Taking Responsibility

Elaborating on the sustainable choices made today

TU/e

SUSTAINABILITY

Taking Responsibility

TU/e's core values - Curious, Open, Respectful, and Responsible – define who we are and guide our actions.

The value Responsible drives us to minimize the impact of events like Sustainability Day, make conscious choices, and be transparent.

Taking Responsibility

Sustainability goes beyond reducing CO2; it’s also about minimizing waste, supporting local products, and managing resources responsibly.

In this presentation, we explain our considerations, choices and their impact for different relevant topics. We’ll calculate and compensate for the CO2 footprint afterwards.

All data used in the graphs is provided by Phi Factory

Physical event

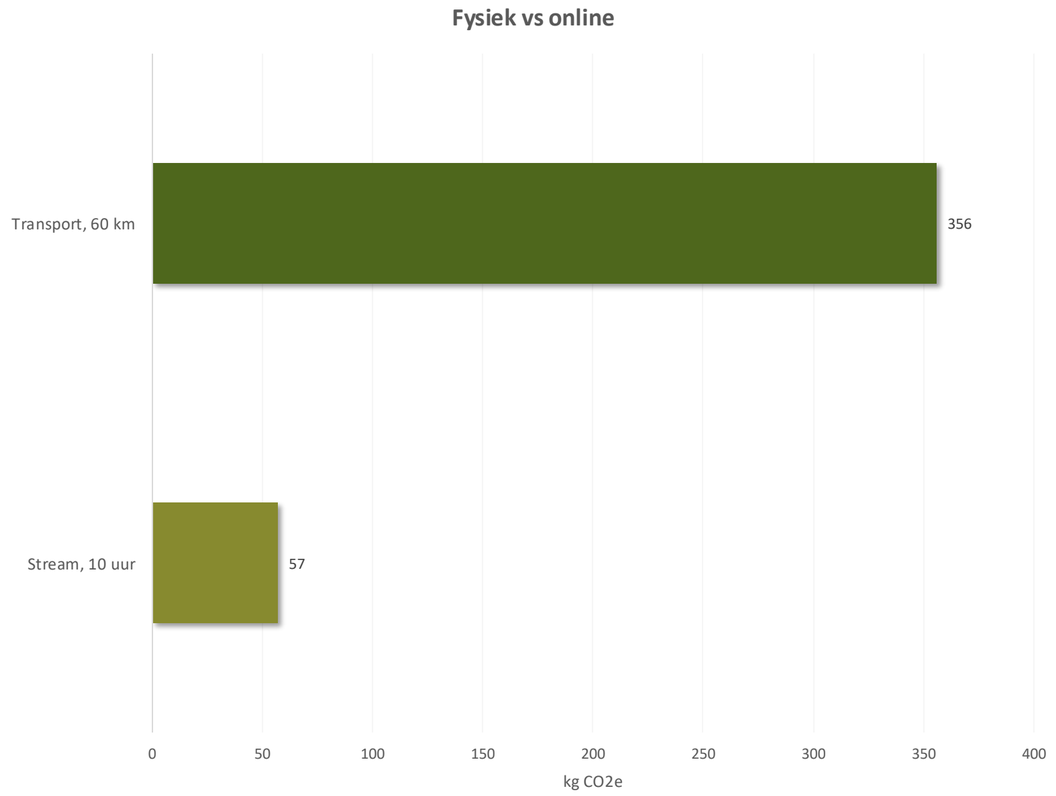
Considerations: Choosing between a physical and online event involves balancing sustainability and engagement.

Physical events generate more carbon emissions from travel, energy and material use but offer stronger personal connections and hands-on inspiration.

Online events are more eco-friendly, reducing travel and waste, but may lack the same level of interaction.

The decision depends on prioritizing environmental impact versus the effectiveness of inspiring, informing, and connecting attendees.

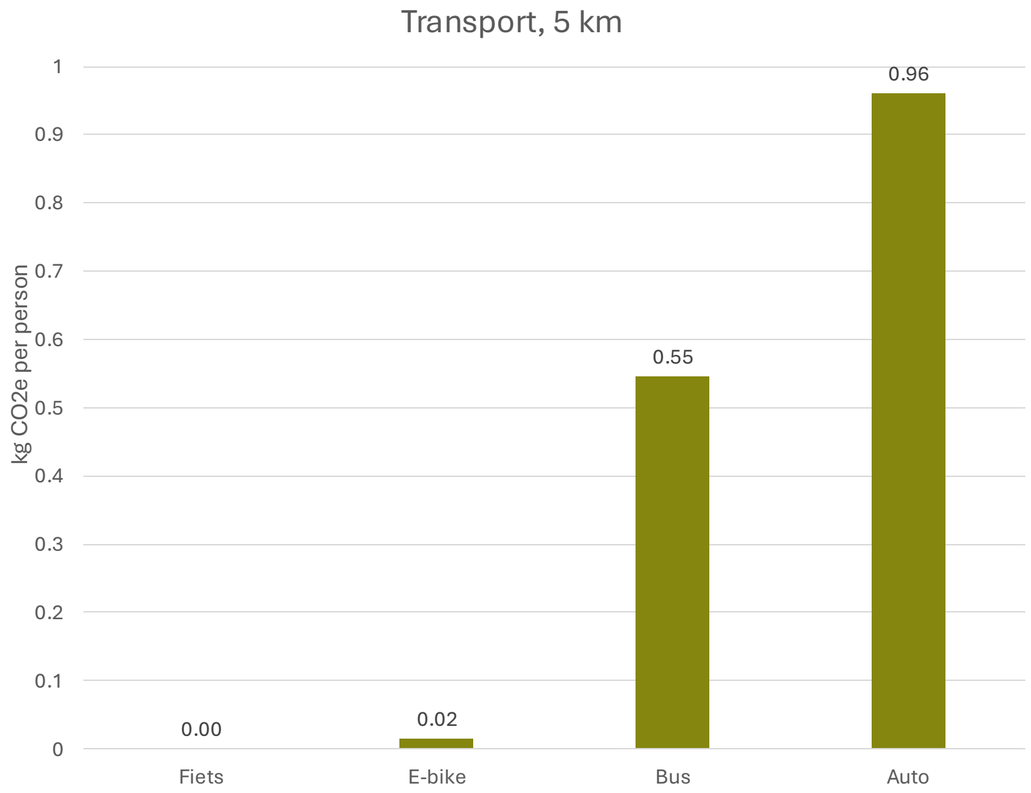
Physical event vs. streaming



Context: Impact comparison between a physical event for 200 visitors and streaming the event for 200 viewers for 10 hours

Key Insights: 62 hours of streaming matches the impact of a physical event

Impact per transport category (5 km)



Context: Impact of various vehicle types for transportation to and from the TU/e campus over a 5-kilometer distance.

