EXPERT OPINION
YES, WE CARE ABOUT #14

WHAT ARE THE MAIN DEBATES AROUND THE ENVIRONMENTAL LABELLING OF PRODUCTS?

*By **Laurène Branaa** and **Alexis Tressol***

Environmental labelling of food products: what are we talking about?

The creation of an environmental label for products, particularly food, is one of the **key measures of the Roadmap for the Circular Economy** (French government initiative: feuille de route pour l'économie circulaire - FREC) published in April 2018, aiming to propose an indicator on the environmental impact of products to inform consumers. This is in a way the environmental counterpart of the Nutri-score (French government initiative, now being considered to be applied for all European Union countries), which has appeared on product packaging since 2016. This indicator will be based on a holistic environmental approach: it will take into account different types of environmental issues (pollution, global warming, resource depletion, etc.) to propose a single score on the overall environmental performance of the product, for its entire life cycle (from the production of raw materials to the end of the product's life).

The interest of this "environmental score" is twofold: on the one hand, it is intended to **encourage more sustainable consumption behavior** by informing consumer choice; on the other hand, it **encourages the industry to improve the environmental performance of products** by highlighting "low impact" products. The experience of the Nutri-score has shown a significant effect of the display on these two targets: both an effect on consumption choices and on its consideration by companies in the design department of their products. Environmental scoring would take the form of a voluntary but supervised system, similar to the Nutri-score. An experiment is currently underway for food products, and the results are expected in November 2021.

October, 2021

1 How will it be calculated? What we already know

The experiment, led by ADEME[1] and three ministries (Ministry of Agriculture and Food, Ministry of Ecological Transition and Ministry of Economy and Finance), was launched during the summer of 2020 and ended during the summer of 2021. The publication of the assessment is expected in November 2021. As part of this experimentation, twenty projects were selected to shed light on the environmental display methods to be implemented. This expert opinion is largely based on the notes of the thematic working groups and the hearings of the Scientific Council, of which the following paragraphs constitute a summary on certain subjects that are crucial in our view. These complete notes can be consulted on the ADEME website (in French).

In this first part, we will study the choices and assumptions made during the framing phase of this experimentation.

An aggregated and prescriptive score

ADEME prefers aggregate and synthetic information, in other words, a single score, rather than more detailed multi-criteria information. This choice is motivated by the goal of maximizing the impact of the display and making it easier for consumers to understand. Indeed, studies have shown that synthetic information is more impactful than detailed information which increases the complexity of understanding and the risk of confusion[2]. The disadvantage is the information displayed is not as rich and implies an aggregation work of various impacts, to which we will return below.

In addition, this display will be prescriptive, i.e. it will create a hierarchy of products translated into a score and a color code (which is equivalent to classifying "good" and "bad" products), rather than descriptive, which would have been limited to informing consumers about the level of certain indicators (e.g.: "the product's carbon footprint is 345gCO_2eq").

[1] ADEME – French agency for ecological transition

[2] Thorgensen & Nielsen (2018); Feucht & Zander (2018); Muller & Ruffieux (2020); Muller and al. (2012); Crosetto and al. (2017); Crosetto and al. (2019)

