

Box 10. Most creative responses across countries for the Food Waste item.

- **Hacer un convenio con un restaurante para usar estos alimentos [...] // They could make an agreement with a restaurant to use this food [...]** (Colombia)
- **Para impedir a concentração de desperdício em determinados supermercados específicos, seria ideal otimizar tanto as rotas de distribuição, permitindo que o máximo da comida produzida seja distribuída em supermercados variados, como otimizar a conservação de alimentos, como por exemplo em refrigeração // To prevent the concentration of waste in certain specific supermarkets, it would be ideal to optimise both distribution routes, allowing as much of the food produced as possible to be distributed to a variety of supermarkets, and to optimise food preservation, such as refrigeration** (Portugal)
- **Campanhas de publicidade [...] a comerem de forma mais saudável e investirem ena compra de alimentos frescos ao invés de alimentos industrializados também reduziria a quantidade jogada fora e ajudaria na saúde geral populacional. // Advertising campaigns [...] to eat more healthily and invest in buying fresh food instead of industrialised food would also reduce the amount thrown away and help the general health of the population.** (Brazil)
- **Congeler les produits et les revendre coupé ou cuisiné [...] // Freezing products and reselling them cut or cooked [...]** (France)
- **Ocupar los alimentos para nuevas cosas y vender eso, como jugo de frutas // Use the food for new things and sell that, such as fruit juice** (Colombia)
- **30 minutes before closing time, the supermarkets could host a competition [...] about who can make the most delicious meal using the fresh food [...] Whoever wins can get free produce and shopping coupons for future shopping sprees in the nearest mall.** (Hong Kong)
- **creare un app per comunicare agli interessati che il cibo sta per essere buttato e che per chi vuole è disponibili ad un prezzo molto più basso e conveniente del normale // create an app to let interested parties know that the food is about to be thrown away and that it is available to anyone who wants it at a much lower and more affordable price than normal** (Italy)
- **مهمي مرم نم الادب هونوعيب بي و تاتابنل ديفي داس ى الى هلوحت اهيف اعطال اعضت امندن عثيحب ةلا عنص // Making a machine so that when you put food in it, it turns it into fertiliser that benefits plants and they sell it instead of throwing it away.]** (Saudi Arabia)
- **changer le fonctionnements des supers marches pour un super marché en ligne ou les gens commandes quelques jours a lavances leurs courses pour que les super marché ne stockent que les produits qui von etre achetés. // Changing the way supermarkets operate and creating an online supermarket where people can order their shopping a few days in advance so that the supermarkets only stock the products that will be bought.** (Belgium)
- **[...] create bundles where a popular food is bundled with an unpopular food at a slight discount [...]** (Hong Kong)
- **Create cooking blogs run by the supermarket and use the unsold food to promote it.** (Canada)
- **Τα νωπά λαχανικά θα μπορούσαν να χρησιμοποιήθουν για διάφορες έρευνες σε διάφορους τομείς πχ. για διεξαγωγή DNA // Fresh vegetables could be used for research in specific areas, e.g. for DNA research.** (Greece)
- **버려진 신선한 채소들로 사람들에게 경각심을 일깨우는 조형물을 만든다 // We make sculptures that raise awareness among people with discarded fresh vegetables.** (Korea)

- **Sadje in zelenjava bi lahko znotraj trgovine še zmeraj rasle v visokih gredah. S tem bi zagotovili še boljšo kakovost, manj zavržene hrane in kupci bi lahko bili prepričani da kupujejo sveže pridelano zelenjavo.** // *Fruit and vegetables could still grow in high beds inside the shop. This would ensure even better quality, less food is wasted and shoppers could be sure they are buying freshly grown vegetables.* (Slovenia)
- **le verdure avanzate potrebbero essere raccolte e tagliate a pezzi grandi, poi raccolte in sacchetti dove vengono chiuse con minore quantità possibile d'aria e possono essere rivenduti per fare minestre e zuppe.** // *leftover vegetables could be collected and cut into large pieces, then collected in bags where they are closed with the least possible amount of air and can be resold for making broths and soups.* (Italy)

Note: Student responses are shown as they were submitted in the PISA 2022 creative thinking test, including creative spelling and grammar. The notation [...] indicates where student responses have been shortened for brevity.

What were common themes or features across creative responses?

Students suggested a range of approaches for tackling food waste by supermarkets, including (but not limited to) technological innovation, community redistribution, creating economic incentives, and ideas related to creative repurposing of waste products. In many instances, students' ideas did not only address food waste directly but also aimed to encourage a more conscious and responsible approach to food consumption or aimed to address other sustainability issues, highlighting that students often took an interdisciplinary problem-solving approach. For example, several students suggested repurposing waste material into new and otherwise valuable products that could be sold for profit like fertilizer, skincare products or juices, or freezing or creating processed food that could then be preserved and subsequently sold. A student in Greece also proposed a highly unconventional idea of donating waste products for research purposes rather than profit.

Many students across different countries proposed ways to ensure surplus food is not wasted but instead shared with others. This highlights the social nature of the problem and how students aimed to propose solutions that meet the needs of others while addressing a collective problem. Creative responses sharing this general theme often went beyond suggesting that food waste be donated to those from disadvantaged backgrounds or to charities: for example, students from both Chile and Colombia suggested creating partnerships between supermarkets and local restaurants to use unsold food in their dishes, or a student in Hong Kong suggested donating wasted food to hospitals or nursing homes. Many disadvantaged students also proposed ideas relating to these broader themes (see Box 11).

Economic strategies were also a prominent theme amongst responses in general, with students frequently suggesting sales models that could help reduce food waste. While many such strategies are commonplace across countries, some students were able to add a novel or innovative twist to their solutions. For example, a student from Hong Kong recommended creating discounted bundles of popular food items paired with less popular ones that are susceptible to being wasted, thus ensuring that less desirable products are still sold to consumers rather than discarded completely.

Many students also highlighted the potential for technology to promote responsible consumption and efficient food distribution, aligning with the idea that technology can drive systemic change in solving complex problems. Students across various countries proposed using digital platforms to help redistribute or sell food nearing its expiration date at a reduced price. For example, a creative response from a student in Italy suggested creating an app that informs people when food is about to be thrown out, allowing them to purchase it at a lower price at that point in time. In Belgium, one student proposed changing how supermarkets operate entirely by making them all be online, where consumers pre-order their food and thus supply can match demand and reduce the likelihood of overstocking and waste.