Categories:
Bus: Average impact of all buses on the road.
Car: Average impact of all vehicles on the road.

Impact per transport category (60 km)

Context: Impact of various vehicle types for transportation to and from the TU/e campus over a 60-kilometer distance.

Physical event

Our choices: The most sustainable event is no event. But not organizing this event today has never been on the table.

We've chosen to:

organize a physical event to **maximize engagement** and the **ability to inspire, inform and connect people**.

We acknowledge that **transportation has a significant environmental impact**. To address this, **we will calculate the carbon footprint** of travel by surveying our guests. This data will help us understand the event's full impact and explore potential ways to mitigate it in the future.

Food and drinks

Considerations: Sustainable food choices involve multiple considerations, including low-carbon, local, or vegetarian/vegan options, as well as organic food for its environmental benefits.

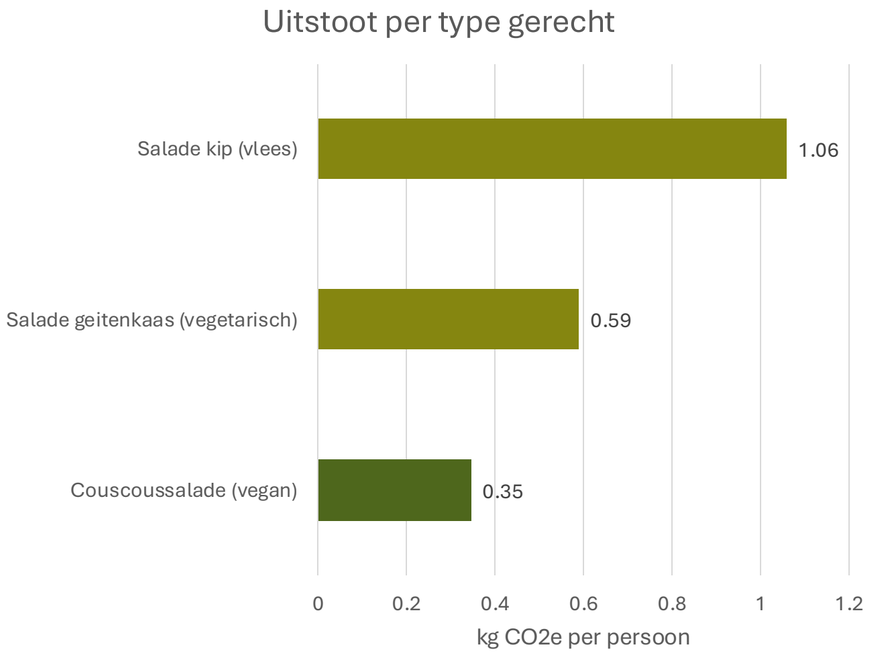
However, these choices come with trade-offs. Local food isn't always more eco-friendly, and organic farming can be less efficient.

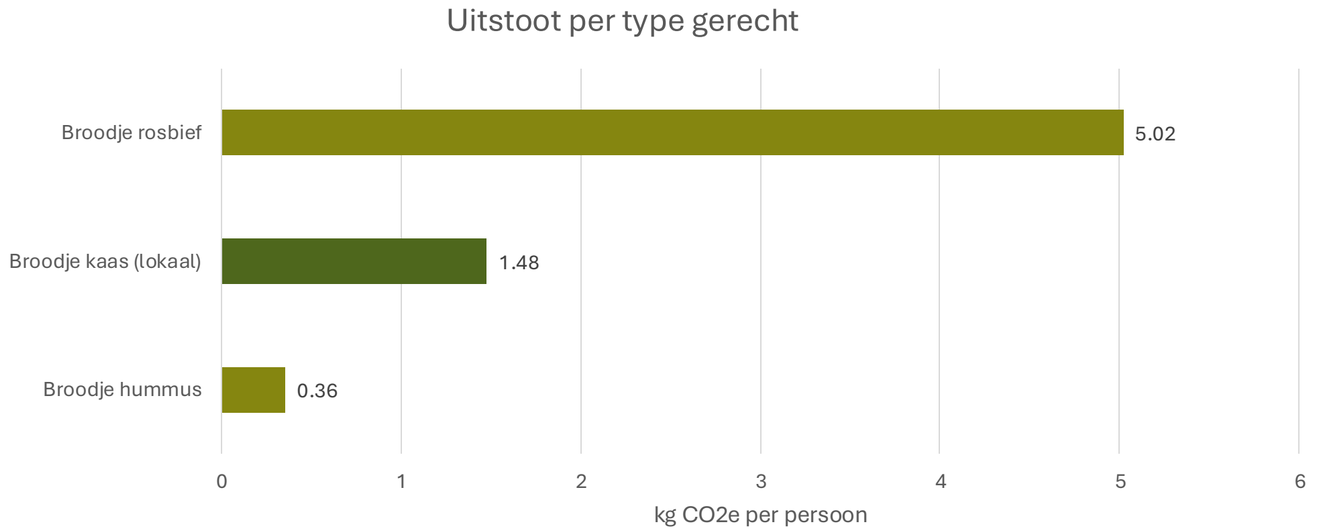
Social factors also play a role, such as fair labor practices and community support, which influence the sustainability of food production.