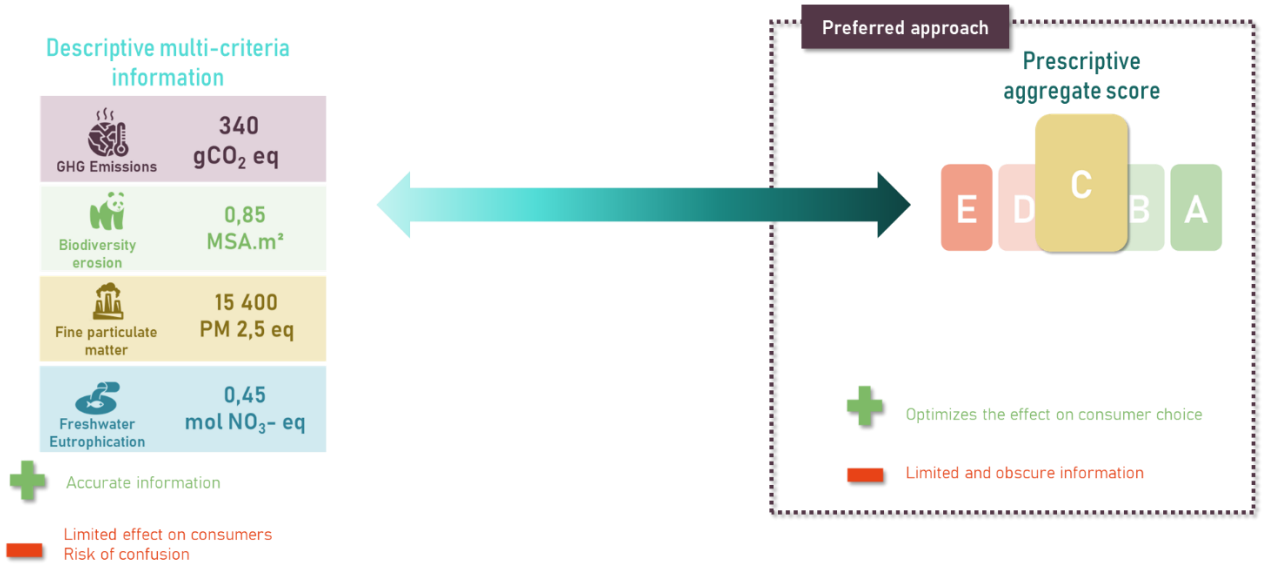

Figure 1: Choice of display type. Adapted from the work of the "indicators" theme group.

These biases are consistent with information that has an impact on consumption choices and are justified by studies and feedback on the Nutri-Score.

A cross-cutting approach for all food categories

Another approach is to adopt the same threshold for all food products, regardless of their category. An alternative would have been to have specific thresholds for each product category.

A category-specific calculation would make it possible to distinguish between different products in the same category (i.e., to compare two different brands for the same product). On the other hand, such approach would make it impossible to compare two different category products or even two different products from the same category; for example, the comparison between a minced steak and a vegetable minced steak. However, the aim of this environmental display is not only to help consumers choose between different brands for the same product, but also to encourage them to turn to products that have less impact on the environment, which explains the choice of transversal thresholds.

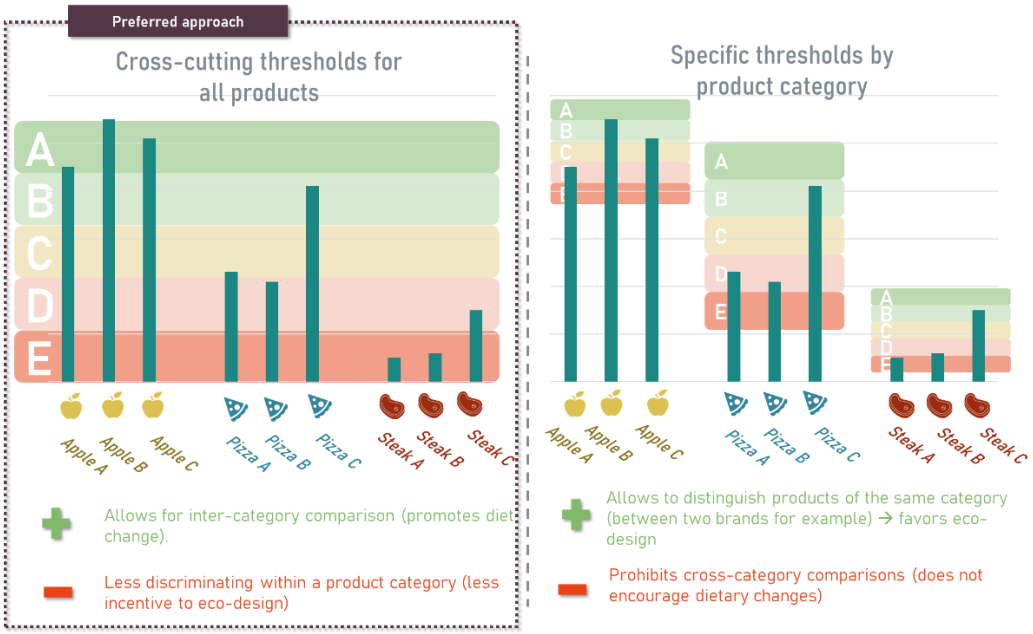

Figure 2 : Choice of threshold type. Adapted from the work of the "indicators" theme group.

One of the problems with this cross-cutting approach to thresholds is the risk of having the same score for certain product categories, regardless of the brand. This is one of the important points to be tested and corrected through experimentation. One possibility to successfully distinguish brands is to increase the number of categories (e.g. from a 5-color scale to a 10-color scale).

