

Socio-environmental impacts of protein products - the True Price method

Impact Institute's work as part of the LIKE-A-PRO consortium (2022-2026)

September 2026

Context

The **LIKE-A-PRO project** aims to support the transition of alternative proteins from niche to mainstream, facilitating the adoption of sustainable and healthy diets. Funded under the European Union's Horizon Europe program over 4 years (2022-2026), LIKE-A-PRO relies on the expertise of 41 consortium partners and affiliated entities. Impact Institute, one of the project's partners, supports the transition towards **an efficient, just and sustainable food system** by quantifying the environmental and social cost of European protein production and consumption.

Project scope

The scope of this impact assessment consisted of a True Price assessment of **5 key conventional protein sources**: beef, pork, chicken, milk, and soy (the only one plant-based). In addition, **6 alternative proteins** were assessed: rapeseed, pea, mushroom, microbial, krill and mealworm protein. Three of the alternative proteins are plant-based (rapeseed, pea and mushroom), two are animal-based (krill and mealworm) and one is microbe-based.

The proteins differ substantially in how **mature** they are in terms of scale of production: the conventional proteins are traditional proteins eaten widely across the EU for a long time, and thus production is largely upscaled. In contrast, most of the alternative proteins are upcoming and are still in a more experimental phase. Therefore, the results of **upscaled** and **experimental** alternative proteins are presented separately.

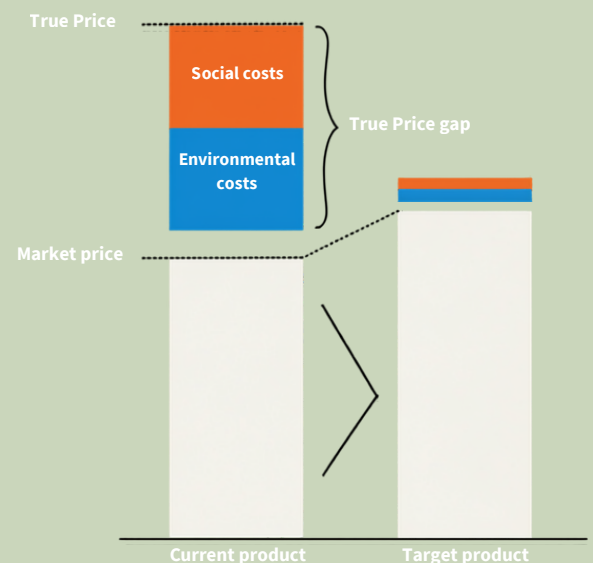
The **environmental costs** included in the assessment are climate change, land use, fossil fuel depletion, scarce water use and air, water and soil pollution. The **social costs** in scope were underearning, underpayment, child labour and animal welfare. The 7 material environmental and 4 social impacts selected were based on materiality and data availability.

Impact Institute & True Price

Impact Institute helps organisations understand their impact by measuring, quantifying and monetising impact - or calculating the True Price of products using the open-source True Price method. By offering the tools, data and advisory services, vital impact information can be factored into developing strategies and decision-making, to steer for long-term value.

About True Price

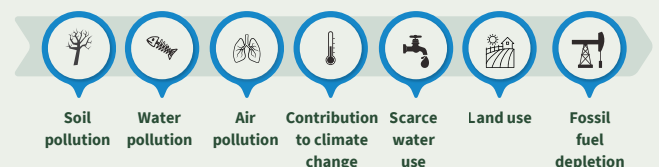
The **True Price** is the market price of a product plus all its hidden environmental and social costs (such as contribution to climate change, biodiversity loss, child labour or underpayment). These costs are not always included in the market price, or reflected in what consumers pay - but are paid by somebody else, or by society in general. The difference between the calculated true price and the market price paid is the True Price Gap (see figure below).



