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Klimato Carbon Labeling Methodology



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Klimato Carbon Labeling in a Nutshell

Our labels provide:



→ **Rating (A–E):** based on the carbon intensity of the dish, scaled to a standard 400g portion for fair comparison across meals.

→ **Absolute emissions per serving** (kg CO₂e/serving): the actual carbon footprint of one serving of the dish.

Please note: The A–E rating is **not** based on the per-serving CO₂e value shown on the label. Instead, it is calculated by adjusting the footprint to a 400g portion of the dish, allowing for a consistent comparison between meals of different serving sizes.

The thresholds are grounded in the latest climate science, including IPCC reports and the TCRE metric (Transient Climate Response to Cumulative Carbon Emissions).

Rating	Description	Carbon Intensity* (kg CO ₂ e/meal)	Climate Significance
A	Very Low	< 0.40	In line with Paris Agreement goal for 2050
B	Low	0.40 – 0.90	In line with Paris Agreement goal for 2030
C	Medium	0.90 – 1.80	2.5°C warming scenario
D	High	1.80 – 2.60	3°C warming scenario
E	Very High	≥ 2.60	Above 3°C warming scenario

**Carbon intensity: carbon footprint value of the dish normalized to 400g. The 400g normalised meal value is calculated taking the recommended amount of food that corresponds to a healthy and sustainable diet as defined by the EAT-Lancet Commission (Willet et al., 2019), and that a meal accounts for 30% of the daily intake (Waite et al., 2020).*



Very low



Low



Medium



High



Very high

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Methodology

The foundation of our five-tiered system is rooted in the latest climate science. The Very Low and Low thresholds align with the 2030 and 2050 targets of the Paris Agreement, aiming to keep global temperature increase to well below 2°C from pre-industrial levels. Higher thresholds signify a potential overshooting of those limits. The thresholds are defined in the following way:

- **0.40 kg CO₂e/meal:** Klimato estimated first the food-related GHG emissions per person per day in Europe in 2015 (FAO, 2024c). Considering that one meal accounts for 30% of daily emissions, we obtained the average emissions per person per meal. We then considered that the global food-related GHG emissions need to be reduced by 72% by 2050 relative to 2015 levels, if the world is to meet the Paris Agreement goal to limit the global temperature increase to well below 2°C above pre-industrial levels (Waite et al., 2020; IPCC, 2018).
- **0.90 kg CO₂e/meal:** This threshold has been calculated following the same reasoning, considering in this case that the global food-related GHG emissions need to be reduced by 38% by 2030 relative to 2015 levels to make sure that the world is on the necessary pathway to 2050. This threshold is in line with the threshold the World Resources Institute utilizes to define Coolfood Meals.
- **1.80 kg CO₂e/meal:** To calculate this threshold, we used the Transient Climate Response to Cumulative Carbon Emissions (TCRE) metric (Rogelj et al., 2019), which directly relates global mean temperature increase to GHG emissions to date. More specifically, we used TCRE to estimate the average amount of CO₂e per person in the world in 2050 (9.772 billion global population in that year) that corresponds to a global temperature increase of 2.5°C. Assuming that 31% of these emissions would come from the food sector (Tubiello et al., 2022), we then calculated the food-related emissions per person and meal that is associated with a temperature increase of 2.5°C.
- **2.60 kg CO₂e/meal:** To define the high threshold, we used TCRE to estimate the average amount of CO₂e per person in the world in 2050 that corresponds to a global temperature increase of 3°C. Assuming that 31% of these emissions would come from the food sector (Tubiello et al., 2022), we then calculated the food-related emissions per person and meal related to a temperature increase of 3°C by 2050.



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