LCA base completed with additional indicators

The calculation of this environmental score will be based on a Life Cycle Assessment (LCA). The LCA approach is a standardized method that identifies and quantifies, throughout the life cycle of products (or services), the physical flows of materials and energy associated with them and assesses their potential impacts. Two strong arguments in favor of the LCA approach are that it has been the subject of extensive work (widely used for 20 years) and that it is recommended at the European level to harmonize methods (the LCA approach is used in particular in the PEF[3] method). Also, it can be based on very rich databases, such as the Agribalyse database, which provides quantitative data to measure the impacts of 2500 food products. This LCA base will be used in an evolutionary manner, with an improvement of certain indicators over time.

Nevertheless, the LCA approach has many limitations and, used alone, it is not sufficient to assess all the environmental impacts of a product. In particular, it does not measure, or does not measure well, certain impacts, such as the impact on biodiversity or the impact of pesticides, and certain environmental amenities, such as carbon sequestration or the reparability of products (a priori not relevant for food products, but of considerable importance for other sectors, such as furniture). Although LCA tools have multiple limitations, these are well identified and can be corrected by complementary indicators. This is the approach favored by ADEME.

[3] Product Environmental Footprint: a harmonized European methodology for calculating the environmental footprint of products and organizations.

2 Questions that remain unanswered at this stage

The implementation of such score involves multiple methodological questions, which must be confronted with operational issues. Three major issues are presented in this expert opinion: the level of detail of this score, the inclusion of additional indicators and the aggregation of indicators.

The level of detail of this score

As described above, a transversal threshold is preferred to specific thresholds per product category, in order to be able to guide the consumer in both inter-category (compote vs. yogurt) and intra-category (brand A compote vs. brand B compote) comparison.

The calculation methodology is another element, very operational, which will influence the most relevant comparison methods. Indeed, unlike the Nutri-score (for which calculations are specific to each product, based on the information on the label), some data such as manufacturing processes, transport and origin of ingredients are not directly accessible.

In a very simplified way, two extreme levels of specificity are possible: a very specific "ideal" calculation (realization of an LCA specifically for each product) and a generic "degraded" approach (use of LCA data of the "average product" for all products of the category).

The generic calculation is much easier to implement; it can be deployed to all products and is usable by all players, without the need-to-know precise data on the product. It would be based on average values for each product category (existing and public data, such as those in the Agribalyse database for example). As a result, it does not allow for intra-category comparisons (e.g. between two different brands) and therefore does not encourage eco-design.

The specific calculation requires a detailed knowledge of the product data; it thus excludes certain players (recipe sites, distributors), and is very costly to implement, both in terms of time and money (requires the intervention of LCA consultants). In other words, it cannot be generalized beyond industrial product manufacturers.

In order to be able to compare two identical products of different brands and two different products at the same time, without requiring too many resources, it seems that intermediate options are being studied, based on generic data and completed by a parameterization of key data (recipe or production mode).

