



Multi-actor design of low-waste food value chains through the demonstration of innovative solutions to reduce food loss and waste



PRACTICE ABSTRACT No: 8

Reduce retail food waste with forecasting

The Swedish University of Agricultural Sciences has developed an innovative forecasting software aimed at reducing food waste, particularly in the fresh fruits and vegetables sector. This software utilizes cutting-edge machine learning and artificial intelligence techniques to achieve its goals. By analysing sales data from three Italian stores, which have accumulated years of data specifically from the fresh produce department, the software generates models that focus on daily sales forecasts for a specific set of crucial products identified by the stores.

The algorithm powering the forecasting software considers various factors to make accurate predictions. It considers the previous 30 days of sales data, as well as the day of the month, month of the year, and day of the week. Additionally, it factors in information about holidays, pricing, and promotional periods to predict the quantities of each product that will be sold. To evaluate the accuracy of the model, forecasts have been generated for an entire year and compared against the actual sales data recorded on corresponding days.

The performance of this model represents a significant improvement over current practices, demonstrating an approximate 50% enhancement in the accuracy of the forecasts.

The next step involves integrating the software into the retail stores and conducting tests to assess its effectiveness in real-world settings, to evaluate how the availability of more accurate sales forecasts can reduce the frequency and extent of food waste at retail stores.

Author(s)

Christopher Malefors (MATO)
Mattias Eriksson (SLU)
Clara Cicatiello, Roberta
Pietrangeli, Marco Nasso,
Emanuele Blasi (UNITUS)

Contact

Clara Cicatiello
cicatiello@unitus.it

Country/region

Italy



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Additional information

Food waste in the European retail sector

The food waste at the retail stage in Europe amounted to approximately 4 million tonnes of fresh mass in 2020. This accounts for almost 7% of the total food waste across the entire supply chain.

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ABOUT LOWINFOOD

The LOWINFOOD project, launched in 2020 and coordinated by the University of Tuscia, Italy, is working to deploy and improve a set of 14 innovative solutions to the food waste problem, by demonstrating their effectiveness and market potential. The core activities of the project are all focused on the evaluation of the efficacy of these innovations in reducing food losses and waste, in terms of the amount of food waste avoided as well as their environmental and socio-economic impact.

CONSORTIUM



COORDINATOR



Matomatic



CONAD



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Prevedere le vendite per ridurre gli sprechi alimentari nella distribuzione

La Swedish University of Agricultural Sciences ha sviluppato un innovativo software di previsione delle vendite con lo scopo di ridurre gli sprechi alimentari nella filiera dell'ortofrutta. Il software utilizza tecniche avanzate di apprendimento statistico e intelligenza artificiale per prevedere le vendite di prodotti ortofrutticoli nei supermercati. Nell'ambito del progetto LOWINFOOD, il software viene testato in tre punti vendita della grande distribuzione, situati in Italia. Basandosi sulle serie storiche di dati di vendita del reparto ortofrutta, il software genera modelli che restituiscono previsioni di vendita giornaliere per un insieme specifico di prodotti chiave.

L'algoritmo che alimenta il software valuta diversi fattori per garantire previsioni accurate. Prende in considerazione i dati di vendita dei 30 giorni precedenti, il giorno del mese, il mese dell'anno e il giorno della settimana. Inoltre, tiene conto delle informazioni sulle festività, sui prezzi e sulle offerte promozionali per prevedere la quantità venduta di ciascun prodotto.

Per valutare l'accuratezza del modello prima dell'inizio del test, sono state generate previsioni su un intero anno (già trascorso), confrontandole con i dati di vendita reali registrati nei giorni corrispondenti. Le prestazioni di questo modello rappresentano un significativo miglioramento rispetto alle pratiche attuali di previsione delle vendite attive presso i punti vendita considerati, dimostrando un miglioramento di circa il 50% nell'accuratezza delle previsioni.

Il passo successivo prevede l'integrazione del software in più punti vendita e l'esecuzione di test per valutare l'efficacia in contesti reali, valutando in che misura la disponibilità di previsioni di vendita più accurate è in grado di ridurre la frequenza e l'entità degli sprechi alimentari presso i punti vendita.

This Practice abstract reflects only the author's view. The LOWINFOOD project is not responsible for any use that might be made of the information it contains.



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