Ultimately, sustainable food choices vary by context, and there’s no single correct answer, requiring a balance between environmental and social impacts.

Vegan, vegetarian or meat

Context: Comparison of CO2 impact for different types of meals:





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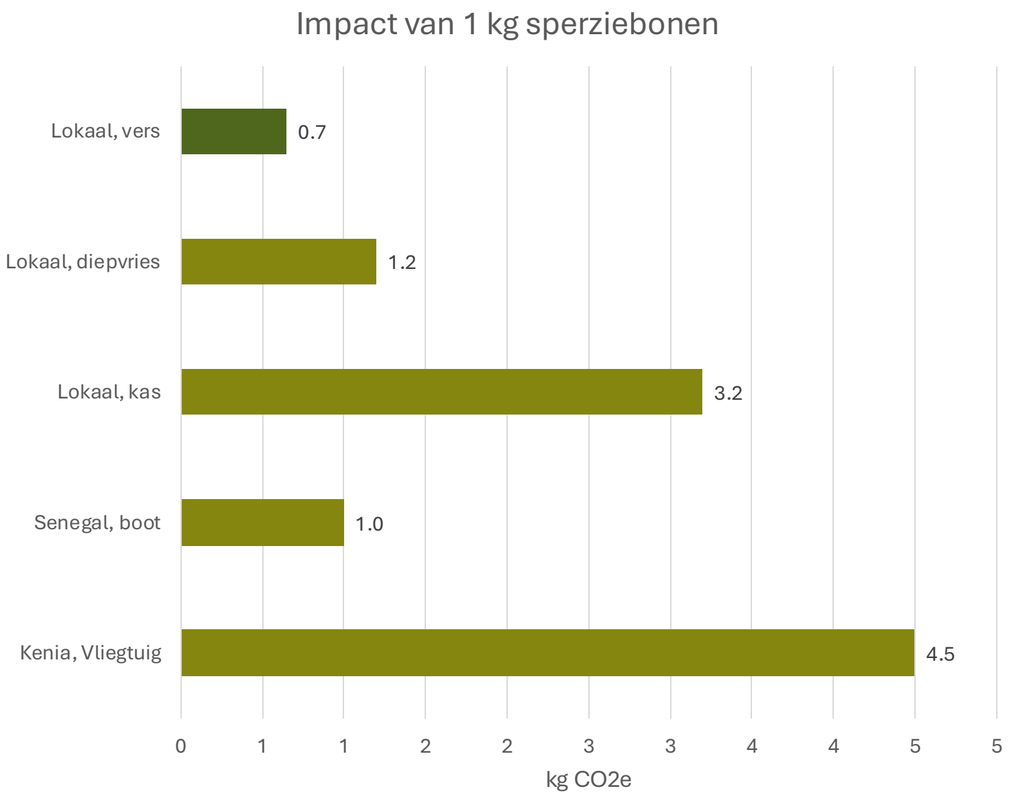
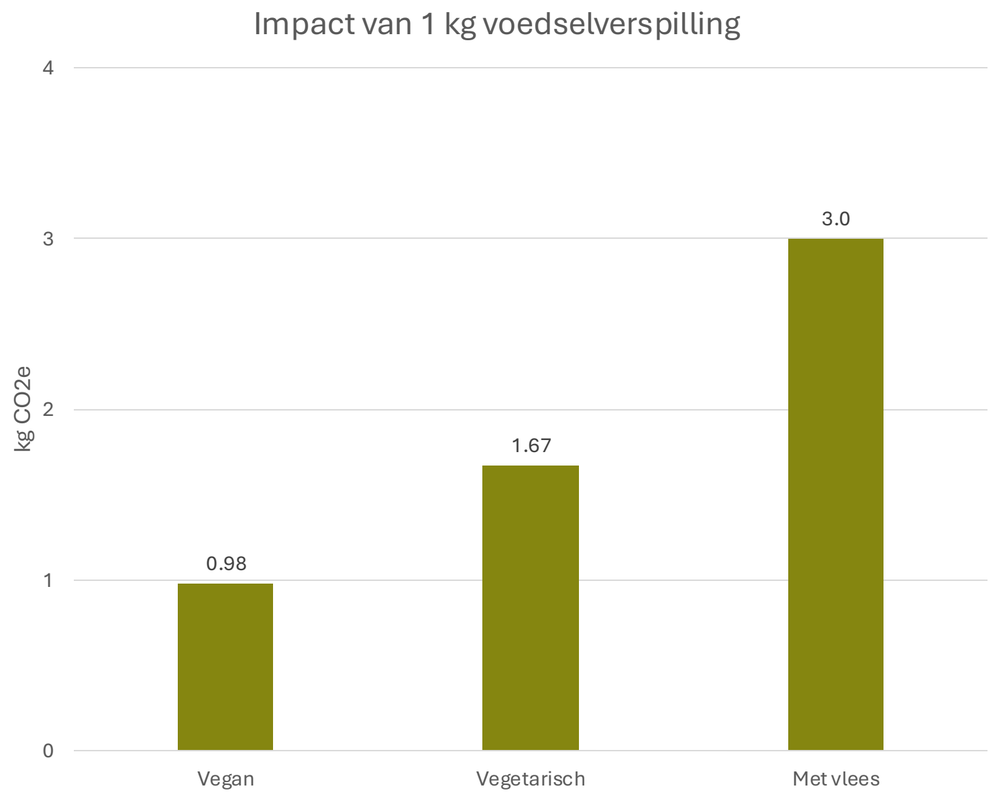
Seasonal eating



Context: Impact of, as an example, green beans sourced locally (in season, frozen, or grown in a greenhouse) vs. imported by plane or ship.

Key Insights: Seasonal and locally grown products have a lower CO2 impact, especially if they avoid air transport or greenhouse heating.