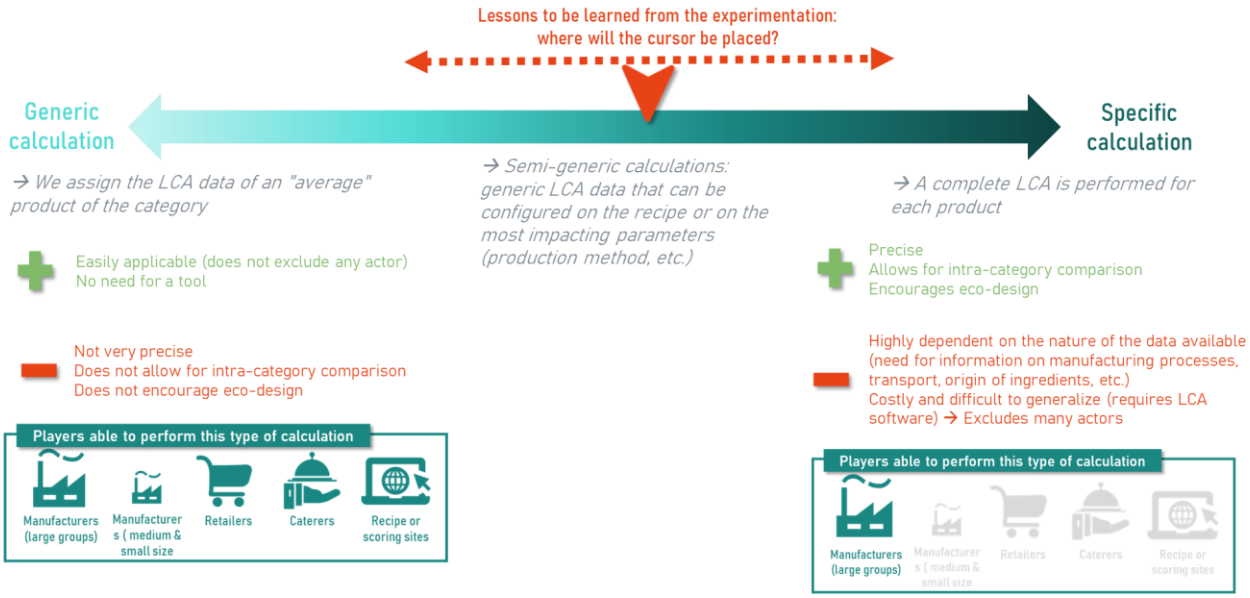

Figure 3 : Choice of the specificity level of the score. Adapted from the work of "indicators" working group.

The results of the experiment will provide information on the position of this cursor. It is likely that several levels of specificity will be authorized in the short term, with an improvement over time leading to more specific calculation methods in the medium term.

Taking into account additional indicators outside of LCA

As mentioned earlier, LCA indicators are insufficient to propose a score that correctly reflects all the environmental impacts of a food product. Among the main gaps in LCA are the impacts on biodiversity and carbon sequestration.

Taking biodiversity into account

The erosion of biodiversity is a major environmental issue. However, LCA methodologies, based on physical flows, only capture these impacts to a very limited extent (for example, via pollution indicators such as ecotoxicity, which currently only takes into account ecotoxicity relative to freshwater and does not cover land or marine ecotoxicity) [4]. These impacts must therefore be taken into account via one or more complementary indicators.

Methodologies for assessing the impact of a product on biodiversity exist (*Global Biodiversity Score, Product Biodiversity Footprint, Biodiversity value increment, etc.*). However, these methodologies are not yet mature and are too cumbersome to be deployed on tens of thousands of products in the short term. In the longer term, environmental display should be able to be based on a methodology of this type, but within the timeframe of the experiment, it seems unavoidable to opt for a simplified, more operational approach.

The results of the experiment should shed light on the approach to be favored in the short term to take into account the impacts on biodiversity.

[4] OLCA-PEST (2020)

The proposed approach would be based on product specifications (via associated labels or certifications) and on the type of land use ("intensive" crops, "extensive" crops, agroforestry, etc.). This would allow for a simplified and rapidly deployable application on all products. In practical terms, this would mean assigning a biodiversity impact score to each label, certification and type of land use.

This approach would also make it possible to partially take into account deforestation and overexploitation of marine species via the associated labels and certifications.

This approach will have to major limits:

- First, it **lacks precision**: the scoring depends largely on the rating system and the hierarchy of labels and certifications and would be based more on indicators of means than on indicators of results;
- Secondly, it **could be biased**: such scoring would disadvantage players implementing environmentally friendly production methods without benefiting from labels or certifications.

In the absence of a better solution, this approach would be used in the short term, but it seems essential to replace it with a more precise indicator.

Consideration of carbon storage/removal

While GHG emissions are well taken into account through LCA, the mechanisms of carbon storage and destocking by soils and litter[5] are not (yet) integrated in LCA databases.

These carbon flows could be taken into account through the type of land use ("intensive" crops, "extensive" crops, agroforestry, etc.) as for biodiversity, based on national studies such as the INRAE's[6] "4 per 1000" study, for example.

As for biodiversity, this simplified approach should only be transitory until an ad hoc indicator is integrated into LCAs. Work is currently underway to develop such an indicator.

[5] The litter is the whole of the vegetable debris, being incorporated into the mineral ground, more or less rapidly, to give the humus.
[6] France's National Research Institute for Agriculture, Food and Environment (INRAE)

The aggregation of indicators

Finally, establishing a single indicator of the environmental impact of a product implies aggregating different impacts of different kinds. The question of the weighting of each impact is therefore central to the experimentation process.

A first level of aggregation is already known for the LCA indicators, whose weighting is based on the European LCA reference method EF3 (Environmental Footprint). In this score, 16 LCA indicators are weighted, and the most important indicator is the product's impact on climate.

A second level of aggregation consists in aggregating this "LCA score" with complementary indicators (biodiversity, storage/ removal).

The methodological choices on the aggregation of impacts could be based on the global limits to compare the gravity of the different impacts. By referring to global limits, the impact on biodiversity should have a significant weight in the aggregated score. However, we have seen above that this indicator is, for the moment, relatively weak, which could lead decision-makers to moderate its importance (pending its improvement).

