

'Half-life' guarantee and minimum waste in fresh foods at Ocado Group

Ocado's direct delivery model avoids breaking the chill chain from the point of processing or packaging through to delivery at a customer's door. There is potential to prevent food waste by:

- providing households with a longer available life because products can move through the supply chain more quickly;
- developing own-label products that provide households with longer use-by or best-before dates;
- providing customers with receipts that group all items by their use-by dates helping with meal planning; and
- direct picking of orders which can reduce product damage and improve stock management.

'All of Ocado's fresh foods are guaranteed to have a minimum 50% of their total life remaining when they arrive at the customer's doorstep.'

Melinda Harris
Head of Food Technology
Ocado

Chill chain

The chill chain plays a vital role in keeping food safe to eat by inhibiting some bacterial growth following harvesting and by decelerating the rotting process. To maximise food shelf life and minimise waste, strict temperature control through the entire process of producing, transporting and selling food is critical.

Shelf life for chilled food is established scientifically and is based on keeping products at between 1°C and 5°C during transport, in the retailer's depot and in the retail store.

However, the calculations that are used to arrive at use-by dates on chilled food products are conservative. They are based on certain assumptions, including that, between a supermarket and a consumer's premises, food will have been removed from a chilled environment for up to 2 hours at elevated temperatures.

In practice, where fresh foods are sold through conventional retail stores, the chill chain is broken several times. Where this occurs varies, but can be during delivery to the retailer's depot, at the loading dock of the store itself, and by the customer when the food is selected, paid for and transported home.

In addition, the traditional supermarket-based supply chain for chilled, fresh foods involves potentially significant time losses between its packaging or processing and the point of receipt into the householder's refrigerator. These are largely incurred through receipt, 'put away', storage and picking at the warehouse and the retail store, and in the selection and transportation by the end user.

The breaks in continuous cold storage and the accumulation of time losses in the traditional supply chain conspire to reduce the total food life and the remaining life available on the retailer's shelves and in the home.

Drivers for innovation

The logistics systems in place at Ocado address the efficiency of delivery and the chill-chain issues, and result in a number of additional benefits for the customer. The systems have been developed to maximise the food life remaining at the point of receipt into the customer's home.

While this significant customer service offering is the main driver for the systems improvements, it brings with it added benefits to the company and its suppliers, such as considerable reductions in food spoilage in the supply chain.

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The direct delivery model – avoiding breaks in the chill chain

Ocado's supply system avoids breaking the chill chain from the point of packaging or processing through to delivery at the customer's door. While this is facilitated by the organisation's direct delivery business model, it is taken a step further by maintaining strict temperature control of docking bays at warehouses, and hub and 'spoke' sites.

The Company's warehouses comprise two 'Customer Fulfilment Centres' (CFCs) that are supplied directly by producers and wholesalers. At the point of receipt of chilled goods at the CFCs, the delivery vehicle is reversed into a temperature controlled docking bay, which is maintained at between 0°C and 5°C.

Individual customer orders, including ambient and frozen foods, are then picked from stock in an appropriate temperature controlled environment at the CFC. They are then loaded, again through a temperature controlled docking bay, to a trunking vehicle. This takes the orders to a 'spoke' site for reloading onto home delivery vehicles or directly to a home delivery vehicle. The chill chain is maintained throughout.

Through semi-automated picking, and rapid loading and delivery, chilled food at a packaging site can be delivered to a customer's door within 48 hours. By way of comparison, according to the IGD, the average lead time from supplier to warehouse alone for fast-moving goods, can be up to 96 hours, even for some of the biggest UK food retail chains. The times taken to distribute stock to the stores, and the time it is on display in the store, are all in addition to this.



Seals around vehicle doors in the loading bay help to maintain strict temperature control
Source: Oakdene Hollins

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Outcomes – improved food life and less waste

Food life and minimum life on receipt can be extended through the maintenance of the chill chain (including after delivery to the end user) and the speed of delivery. For example:

- chicken, with a nominal shelf life of 10 days, is supplied to the customer's refrigerator within 1½ to 2 days from slaughter, leaving some 8 days for safe consumption;
- bread, generally baked in the morning, is delivered to the CFC on the same day. It is picked and loaded by 6:00pm for local delivery that evening or for overnight trunking and delivery the following morning – a maximum 24 hours from baking; and
- blueberries, which have a 6-day life from packing, have a minimum 4 days life left at the point of receipt by the customer.

Much of the company's food offering is branded product, for which pre-printed use-by dates and best-before dates have been set using conventional protocols.

However, Ocado's supply chain model allows the company to potentially offer greater total life on some of its own-brand foods.

Ocado confirms that its automated supply-chain model achieves 'the lowest product waste levels in the industry' at less than 0.6% of sales.

By tracking the batches of food received at the CFC, practising strict product rotation and by logging batch numbers through to the customer, Ocado is able to provide a guaranteed shelf life of each fresh food item at the point of ordering and delivery at the doorstep.

After delivery to the customer, the remaining shelf life depends on how the product is stored. As Melinda Harris, Head of Food Technology at Ocado, points out 'it is a double-edged sword – often the customer's fridge runs at 8°C or 9°C, which is well above the recommended storage temperature and some of the remaining shelf life can be lost.'

The system also creates a customer receipt that groups all delivered items by their use-by dates, giving the consumer additional information with which to plan meals, further lowering the risk of the food being wasted.

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