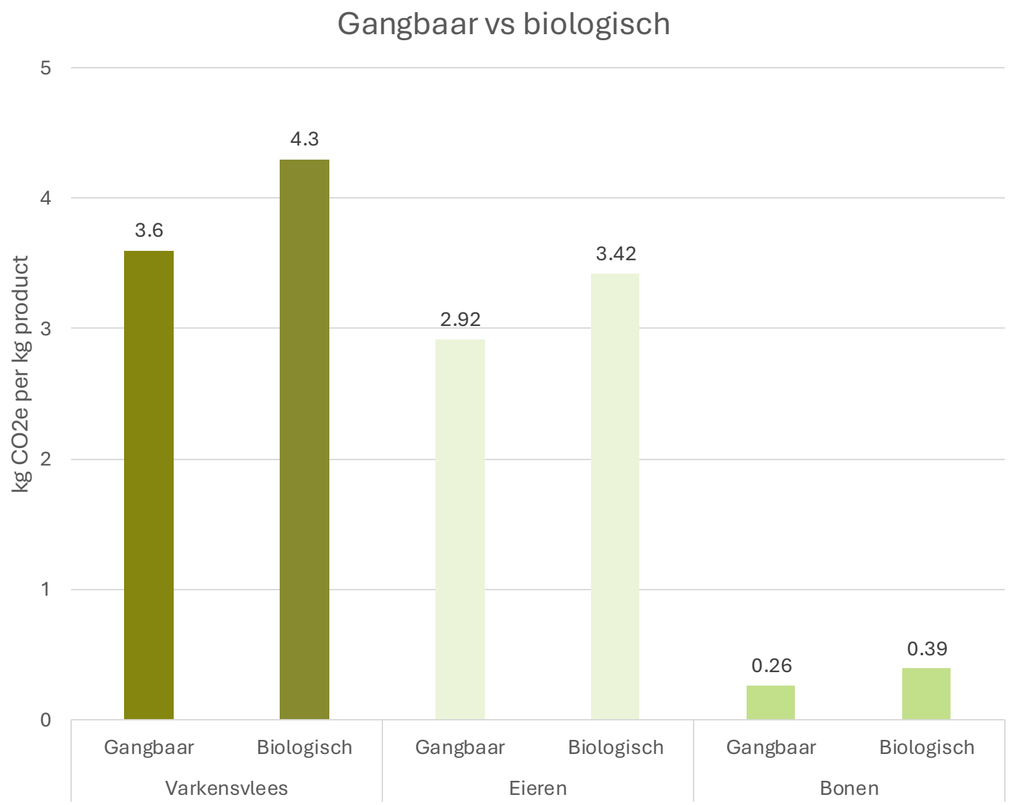
Food waste



Context: CO2 impact of food waste, comparing portioning and buffet styles.

Key Insights: Plan for leftovers, assume an 80% attendance rate, and store food properly to minimize waste.

Conventional vs. Organic Food



Context: Organic farming reduces emissions by avoiding synthetic fertilizers and pesticides, but lower yields can increase the CO2 impact per unit of food due to fewer products being produced per hectare.

Key Insights: From an ethical standpoint, organic food is generally preferred due to its reduced chemical use and environmental impact.

Local food and drinks

Context: Most items on the menu are from our supplier Local2Local.
Local2Local is committed to develop a sustainable food chain in the Netherlands, with a focus on local production and short chain deliveries. Their goal is to let your team and guests enjoy fresh, high-quality products from sustainable Dutch farmers every day.

Local drinks (with TU/e technology)

TU/e demonstrates iron fuel at brewery Bavaria: a new circular and CO2-free fuel for the industry