Planetary boundaries

The concept of planetary boundaries appeared in 2009 with the publication in Nature of a study conducted by an international team of 26 researchers. They identified 9 planetary limits that must not be exceeded if humanity is to develop in a safe ecosystem, i.e., one that avoids brutal environmental changes. In the illustration to the right, the green circle corresponds to the planetary limits and the red zones correspond to the estimated current state.

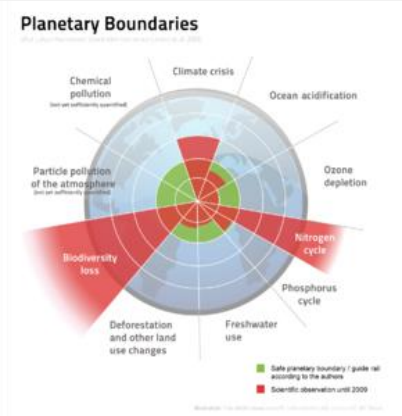

Figure 4 : Planetary limits according to the report by Rockström and al. published in Nature (2009).

3 Conclusion and remarks

The results of this experiment are long-awaited because many methodological issues remain unresolved and the underlying reasoning is the subject of numerous debates.

It is certain that the **LCA indicator alone is insufficient** to provide complete and robust information to consumers on the environmental impact of products. **Indicators on biodiversity, risk of deforestation, and carbon sequestration seem unavoidable** to us (even if it implies a degraded methodological approach) and other indicators will also have to be improved or added as soon as possible (impact of pesticides, stakes associated with microplastics, ...).

The **integration of solid impact indicators on biodiversity must be the top priority** for the future improvement of this score. Multiple works in progress suggest that this will be possible in the medium term.

This environmental display will undoubtedly be **implemented over time**, as part of a continuous improvement process. In the short term, it is certain that this display will have significant limits. Nevertheless, these limitations seem to overlap with frequent shortcomings in the environmental field and are all the subject of work (biodiversity indicators, carbon sequestration indicators, indicators of pesticide impact). We can therefore be optimistic about medium-term gains in reliability.

Nevertheless, **these limitations do not question the short-term launch of such a system**. The environmental urgency underlined by the recent IPBES and IPCC reports **requires immediate action**. For the food sector, this requires a rapid change in consumer habits. It, therefore, seems undesirable to delay providing consumers with information on the environmental impact of food products, even if this labelling is not perfect.

Sources

Publications within the framework of the experimentation (French & English)

ADEME & INRAE (2020) - L'affichage environnemental des produits alimentaires : Quelles modalités, quelles données, quels usages ? https://www.ademe.fr/sites/default/files/assets/documents/note_affichage_environnemental_version_finale_inrae-ademe.pdf (consulté le 15/09/21)

ADEME & MTE (2020) – Protocole d'encadrement de l'expérimentation « affichage environnemental » dans le secteur alimentaire. https://www.ademe.fr/sites/default/files/assets/documents/protocole_experimentation_affichage.pdf (consulté le 15/09/21)

Groupe de travail « Indicateurs » (2020) – Note n°1 : Expérimentation affichage environnemental sur le secteur alimentaire. Eléments de cadrage initiaux. https://www.ademe.fr/sites/default/files/assets/documents/experimentation_affichage_note_cadrage_groupe_indicateurs_doc_travail.pdf (consulté le 15/09/21)

Groupe de travail « Indicateurs » (2021) – Note n°2 : Données génériques/spécifiques/semi spécifiques pour l'ACV https://www.ademe.fr/sites/default/files/assets/documents/indicateurs-donnees-generiques-specifiques-acv-2021.pdf (consulté le 15/09/21)

Groupe de travail « Indicateurs » (2021) – Note n°3 : Biodiversité https://www.ademe.fr/sites/default/files/assets/documents/experimentation-affichage-environnemental-alimentaire-note-3.pdf (consulté le 15/09/21)

Groupe de travail « Indicateurs » (2021) – Note n°4 : Agrégation des impacts environnementaux https://www.ademe.fr/sites/default/files/assets/documents/experimentation-affichage-environnemental-alimentaire-note-4.pdf (consulté le 15/09/21)

Groupe de travail « Indicateurs » (2021) – Note n°5 : Sujets divers complémentaires à l'ACV. https://www.ademe.fr/sites/default/files/assets/documents/note-5-gt-indicateur-sujets-divers.pdf (consulté le 15/09/21)

