

# Putting the metrics behind sustainability at AgroFair.



## AgroFair

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### Uncovering Toxicity Impacts to Improve Regional Banana Production

#### The Challenge

Most bananas sold in Europe nowadays have some sort of sustainability label, such as Rainforest Alliance, ISO 14001 or Fairtrade. One of the labels is AgroFair's Oké label. AgroFair started in 1996 with the import and distribution of Oké bananas from Latin America to supermarkets in Europe. Nowadays they also import certified organic bananas, which are called eco-Oké bananas.

Because of the increase in sustainability labels, it is getting more difficult for AgroFair to differentiate their Fairtrade and certified organic bananas from other labelled bananas. AgroFair was interested in finding out whether pesticide-related toxic impacts could be quantified and made visible to retailers and consumers, and ultimately used for differentiation and to create a competitive advantage.

There are large differences between farms in the amount of pesticides used, the geography and the climate and soil conditions. To find out whether toxic impacts can be a differentiating factor, AgroFair consulted PRé to develop a user-friendly tool that quantifies the toxic impact of pesticides on humans and freshwater ecosystems.

#### PRé Solution

The tool we developed, Pesticide Footprint, is based on the scientific consensus model USEtox v2. Users can fill in the amount of each of 24 commonly applied pesticides used per farm. The tool automatically calculates the human toxicity and freshwater ecotoxicity scores per farm, and ranks the five pesticides that contribute most to the impact. To guarantee robustness and reliability, the tool is also configured to generate alternative results using the USES-LCA toxicity model. USES-LCA is part of the commonly used impact assessment method ReCiPe.





For AgroFair, a large banana importer looking to differentiate its products, PRé developed the easy-to-use Pesticide Footprint tool to quantify the toxic impacts of pesticides on human health and freshwater ecosystems.



### Freshwater Ecotoxicity

The freshwater ecotoxicity impacts from banana production in Panama were about 30 times higher compared to production in Ecuador. The chemicals that contribute the most to the impact of bananas from farm 1 are azoxystrobin and mancozeb. For organic bananas from farm 3, the toxicity-related impact was zero, because no synthetic pesticides were used.

### Additional Insights from Different Settings and Models

The concentration of pesticides to which humans and eco systems are exposed is influenced by landscape parameters like average temperature, precipitation, fraction of natural area, etc. Therefore, we performed our analysis twice: once with the default landscape settings and once with region-specific landscape parameters, to see how the results were affected. USEtox provides landscape parameter values for several regions, including those covering Central America, Peru and southern Ecuador. We found that the region-specific characterisation factors increased the score of the Panama case by about 300% compared to the default landscape settings, whereas the score of the Ecuador case did not change significantly. A further analysis of the influence of the different landscape parameters showed that the average precipitation rate was the most important parameter for freshwater ecotoxicity and that natural and agricultural area fractions were the most important parameters for human toxicity.

We also applied the alternative toxicity model USES-LCA to test the importance of impact assessment modelling choices. The analysis with USES-LCA generally confirmed the results of USEtox. In addition, applying USES-LCA showed that the impact on terrestrial and marine ecosystems, which are not included in USEtox, may be significant.

### Business Value

#### **Tool and in-house capability to calculate pesticide footprints.**

With our user-friendly Pesticide Footprint tool, AgroFair's team can now autonomously calculate the pesticide footprints of additional farms. In the three case studies, the tool showed that the modelled toxicity impacts from banana production are very different on different farms, particularly for human toxicity. AgroFair will use these insights in the communication with their stakeholders, and they will discuss with their banana producers which pesticides are best to be avoided.

#### **Identifying improvement areas through stakeholder collaboration.**

The study also identified how a commonly accepted approach can be implemented with the different farms. Based on the identified improvement areas, we provided AgroFair with a concrete list of recommendations for the stakeholders.

#### **Input for consumer communication.**

Ultimately, AgroFair wants to develop easy labels based on this region-specific, scientific consensus tool. Our study made clear that they would need to involve more stakeholders and get consensus on the approach for Pesticide Footprint development.



## Creating Business Value Through Sustainability Metrics

### Sustainability Metrics Consulting

Sustainability in business has become a core business concern and a driving factor in creating business value. PRé offers a range of consulting services, provided by a team of experts who will work with you to choose, create and deliver the right metrics for your sustainability goals.

### **PIONEERING** Developing Innovative New Metrics For New Challenges

Societal and stakeholder expectations for implementing sustainability in business are becoming more demanding. Sometimes, off-the-shelf metrics cannot help you answer their questions. PRé has extensive experience in life-cycle-based metrics pioneering: implementing cutting-edge new product metrics and developing completely new, scientifically sound and robust metrics. PRé has been the driving force behind many ground-breaking initiatives like ReCiPe or the Handbook for Product Social Impact Assessment.

### **INTEGRATION** Integrating Sustainability Metrics In Your Business

To create business value from sustainability, your business needs to integrate sustainability metrics across its business functions. You can't improve what you can't measure. PRé has the expertise required to help you choose the right metrics and to integrate sustainability into your day-to-day operations. PRé also supports you in increasing the efficiency of your LCA work and in empowering your LCA practitioners.

### **DELIVERY** Expert LCA Knowledge To Measure Sustainability Performance

LCA has proven to be a robust and science-based way to measure and communicate your sustainability performance. PRé can review your LCA studies, deliver EPDs, footprints and other metrics, and provide you with completely new LCA studies to measure your impact. Our consultants are renowned for their expertise in specific topics, such as impact assessment, uncertainty, normalisation, toxicity, social sustainability and databases. PRé offers training courses and in-house training that build a solid knowledge base to help you conduct LCA studies yourself.

**Get In Touch With PRé**  
We're always happy to discuss your sustainability challenges with you. If you have any questions, feel free to contact our offices in the Netherlands and the US.

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*We look forward to being your partner in putting the metrics behind sustainability.*

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### Those Who Have Gone Before – Market-leading Businesses That Are Creating Value From Sustainability Metrics

PRé has built a worldwide reputation as a leader on environmental and social impact assessment. We work with organisations and institutes such as the European Commission, European Space Agency, Heineken, BASF, Philips, L'Oréal and DSM.



L'ORÉAL



### About PRé

PRé has been a leading voice in sustainability metrics and life cycle thinking, since 1990, pioneering the field of product and supply chain sustainability metrics. We've developed some of the world's most widely recognised and applied environmental impact assessment methods, as well as the world's leading LCA software, SimaPro. From the very first, we have not only focused on developing the science of LCA, but also its application – helping companies create value by using state-of-the-art measuring, monitoring and analysis methodologies to improve their sustainability performance.

Find out more about what we can do for your organisation at [www.pre-sustainability.com](http://www.pre-sustainability.com)

