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Dynamic discounting and food waste reduction in retail

A key strategy for retailers to reduce food waste is the use of dynamic discounting of perishable food items. Dynamic, expiration-data-based pricing can significantly reduce food waste and increase profitability. The increasing use of electronic shelf labels in retail also makes such discounting practices easier to implement.

Our research has focused on the potential of a last-two-days discounting policy (where both items expiring today and tomorrow are discounted). Analyses based on typical retail settings show that this strategy clearly outperforms simpler strategies. On average, this approach reduces waste by one-third while still improving profits and not compromising fill rates.

The analyses also show that retailers need to carefully assess the customer behaviour. Key questions to consider are to what extent customers who would normally pick items with the longest shelf life can be swayed by discounts, and to what extent customers buy expiring items even without the offer of discounts.

Overall, a dynamic approach tailored to inventory age, customer mix, and demand volatility can do much better than fixed markdowns. The implication of that is also that the often quite high discount levels used in practice might not always be necessary.

Overall, the research offers a data-driven, operational model to support discount strategies for perishable goods that improve profitability and decrease food waste ■