The Hong Kong University of Science and Technology

Dept of Information Systems, Business Statistics and Operations Management
Dept of Industrial Engineering & Decision Analytics
Joint Seminar Announcement

Multiplicity in Product Expiration Dates and Food Waste in Grocery Retail Stores

by

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Date	:	**18 July 2025 (Friday)**
Time	:	**10:30 – 11:45 AM**
Venue	:	**Case Room 1001, 1/F, LSK Business Building**

Abstract:

Problem definition: A grocery retailer incurs expiration waste (EW) at its store when a perishable product crosses its expiration date without being sold. One frequent scenario accounting for EW occurs when units of a given product with multiple expiration dates are simultaneously available on store shelves. In such situations, a consumer is likely to purchase a later-to-expire unit, which in turn increases the likelihood of EW of a sooner-to-expire unit. To mitigate the occurrence of such multiple-dates-led expiration waste (MDEW), retailers undertake a variety of interventions, including a price markdown of sooner-to-expire units and in-store inventory rotation. Most retailers, however, are often unaware of the extent of MDEW in their stores and, thus, are constrained in mitigating its occurrence.

Methodology/results: We provide the first large-scale evidence of the MDEW share of EW. We collaborate with a grocery retailer to compile a multi-category-multi-store dataset (~15.3 million sales transactions) on grocery products with three to 14 days of shelf life. Across these products, at the product-store-week level, EWas a percentage of sales is 23% on average. To quantify MDEW's share, we propose a novel and easy to implement methodology for computing its lower and upper bounds. In our retailer's context, the MDEW's lower and upper bounds equal 25% and 52% on average of the generated EW, respectively.

Managerial Implications: Our study highlights MDEW's material share in generating EW; thus, it provides a solid premise for future in-depth academic investigation on MDEW management. Furthermore, for practitioners, it provides an immediately actionable methodology to measure MDEW in their store operations. Empowered with such a measurement ability, retailers can better plan their EW waste management interventions.

Bio: Nitish holds a PhD in Management Science from INSEAD. His research interests focus on global supply chains, and on the use of big data and empirical methods to improve supply chain management. His work has appeared in Management Science, and Operations Research and won prestigious student paper competitions. Before joining the PhD programme at INSEAD, Nitish worked at a real estate firm and in the technology industries. Nitish has an MBA degree from the Indian School of Business and Bachelors and Masters Degrees in Mathematics and Computing from Indian Institute of Technology, Delhi, India.

All interested are welcome!

Enquiries: Dept of ISOM