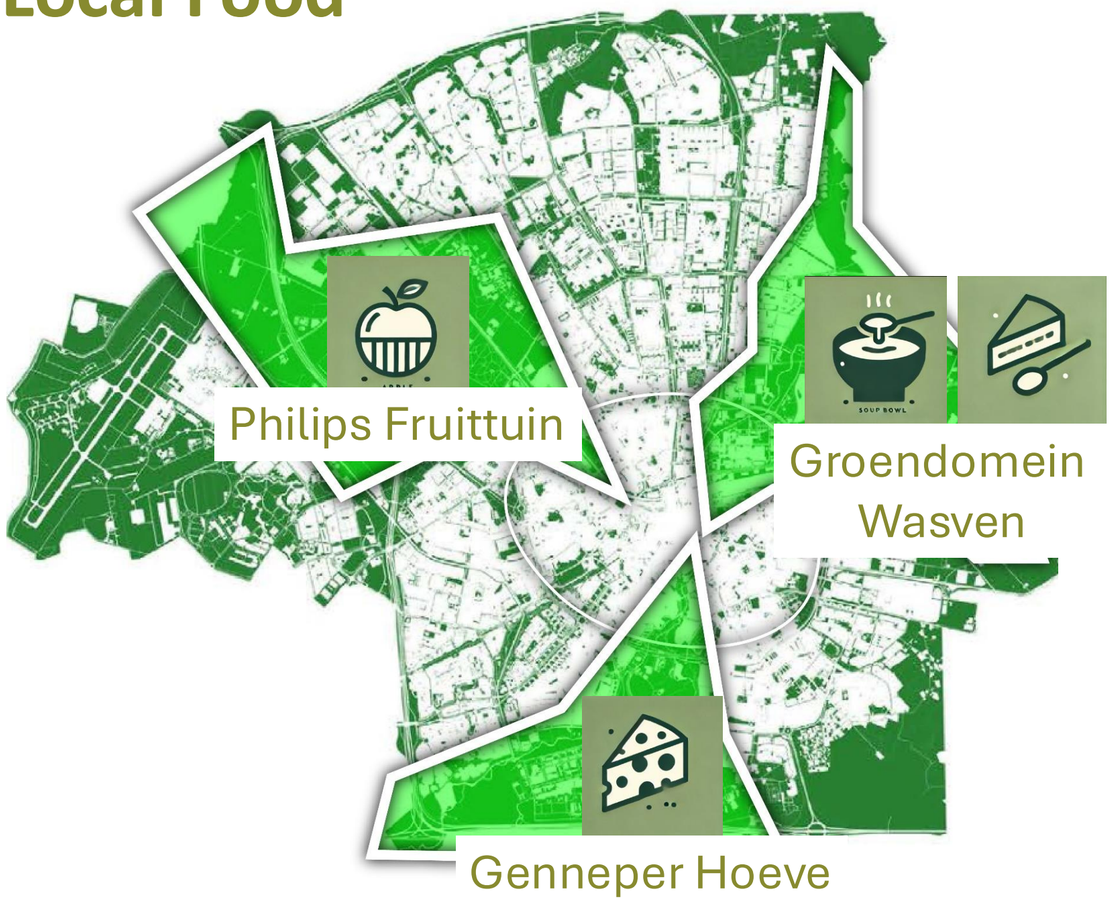
29-10-2020

Researchers and student team SOLID of TU Eindhoven (TU/e) – together with Swinkels Family Brewers and the Metal Power consortium – are presenting world's first industrial installation to use iron powder as a new, circular fuel. This iron fuel is a promising energy carrier which is CO2-free, reusable, safe, compact and easily transportable. By successfully connecting the installation to the brewing process of brewery Bavaria, one of the breweries of Swinkels Family Brewers, the parties have proven that iron fuel can be applied as a sustainable substitute for heat-intensive industries and power plants. The demonstration of the industrial iron fuel installation will take place via a livestream on Thursday the 29th of October from the brewery in Lieshout.

Context: Beer served today is from Bavaria. Swinkels Family Brewers (Bavaria) earned the title "Sustainable Brewery of the Year 2023" for their efforts in reducing CO2 emissions, using green energy, and creating an emission-free malt house. They also promote water recycling and employ individuals with employment challenges.

At TU/e, researchers demonstrated a circular, CO2-free iron fuel technology at Bavaria Brewery, showcasing its potential to power industries without emissions. Iron powder can be burned and regenerated, making it a promising sustainable energy source for large-scale use. In this case, beer powered by TU/e.

Local Food



Context: Local food has lower CO2 emissions due to shorter transport, but production methods matter. In-season food has less impact, while greenhouse-grown can have more. It also supports local economies.

We specifically bought parts of our supplies from three urban farms from one of the three green wedges that enter the city.

Local Food

Het Wasven (Soup, Cake): a sustainable and green space in Eindhoven, where they work together with volunteers and people with disabilities to create a greener future. Enjoy their pure, local products and discover how everyone can contribute to our community and nature.

Philips Fruittuin (Fruit): The Philips Fruittuin, founded by Anton Philips, is a 12-hectare orchard with apple, pear, and plum trees, where they grow fruit naturally without chemical pesticides. They maintain a balanced ecosystem with ladybugs, earwigs, and pheromone traps, always prioritizing sustainability!

Genneper Hoeve (Cheese): This 125-hectare biodynamic farm raises 40 horned cows, suited to organic farming. They eat a simple, natural diet without antibiotics, producing high-quality milk and meat. The farm emphasizes sustainable farming, with cows playing a key role in the agricultural cycle and soil fertility.

Food and drinks

Our choices: For our food and drink choices, we **mainly focused on local, fresh, and seasonal options** to reduce transport emissions and support sustainable farming.

All food is **vegetarian with vegan options**, and we chose not to go fully vegan to highlight sustainable animal products. **We also considered the social impact** of our suppliers.

We are factoring in potential no-shows in our stock management. We will serve **food in phases** to avoid waste and **ensure everything stays fresh**. Leftovers will be given away.

Tableware

Considerations: When choosing between reusable and disposable cutlery, tableware, and plastic cups, sustainability is key.

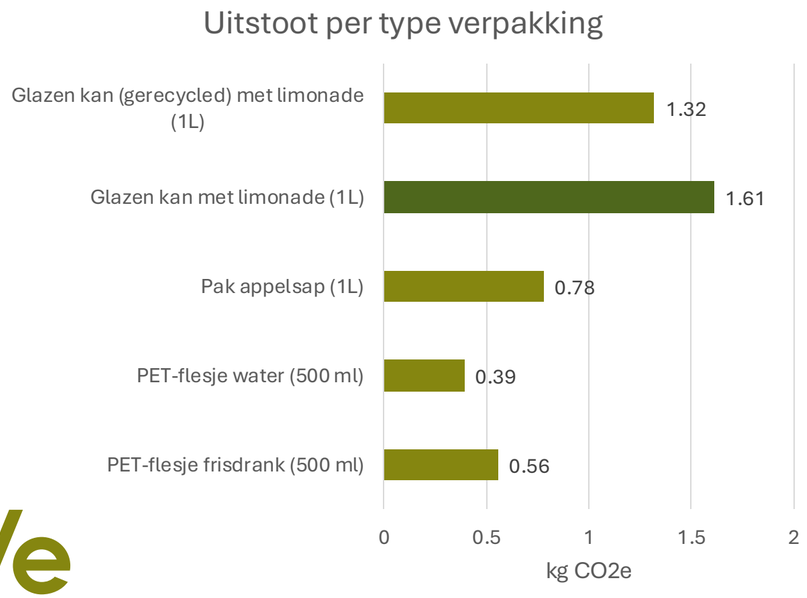
Reusable items require more energy to produce and clean but last longer and significantly reduce waste.

