Measuring, Modeling, and Improving the Sustainability of EPFL’s Food System

### Total CO₂ balance
Breakdown of EPFL's partial GHG emissions in 2019

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel</td>
<td>35%</td>
</tr>
<tr>
<td>Energy</td>
<td>34%</td>
</tr>
<tr>
<td>Food services</td>
<td>13%</td>
</tr>
<tr>
<td>IT systems</td>
<td>10%</td>
</tr>
<tr>
<td>Commuting</td>
<td>8%</td>
</tr>
</tbody>
</table>

#### Goals

→ Shrink our food services carbon footprint by 40% by 2030

Source: EPFL 2030 Climate & Sustainability Strategy
MegaBites mission:

Improve the sustainability of EPFL’s food system with data science

- Shrink food carbon footprint by 25–33% by late 2025 (4.7 - 3.1–3.5 kg CO2e)
- EPFL as a living lab to study food habits
- Insights, models, tools that can be ported to other campuses
- Advance science
Research plan

Tier 1: Measuring sustainability
- Campus-wide food monitoring tool

Tier 2: Modeling sustainability
- Causal models, simulation tool

Tier 3: Improving sustainability
- Campus-wide actions to lower CO2
Tier 1: Measuring (un)sustainability

Data integration and existing measures

- 1.5 million meals a year
- 203.5 tons of food ordered (July 2022 to June 2023)
- 19.5 tons of food wasted (July 2022 to June 2023)
- Nutritional scores for all meals
Tier 1: Measuring (un)sustainability

From food groups to ingredients
Tier 2: Modeling sustainability

Causal analysis, who buys what and when

- Interventions to understand food related behaviour
- Evaluate the main determinants of food consumption, status, gender, age.
- Interventions to test promising measures to further reduce footprint
Tier 3: Improving sustainability

Implement and monitor effective measures at scale

- 25% reduction in CO₂ emissions?
- Measures on the production side, onsite vs offsite
- Changes in consumption, short vs longterm
- Waste reduction and treatment
Initial results: Veggie Day

Average meals sold per meal-category
Veggie Day across restaurants

Average change in meals sold
Veggie Day across groups

![Graph showing change in meals sold during Veggie Day across different groups (Staff, Student, PhD) for gender and status.](image)
Thank you for pudding up with us!