Online policy selection for inventory problems

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Résumé

After a general presentation of research problems in the field of food supply chain decarbonization, we will focus on a recent work on online inventory problems. These are decision problems where at each time period the manager has to make a replenishment decision based on partial historical information in order to meet demands and minimize costs. To solve such problems, we build upon recent works in online learning and control, use insights from inventory theory and propose a new algorithm called GAPSI. Our method is illustrated in the context of a complex and novel inventory system involving multiple products, lost sales, perishability, warehouse-capacity constraints and lead times. Extensive numerical simulations are conducted to demonstrate the good performances of our algorithm on real-world data.

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