast demand. A subscription that includes one or more products nearing their expiration dates may help retailers quickly move products that are likely to become waste.
- **Reduce handling of produce items.** Storing produce for e-commerce orders back of house, rather than front of house where produce is typically stored and is handled by both staff and consumers, may minimize shrinkage from overhandling and preserve quality produce for e-commerce customers.

As consumers continue to buy groceries online, there is an opportunity for grocery retailers to better align their e-commerce strategies with their food waste reduction commitments. Looking at e-commerce solutions for produce specifically is important because PCFWC data shows that fruits and vegetables make up 38 percent of all food waste in the United States in 2021.

¹ McKinsey & Company, 2022. "The State of Grocery in North America." <https://www.mckinsey.com/industries/retail/our-insights/the-state-of-grocery-in-north-america-2022>

² McKinsey & Company, 2022 "The next horizon for grocery e-commerce: Beyond the pandemic bump." The next horizon for grocery e-commerce | McKinsey

Strategies for E-commerce to Prevent Produce Waste

1 More e-commerce options for different produce conditions, paired with educational messaging

Allowing customers to choose the condition of the produce they buy may improve consumer trust, increase the rates at which customers buy produce online, and increase sales of unique and imperfect items. Across many e-commerce platforms, customers cannot choose the ripeness, size, or condition of produce in their orders. Meanwhile, if staff choose produce that is blemish-free and with ample shelf life remaining to fulfill e-cart orders, riper or blemished produce may be left behind. Studies have found that produce labeled “ugly” and either given a moderate price discount or paired with educational messaging has a higher chance of being sold than the same produce without a label or education. One set of researchers concluded that messaging around food waste and the quality of imperfect produce helps shoppers see the value in the produce beyond its appearance.³

The research indicated two potential challenges to implement this solution:

- **Inventory management and communication** – It may not be possible to maintain inventories of produce at different ripeness levels or with minor damage, plus then communicate available inventory at point of sale.
- **Labor and staffing** – A new specification would require staff training around new order fulfillment processes and may require additional communication with customers to clarify inventory and condition of items.



Case Study: FreshDirect

FreshDirect uses its web platform to tell the story of unique products and create demand for these products. For instance, in the first six weeks that hens lay eggs, the eggs are smaller than the ones you typically see in a grocery store. FreshDirect has created a steady demand for these smaller eggs by indicating their quality with a five-star rating system and working with an organic egg producer to tell the story of the farm and the eggs on FreshDirect’s e-commerce platform. Giving customers the option to purchase nontraditional products while educating them about the uses and quality of the product increases the sale of unique items.⁴

³ S. Mookerjee, Y. Cornil and J. Hoegg, “From Waste to Taste: How “Ugly” Labels Can Increase Purchase of Unattractive Produce,” 2021. <https://journals.sagepub.com/doi/full/10.1177/0022242920988656>.

⁴ NRDC, 2017. “Wasted: How America is Losing up to 40 Percent of its Food From Farm to Fork to Landfill - Second Edition of NRDC’s Original 2012 Report.” <https://www.nrdc.org/sites/default/files/wasted-2017-report.pdf>

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E-commerce partnerships for surplus produce

Apps and technology platforms are available for grocery retailers to implement alongside their own e-commerce platforms to help sell food nearing the end of its shelf life. This research found evidence of success for several solutions in the U.S. market, such as Too Good To Go⁵ and Flashfood,⁶ which can help retailers reduce food waste by developing a new sales channel to sell their surplus to a targeted, more waste-conscious set of customers. While this study did not find any research or data that explicitly indicated a relationship between this technology and reduced produce department waste in grocery stores, research shows that these platforms are growing, and so is their potential to help stores reduce waste.

