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Airline food waste: no-meal option, AI to identify uneaten items trialled to reduce the amount that end up in the trash

Japan Airlines is inviting travellers to opt out of meals before they fly, while Cathay Pacific has been donating unused meal items to food banks in Hong Kong. Etihad and Emirates airlines are using AI and image recognition to identify the food items that are least popular on flights, and adjusting what they offer.

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Airline meals often end up as waste. Photo: Getty Images/iStockphoto

Have you ever skipped an in-flight meal – perhaps due to a lack of appetite or because you slept through the service?

In doing so, you may have contributed to food wastage – which is as much a problem in the air as it is on the ground. According to figures from the International Air Transport Association (IATA), airlines generated 6.1 million tonnes of cabin waste globally in 2018, around 20 per cent to 30 per cent of which comprised of unconsumed food and drink.

This largely boils down to the fact that it is difficult to predict the dining behaviour of passengers. Also, to ensure that meal preferences are satisfied, many airlines load more food than is required onto flights. Furthermore, when there is a lengthy flight delay, perishable meals typically have to be discarded and replaced with fresh ones.

Japan Airlines is one of several airlines trying to tackle the problem. In November, JAL launched its “Ethical Choice Meal Skip” option, which allows passengers to opt out of meals ahead of their flight.



It is difficult for airlines to predict the dining behaviour of passengers. Photo: Getty Images

Travellers simply modify their booking on the airline’s website or on the phone before departure; those who do so are given a JAL-branded amenity kit, containing items such as a toothbrush and an eye mask, as a thank you. The programme is being trialled on the five-and-a-half-hour JL34 flight, which leaves Bangkok at 10.05pm, bound for Tokyo Haneda.

“Before the pandemic, around 10 per cent of our passengers tended to skip meals on midnight flights, which results in food waste,” explains JAL spokesman Mark Morimoto. “The meal skip option allows customers to maximise their time to rest on the plane, and it is also a first step towards achieving the goal [of reducing in-flight food waste].”

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Depending on passenger feedback, Morimoto says, the service may soon be expanded to other overnight flights.

Other airlines are leveraging machine learning. In September, Etihad Airways announced that it had partnered with Singapore food tech start-up Lumitics to reduce in-flight waste.

Lumitics’ smart tracker harnesses artificial intelligence and image recognition to identify the type and quantity of unconsumed meals – based on the design of their tinfoil – at the end of each flight. The airline will use the data to detect waste patterns across its network and improve meal planning accordingly.



Japan Airlines is one of several airlines trying to tackle the food waste problem on flights. Photo: SOPA Images/LightRocket via Getty Images

Emirates also employs artificial intelligence to analyse in-flight consumption trends.

“The data helps us to optimise the amount and type of meals, snacks and beverage items we bring on board,” says a spokesman for the Dubai-based carrier. “In this way, we can reduce our food waste by up to 30-40 per cent, without compromising on choice. And as the technology advances, we aim to [increase this figure] to 60-70 per cent.”

Additionally, in October, the airline announced that it was aiming to reduce food waste by 35 per cent across its ground operations in Dubai. To this end, it is rolling out a management system to determine which ingredients are most wasted during the catering process.

Using a camera, a set of smart scales and machine learning technology, the system is able to distinguish between discarded food items and calculate the corresponding financial and environmental cost, which is estimated by taking the weight of food thrown away and converting it into a carbon-emission equivalent.



At a time when more people than ever are in need of a helping hand, every single item we can rescue and redistribute makes a difference

Gabrielle Kirstein, Feeding Hong Kong director

“We express it in a form of ‘equivalent meals’ as that usually is an easier representation for most people to grasp,” says the spokesman. “It is calculated by looking at the total weight of waste divided by grams per meal [400g].”

The insights generated will be used to inform the airline’s food purchasing decisions.

While these measures can go a long way in reducing waste, there will inevitably still be meals left over at the end of most flights. But stringent health regulations in many markets prohibit such food from being repurposed.

For instance, the operators of flights landing in Australia, New Zealand and the United States are required to bury or incinerate all cabin waste – right down to that untouched bag of crisps and unopened can of soda – to minimise the risk of animal disease transmission.



Leftovers from in-flight service. Photo: Getty Images

However, that is not the case in Hong Kong, where Cathay Pacific has worked with local NGOs since 2011 to send unconsumed food to the needy. When meal carts are unloaded from Cathay Pacific's inbound flights, staff from food bank [Feeding Hong Kong](#) are often on hand to collect sealed beverage cartons and cereals, which are then donated to shelters, care homes, community kitchens and welfare centres across the city.

Since 2014, Feeding Hong Kong has managed to save 1,880 tonnes of surplus food from Cathay Pacific, several other airlines and in-flight catering companies. The Covid-19 pandemic has severely disrupted these efforts, though.

“As the number of flights has been reduced, so too has the volume of surplus packaged food and beverages [taken from on board],” says Feeding Hong Kong director Gabrielle Kirstein. “Our normal channels of food, volunteers and distribution have all been turned on their head.”



There will inevitably still be meals left over at the end of most flights. Photo: Shutterstock

On the other hand, the decrease in flights taking off has resulted in an excess of pre-prepared in-flight meals that never make it onto a plane. Instead of [sending those meals to landfill](#), Cathay Pacific has been donating them to another local food bank, [Food Angel](#), which redistributes them to underprivileged senior citizens and families.

According to Food Angel founder Gigi Tung Oi-lai, the food bank received 30,000 frozen in-flight meals in April and May 2020 alone, and the airline continues to donate.

“We are happy that Cathay Pacific can help feed people most affected by the pandemic, while avoiding food waste,” says Tung.

Overall, however, the airline estimates that the amount of food it donates to local food banks has dropped by more than 50 per cent during the pandemic.

“Pre-Covid, our catering arm, Cathay Pacific Catering Services, would handle some 83,000 meals a day, for about 50 airlines flying out of Hong Kong,” says a Cathay Pacific spokesman. “While the slowdown in air travel has resulted in a surplus of some pre-made in-flight meals, on the whole, we have procured and processed a lot less food in 2020 because of our substantial capacity reductions.”



Commercial airline food cart compartments. Photo: Getty Images

Nevertheless, the airline is supporting the Feeding Hong Kong cause in other ways.

“In a year in which corporate volunteering has been challenging, to say the least, Cathay Pacific staff have dedicated over 370 hours helping us to sort and pack donations in our warehouse,” says Kirstein. Assembled food packages are delivered to vulnerable Hongkongers struggling to afford nutritious meals during the pandemic.

“Reducing food waste is important for every food business – whether it is an airline, hotel, supermarket or wholesaler. It makes economic sense, it helps the environment, and it can help people in need,” Kirstein continues. “At a time when more people than ever are in need of a helping hand, every single item we can rescue and redistribute makes a difference.”