Groupe de travail « Indicateurs » (2021) – Note n°6 : Bilan https://www.ademe.fr/sites/default/files/assets/documents/experimentation-affichage-environnemental-alimentaire-note-6.pdf (consulté le 15/09/21)

Groupe de travail « Indicateurs » (2021) – Synthèse des échanges https://www.ademe.fr/sites/default/files/assets/documents/experimentation-affichage-environnemental-alimentaire-groupe-formats-note-synthese.pdf (consulté le 15/09/21)

Other scientific resources (French & English)

ADEME (2020) - Étude de la variabilité des données Agribalyse 3.0. Étude réalisée par ECO2 Initiative ; Shafik Asal, Milena Doucet, Alexandre Martin. 51 pages

ESA (2020) – Perception des consommateurs français face aux affichages environnementaux des produits alimentaires. https://www.ademe.fr/sites/default/files/assets/documents/etude-esa-perception-consommateurs-rapport-croise-etudes.pdf (consulté le 15/09/21)

https://www.ademe.fr/sites/default/files/assets/documents/etude-esa-perception-consommateurs-synthese.pdf (consulté le 15/09/21)

Brunner F., Kurz V., Bryngelsson D., Hedenusa F. (2018) - Carbon Label at a University Restaurant – Label Implementation and Evaluation, Ecological Economics, Volume 146, April 2018, Pages 658-667. https://doi.org/10.1016/j.ecolecon.2017.12.012

Crosetto P., Lacroix A., Muller L., Ruffieux B. (2017) - Modification Des Achats Alimentaires En Réponse à Cinq Logos Nutritionnels. Cahiers de Nutrition et de Diététique 52 (3): 129–33. https://doi.org/10.1016/j.cnd.2017.04.002

Crosetto P., Lacroix A., Muller L., Ruffieux B. (2019) - Nutritional and Economic Impact of Five Alternative Front-of-Pack Nutritional Labels: Experimental Evidence. European Review of Agricultural Economics, August, jbz037. https://doi.org/10.1093/erae/jbz037

Feucht Y., Zander K. (2018) - Consumers' preferences for carbon labels and the underlying reasoning. A mixed methods approach in 6 European countries, Journal of Cleaner Production Volume 178, 20 March 2018, Pages 740-748. https://doi.org/10.1016/j.jclepro.2017.12.236

MULLER Laurent (2021) – Retour d'expériences – Le cas du Nutri-Score. https://www.ademe.fr/sites/default/files/assets/documents/retour-experience-dispositif-affichage-nutritionnel.pdf (consulté le 15/09/21)

Muller L. Lacroix A., Ruffieux B. (2019) - Environmental Labelling and Consumption Changes: A Food Choice Experiment. Environmental and Resource Economics 73 (3): 871–97. https://doi.org/10.1007/s10640-019-00328-9

Muller L., Ruffieux B. (2012) - Modification Des Achats En Réponse à l'apposition de Différents Logos d'évaluation Nutritionnelle Sur La Face Avant Des Emballages. Cahiers de Nutrition et de Diététique 47 (4) : 171–82. https://doi.org/10.1016/j.cnd.2012.02.004

Muller L., Ruffieux B. (2020) - Shopper's behavioural responses to 'front-of-pack' nutrition logo formats: GDA Diet-Logo vs. 6 alternative Choice-Logos. Working Papers 2020-01, Grenoble Applied Economics Laboratory (GAEL).

OLCA-Pest (2020) – Fianl Project Report. Operationalising Life Cycle Assessment for Pesticides

Rockström, J., Steffen, W., Noone, K. et al. (2009) - A safe operating space for humanity. Nature 461, 472–475 https://doi.org/10.1038/461472a

Thøgersen J., Nielsen K.S. (2016) - A better carbon footprint label, Journal of Cleaner Production, Volume 125, 1. July 2016, Pages 86-94. https://doi.org/10.1016/j.jclepro.2016.03.098

ABOUT THE CONSULTING GROUP I CARE

I Care is a leading consulting company in the environmental field. Since 2008, I Care assists companies, financial actors and the public sector in their transition towards a low environmental impact society.

From strategic thinking to operational solutions, I Care offers innovative solutions on a wide range of environmental challenges with the objective of helping society to move to sustainable economy.

HQ: 28, rue du 4 septembre, 75002, Paris, France

I Care
Because our **impact** matters

France (Paris - Lyon) – Brazil (Belo Horizonte)

+33 (0)1 43 66 87 27

contact@i-care-consult.com