Case Study: Flashfood

The Flashfood app allows customers to select and purchase fresh food nearing its best-before date at reduced prices. According to a 2020 press release from The GIANT Company, in a twelve-week pilot at select Pennsylvania stores, over 11,000 shoppers took advantage of deals on Flashfood that resulted in “tens of thousands of pounds of food” being diverted from landfills. The press release announced that The GIANT Company will expand its partnership with Flashfood to an additional 33 stores.⁷

⁵ Too Good to Go. Accessed November 2022. <https://toogoodtogo.com/en-us/>

⁶ Giant, 2020. “The Giant Company Expands Partnership with Flashfood.” Accessed November 2022. <https://giantfood-stores.com/pages/expands-partnership-with-flashfood>

⁷ Giant, 2020. “The Giant Company Expands Partnership with Flashfood.” Accessed November 2022. <https://giantfood-stores.com/pages/expands-partnership-with-flashfood>



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Food as subscription service

The research shows that e-commerce grocery subscription services incentivize customers to place smaller and more frequent grocery orders, thereby reducing food waste in the home and creating more value for the customer. Recurring e-commerce grocery orders enable retailers to more accurately forecast product demand, which may reduce food waste in grocery settings.⁸ E-commerce grocery subscriptions may also enable stores to promote specific items to consumers for inclusion in their weekly grocery order. The growth of subscription services, such as meal kit delivery subscriptions and subscriptions to orders of imperfect foods, indicates that there is consumer interest in this concept.



Case Study: Imperfect Foods

Imperfect Foods started to sell directly to customers the cosmetically challenged fruits and vegetables that would have otherwise gone to waste. According to Imperfect Food's 2021 Trend Report, their active customer base grew 40 percent from 2020 to 2021. Net sales tripled between the end of 2019 and 2020, while average order value rose nearly 70 percent year over year as Imperfect Foods added robust grocery offerings alongside ugly, unique produce.⁹

⁸ ReFED Insights Engine. Accessed November 2022. <https://insights.refed.org/>

⁹ Imperfect Foods, 2021. "The State of Online Grocery - 2021 Trend Report by Imperfect Foods." <https://www.imperfectfoods.com/online-grocery-shopping-trends/>

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Reduced handling to prolong shelf life

Reduced handling through the reduction or elimination of front-of-house produce displays has emerged as a low-cost waste prevention solution among grocery retailers. Reduced handling may minimize shrink and preserve quality produce for e-commerce customers. Less product movement by both staff and customers reduces damage to fruits and vegetables and ensures that more products can be sold to consumers in good condition.¹⁰



Case Study: Stop & Shop

In 2007, Stop & Shop/Giant-Landover saved an estimated \$100 million by using an array of strategies that included using less-full produce displays, stocking fewer types of perishables, and reducing product handling.¹¹

Moving forward, the PCFWC will continue to explore opportunities with its signatories to pilot these e-commerce food waste reduction strategies. This research aims to help decrease risk and solidify the business case for more retailers to do the same.

¹⁰ NRDC, 2013. "Wasted: How America is Losing up to 40 Percent of its Food from Farm to Fork to Landfill." <https://www.nrdc.org/sites/default/files/wasted-food-IP.pdf>

¹¹ NRDC, 2013. "Wasted: How America is Losing up to 40 Percent of its Food from Farm to Fork to Landfill." <https://www.nrdc.org/sites/default/files/wasted-food-IP.pdf>

Acknowledgments

About the Pacific Coast Food Waste Commitment

The Pacific Coast Food Waste Commitment (PCFWC) arose out of the Pacific Coast Collaborative in 2016 and is an innovative public-private partnership made up of West Coast jurisdictions, U.S. food industry leaders, and nonprofit resource partners that together seek to eliminate food waste in the region by 50% by 2030. Learn more about the initiative and its members at pacificcoastcollaborative.org/food-waste.



Signatory Members

As of Fall 2022



About the Pacific Coast Collaborative

The Pacific Coast of North America represents the world's fifth largest economy, a thriving region of 55 million people with a combined GDP of \$3 trillion. Through the Pacific Coast Collaborative (PCC), British Columbia, Washington, Oregon, California, and the cities of Vancouver B.C., Seattle, Portland, San Francisco, Oakland, and Los Angeles are working together to build the low carbon and resilient economy of the future. Learn more at pacificcoastcollaborative.org.