Social Impacts



Environmental Impacts



For information on the selected system boundaries and value chain scope, please contact Impact Institute

Results of the True Price assessment

Five conventional and six alternative proteins



Plant-based, upscaled alternative proteins can lower the True Price Gap of protein production



Interpretation of results

- **Maturity of scale:** the proteins differ substantially in how mature they are in terms of scale of production. Most of the alternative proteins are upcoming and are still in a more experimental phase, and thus not fully established yet (e.g. high energy use). At later points in time, when the production matures, reduction of the True Price gap is likely.
- **Data representativeness:** the data underlying the alternative protein analyses is company-specific. The impacts can be different if produced by another company (or in another country). For example, the impact of electricity used depends on the renewable energy share in the electricity grid of the country.
- **Scope of external cost:** The environmental and social costs included in this assessment cover the most relevant external costs, but other types of external costs can become relevant when data or methods becomes available.

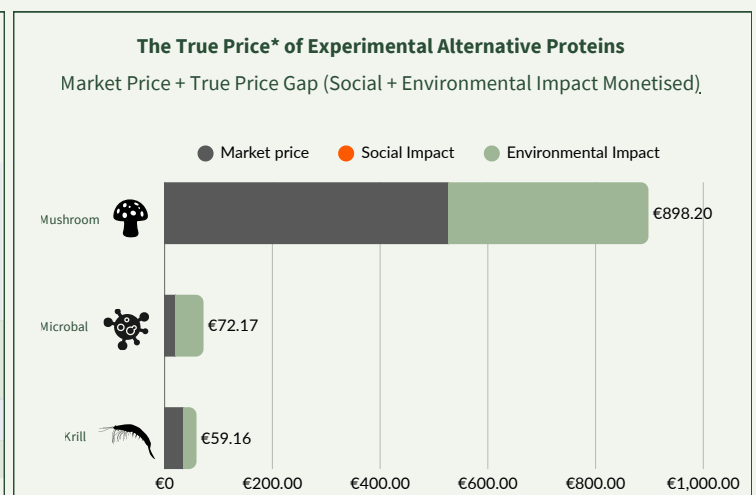
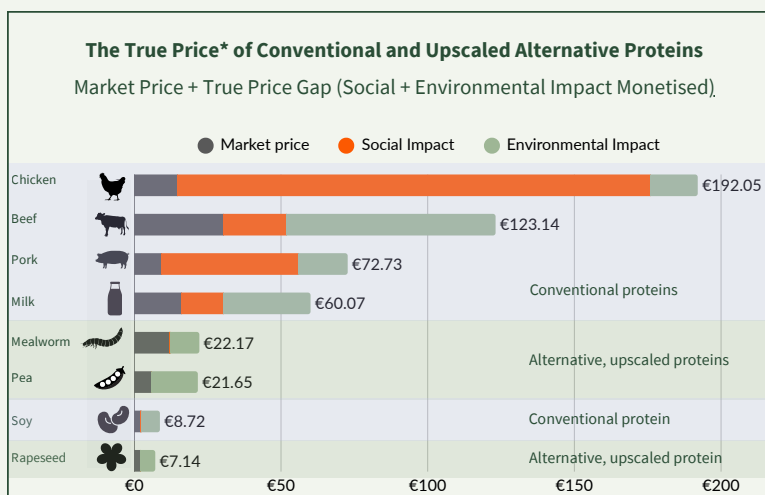
Results & Conclusion

The most important results are that the upscaled, alternative proteins have **lower True Price gaps** than most conventional proteins. This is primarily driven by lower animal welfare and environmental costs. Alternative proteins, particularly the **upscaled, plant-based proteins**, have **significant potential** to reduce the environmental and social cost of European protein production and consumption. Soybean, even though it is a conventional protein, was also linked to a low True Price (gap), further strengthening the case for **plant-based protein**.

Further research on the external cost reduction potential of the alternative **experimental proteins** is needed to increase comparability between upscaled, alternative proteins and the other proteins.

These insights can contribute to the **protein transition** by guiding policymakers in developing regional strategies and supporting investors and agri-food companies to shift towards more sustainable, healthy and fair food systems.

Results of the True Price assessments



*Both the market price and the True Price gap are expressed in euros per kg protein according to their 2025 value. Market prices are based on wholesale price for conventional animal-based proteins. For most of the alternative proteins, pricing was more difficult as there is no full functioning market for them yet. These were estimated and therefore limit comparability (see *maturity of scale*).