AGRAIN: THE MOST ENVIRONMENTALLY SUSTAINABLE FLOUR

By upcycling spent grains from beer brewing – one of the biggest by-products of the food industry (1) – Agrain has created a spent grain flour with a significantly lower environmental footprint in comparison to conventional baking flour.

LCA CERTIFIED

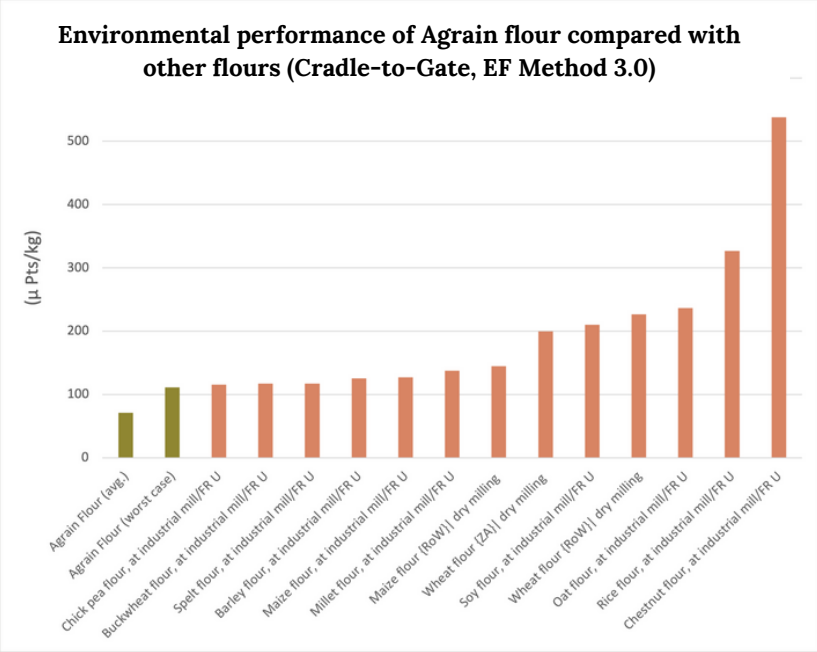
To measure our environmental impact precisely and objectively, we entrusted Re-Viu, a third-party environmental evaluation expert, to conduct a Life Cycle Assessment (LCA) of Agrain flour together with the Agrain sustainability team (2,3). The study was conducted using the **Product Environmental Footprint (PEF) method**, the European Commission's recommended framework for assessing the environmental performance of products throughout their life cycle (4).

The PEF method measures the environmental footprint across **16 impact categories**, including **climate change, land use, water use** and **resource use**. The PEF method calculates an environmental footprint score (expressed here in micro points, μ Pts) that makes it possible to compare the environmental impact of Agrain flour against other types of flour.

MORE ENVIRONMENTALLY SUSTAINABLE THAN 13 ALTERNATIVE FLOURS

The study measured the environmental impact of Agrain flour from **cradle-to-gate**, from the acquisition of spent grain from breweries to the processed flour product before packaging. The calculations used data from 4 years of Agrain flour production (2019-2022).

The PEF results were weighted, and the results from the most relevant impact categories were compared against 13 alternative flours. When taking all relevant environmental impacts into account, **Agrain flour had the best PEF score even in its worst performing year.**



Source: Agrain validated comparative LCA Report. (2)

SWAP & SAVE

Swapping out regular flour with Agrain flour in your baking will not only boost the nutrition and flavour of your food, but also make a positive impact on environmental sustainability.

For example, we've calculated that switching just 50g of regular flour for Agrain flour in our Easy and No-Knead Buns recipe means that your buns save **7.9 litres of water*** and use **10% less land** than buns using only wheat flour. That's water that stays unpolluted and land that is protected from soil degradation and biodiversity loss.

*Note: this value does not account for water added to the recipe.

AGRAIN CAN BE EVEN BETTER

Although Agrain flour is already more environmentally sustainable than alternative flours, our environmental impact has the potential to come even closer to zero. For example, in the best-case scenario, Agrain flour can emit as little as 0.03 kg CO2eq per kg flour – a staggering 97% less compared with alternative flours. This can be achieved with just **four improvements**:

1. *Upcycling spent grain liquid in addition to the separated grains*
2. *Eliminating all flour waste through more efficient processing*
3. *Cutting transport impacts by processing flour and liquid on-site at breweries*
4. *Using 100% renewable energy*

REFERENCES

(1) *Moates, G., Sweet, N., Bygrave, K.,Waldron, K. (2016) Top 20 Food waste streams. REFRESH Deliverable 6.9. Available at: https://eu-refresh.org/top-20-food-waste-streams.html*

(2) *Feced, M. & Beukel, K. (2023) Agrain Life Cycle Analysis (LCA). Circular Food Technology (Agrain).*

(3) *The report was further validated by independent auditor Bureau Veritas, in compliance with ISO14040 and ISO14044.*

(4) *European Commission (n.d.) Environmental Footprint. European Platform on LCA. Available at: https://eplca.jrc.ec.europa.eu/EnvironmentalFootprint.html*

NB: Based on 3rd party validated comparative LCA report. Method: Cradle to gate, EF Method 3.0, trade-off in between categories can be found in LCA report. Claims based on Agrain flour (average 4 years) performing best in overall PEF weighted results (EF Method 3.0, taking all 16 impact categories into account) as well as Agrain flour (average 4 years) performing best in eight out of nine hotspot impact categories against average flour results. EF Weighted results and environmental trade-off in between categories and specific flours can be found in LCA report (request access via email to contact@agrainproducts.com).