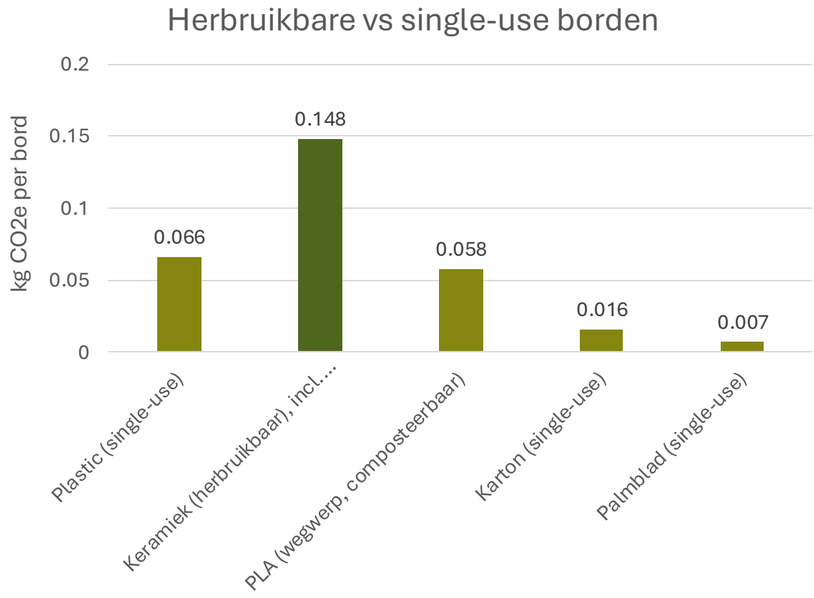
Disposable products have lower production costs but generate substantial waste and environmental harm.

Tableware

Context: The CO2 impact of reusable vs. disposable items of different materials (plastic, paper, compostable options).

Key insights: It takes numerous reuses for reusable items to balance the initial energy used in their production compared to single-use products. However, the waste generated by reusable items is significantly lower.





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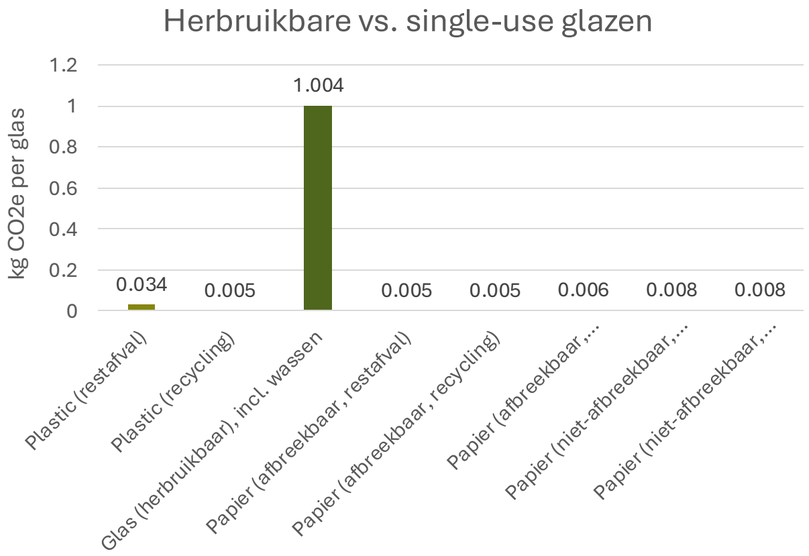
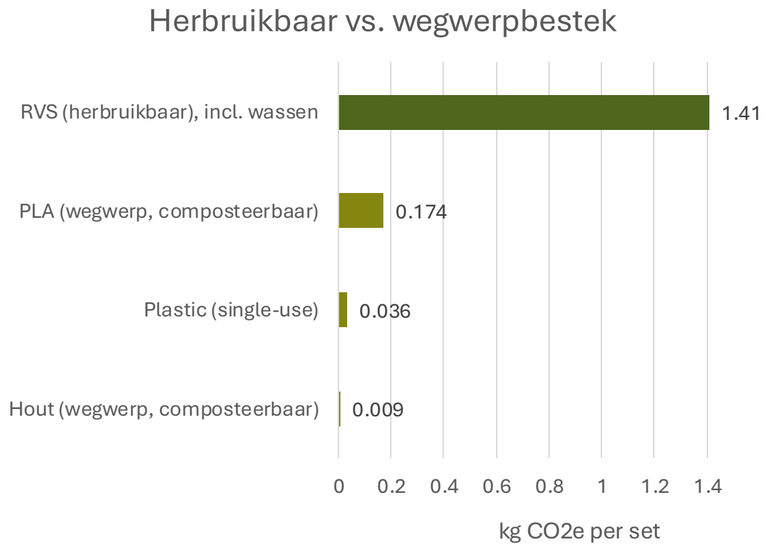




Tableware

Our choices: We have chosen to use reusable jugs, cutlery, glassware, and ceramic tableware over single use items.

Although these items require much more energy for production and cleaning, they last significantly longer when used correctly and with care. We also considered usability and comfort in this choice.

Reusable items help reduce the waste compared to disposable alternatives.

