

## Optimal lot sizing for deteriorating items with expiration date

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### Abstract

Inventory models with deteriorating items, season pattern demand, expiration, and backordering, though common in practice; have received little attention from researchers. The objective of this study is to develop an inventory model of season pattern demand with expiration date when the product in stock deteriorates with time. An algorithm is presented for determining an optimal replenishment cycle, a shortage period and an order quantity such that the total profit per unit time is maximized. The model for price discount is developed to compare with the model without price discount. Numerical examples are given to illustrate the model.

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