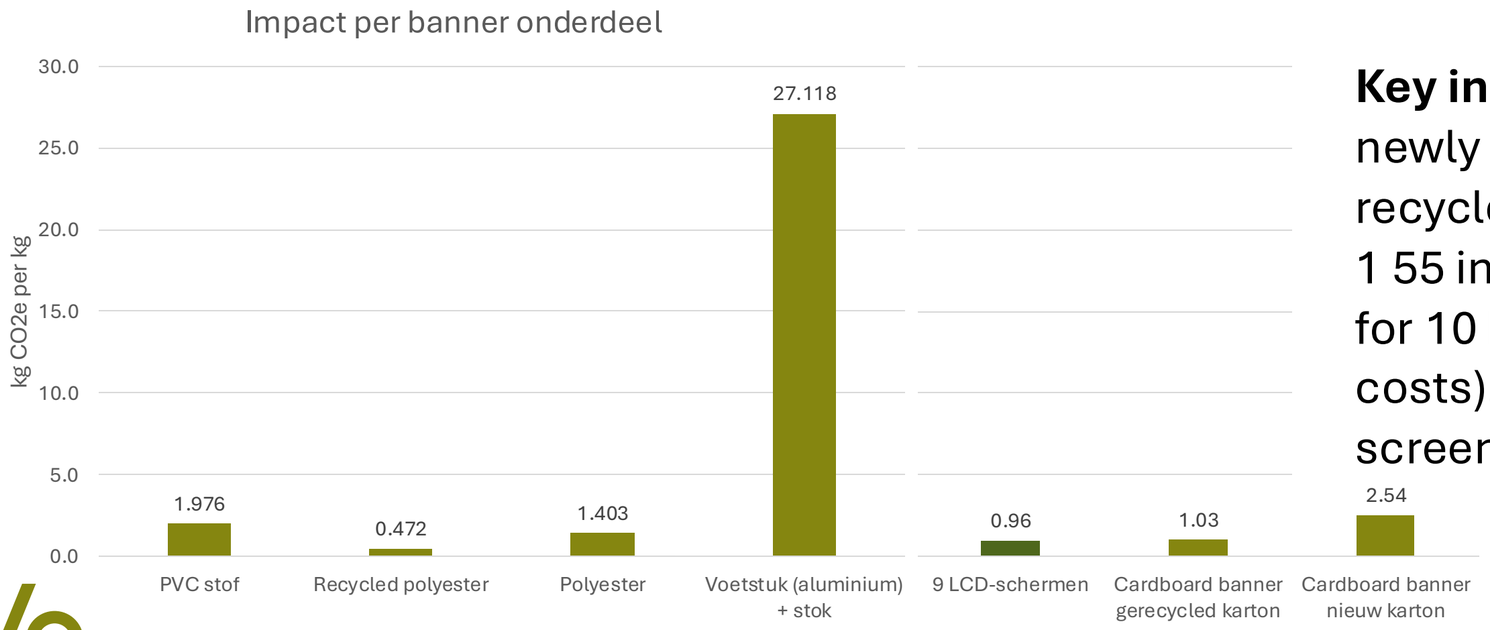
Event materials

Considerations: When making sustainable choices for event materials, several considerations guide the process.

For example, using reusable existing banners or screens reduces waste, with screens being energy-efficient when powered by green energy. rPET is selected for banners and posters because of its durability, presentability and recyclability, allowing reuse in other forms.

Minimizing waste by borrowing materials also reduces resource and energy consumption.

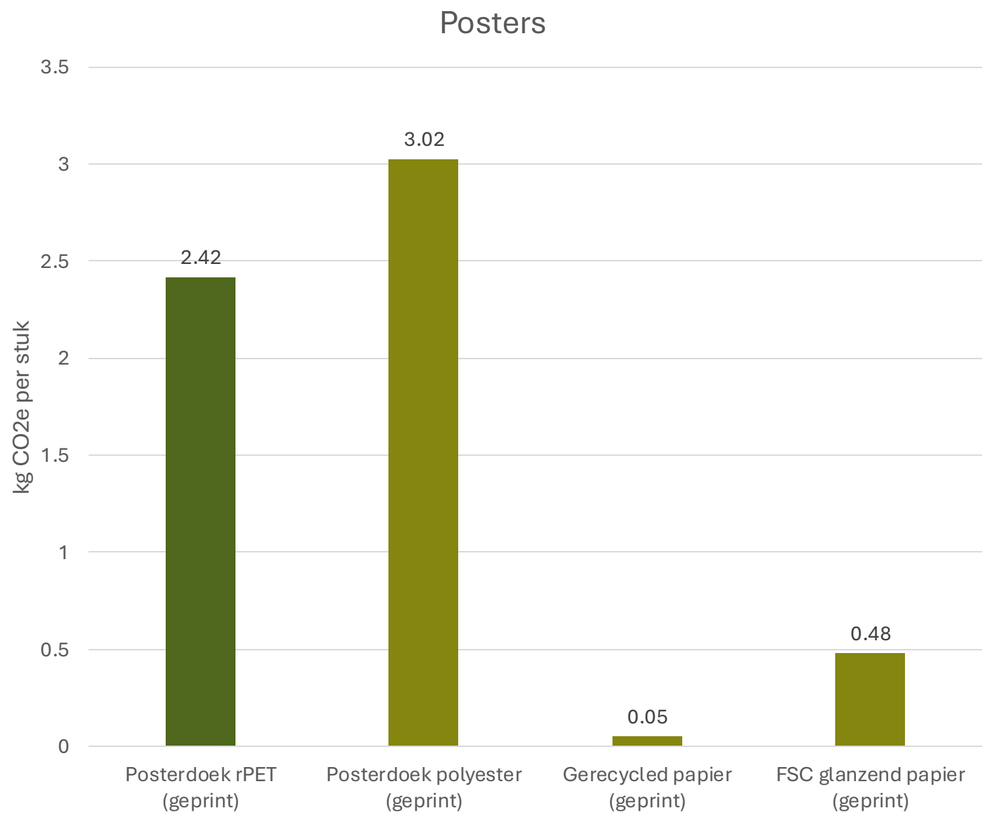
New banners vs. Screens for external parties



Context: Comparison of CO2 impact for 1 newly made physical roll-up banners (PVC or recycled Polyester) vs. 9 digital screens vs. Cardboard.

Key insights: about 260 reuses of one newly produced roll-up banner made of recycled polyester equals the impact of 1 55 inch existing LCD screen turned on for 10 hours (excluding production costs). CO2 impact for production of 1 screen is about 250 kg.

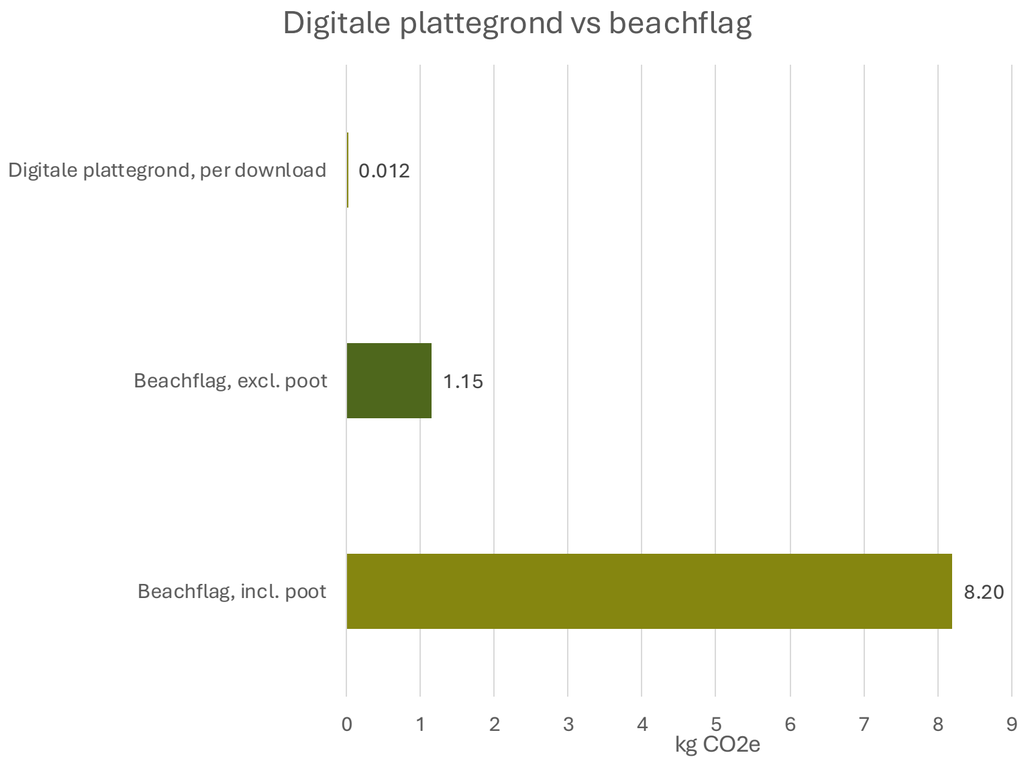
Posters and big banners



Context: CO2 impact of various poster materials, 2.14m2, without frames or cassettes.

Key insights: 47,73 reuses of an rPET poster equals the impact of recycled paper posters in the same size. This doesn't apply if the banners are being made into new items like bags. Multiple bags are being made from one rPET banner.

Digital Maps vs. Physical Signage

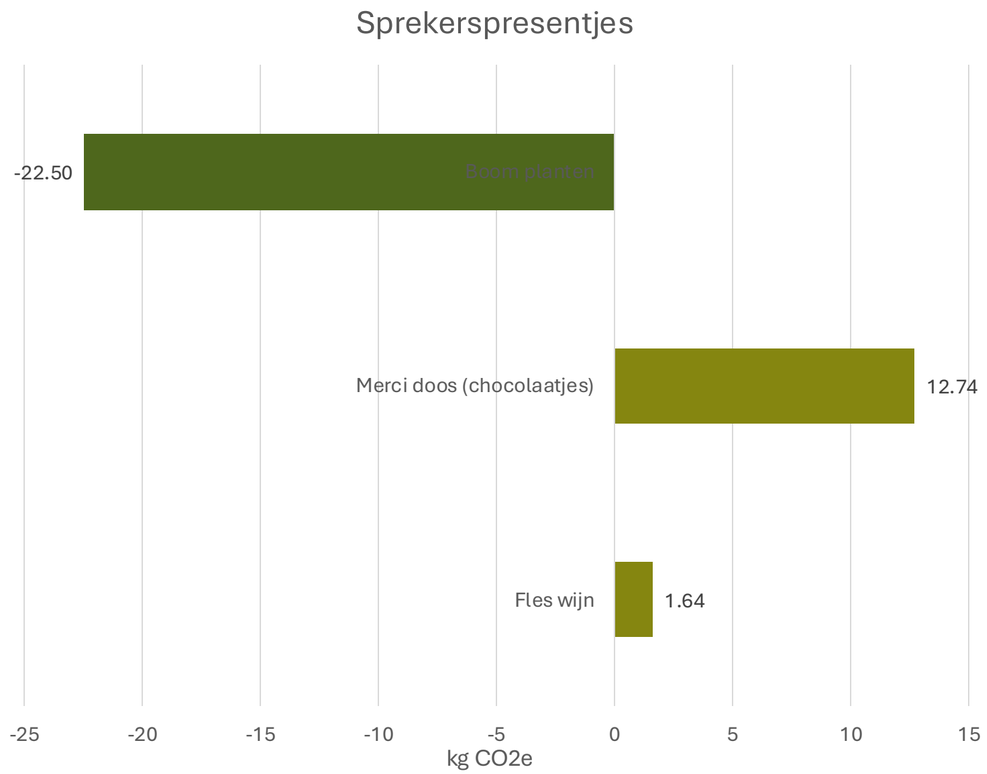


Context: CO2 impact of digital maps compared to physical beach flags for navigation at events.

Key insights:

- 94 digital viewers equal the impact of one beach flag (if the flag stand is reusable).
- 672 digital viewers if the stand cannot be reused.

Speaker gifts and awards



Context: CO2 impact comparison of various gifts, including a bottle of wine, a box of chocolates, or a special price that remains a secret.

Key insights: the chosen award has a negative CO2 impact (-22.5 kg CO2)

Event materials

Our choices: We focused on making sustainable decisions for event materials. **Most of the items were borrowed and already owned by the TU/e**.

We **minimized production of new materials**, encouraged reusing existing materials and **provided energy-efficient screens** to digitalize as much as possible.

Large banners and posters were made from **recycled rPET** for visibility and durability and to **demonstrate** the use of recycles rPET and will be **repurposed** into tote bags or will be reused.

The event award aligned with our environmental values and is **CO2 positive**.

These choices we made **balance visibility, presentability, reusability, and reducing the overall environmental footprint** without sacrificing functionality.

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Questions or remarks? Mail sustainability@tue.nl