

## Impact Objectives

- Investigate how markets can be opened for biobased products through pre-normative research, standardisation, labelling and procurement
- Increase the uptake speed of standards, labels and harmonised product information for bio-based products in Europe

# Symbiotic relationships to deliver bio-based products

*Ortwin Costenoble, Martin Behrens, Marieke Meeusen and Christiaan Bolck are all part of a team who investigated how markets can be opened for bio-based products through increasing the use of standards, labels and product information. Below, they describe their respective roles, the tools they use, and events planned for the future*



*Clockwise from top left: Ortwin Costenoble, Martin Behrens, Marieke Meeusen, Christiaan Bolck*

### What are your different roles within this important initiative?

**OC:** My role is the Project Manager of Open-Bio. The ultimate goal of this work is to ensure that producers inform their customers about the biological content of a product, or its capability to biodegrade in marine environments and in backyard composting sites. This will be achieved on the basis of standard determination techniques via a harmonised tool and perhaps a label.

**MB:** I led the development of a product information database and interaction tool. I contributed to the stakeholder surveys, the concept development, the technical development and pilot testing of the database and interaction tool. Furthermore, I'm responsible for filling the database with product information. I supervised and coordinated the work of the participating partners, was responsible for the cooperation with the other Work Packages (WPs) in Open-Bio, and presented our work to stakeholders outside the project.

**MM:** I interacted with the research partners on the acceptance of the three main target groups for bio-based products: the government, business and consumers. Also the NGOs have been asked about their wishes and requirements on bio-based products. We have done interviews and held surveys among close to 6000 consumers in the Czech Republic, Denmark, Germany, Italy and the Netherlands about consumer perceptions of bio-based products. Some partners were helpful in providing real products such as t-shirts, paint, drink bottles or car dashboards that we used as examples in the consumer exchanges.

**CB:** The origin of the project can be found in the recommendations provided by the ad hoc Advisory Group for Bio-based Products in the framework of the European Commission's Lead Market Initiative. As a former member of this group and current member of the DG GROW Expert Group Bio-based Products, I can underline the importance of the main tasks, namely the development and implementation of standards and providing information to the public. I work for Wageningen Research and based on our 30 years' experience in technical research in bio-based materials and products my team is involved in the execution of both of these tasks.

### How important is this work to understanding perceptions about bio-based products and the choices people make?

**MM:** Studies on the role of social acceptance of environmentally friendly technologies have largely focused on the case of renewable energy technologies. I imagine that producers have asked consumers about how they feel about their



bio-based product or that national policy makers have asked about ecological labels. However, confronting consumers with several actual bio-based products has never happened on this scale before. For Open-Bio the focus is on what properties needed to be incorporated by producers in order to convince procurers and consumers to purchase. Furthermore, the project helps producers how to communicate about the bio-based products and what the role of labels could be in the marketing and communication plans. I would say that this more extensive work will assist producers as they have to more or less tailor their product information to the country and the specific target groups they are selling in.

**Can you describe the function of the database you are putting together and how it will be used in the future?**

**MB:** The product database functions as a tool that incorporates results from all of the Open-Bio WPs. However, information is presented in a format adapted towards the needs of public procurers and is therefore focused on practical solutions and the public procurers' product information needs. The original goal was to develop a concept for product information that optimally matches product information according to latest developed standards with the information requirements of the various user groups. However, during our work we decided to develop a tool that focused on public procurers. The reason for this was that we realised that information for B2B exchanges was already presented in various European and national databases. We didn't want to create another tool for the same purpose. Our survey showed that consumers do not

need detailed information on products yet as long as they lack basic knowledge on bio-based products. We therefore decided to present more general information within the interaction tool, but to base product information on the needs of public procurers. Nonetheless consumers with an interest in specific product information can also access the database and use the content we are providing.

**In what ways will users be able to access the final online database?**

**MB:** After the tool was finally presented in October 2016 (which was also the final Open-Bio conference), we transferred the database to the project InnProBio, where it becomes part of the public project website and freely accessible to any user. Companies interested in presenting their bio-based products in the database need to provide product information according to our information requirements. The main issue is to prove that a product is partly or fully bio-based and that it is used – or can potentially be used by public services. Interested companies should contact the Agency for Renewable Resources (FNR) in Germany.

**Supporting all of the partners is obviously an essential component of this project.**

**What are some of the tools you have used to promote the networking at the heart of this collaboration?**

**OC:** The diversity of the partners involved automatically initiated interest in what the others were doing. While we didn't use tools like discussion platforms for the networking, we conducted face-to-face meetings and visits to each other's facilities, as this appeared to be the best

option. We encouraged a couple of partners to take part in standardisation meetings and bio-based conferences to ensure they would all see one another more frequently. Regular meetings are an integral part of sharing the work we have performed and the results obtained.

**Do you have any planned workshops or outreach events coming up that will be of interest to our readers?**

**MM:** Our final workshop took place in Brussels in October 2016, which was also aimed at policy makers and industry associations. Furthermore, some of the Open-Bio results are scheduled to be presented at a workshop for standardisation groups in Canada in April 2017.

**Finally, what are the next steps for your research on this topic?**

**CB:** Implementation of the standards for biodegradation in controlled environments (composting and digestion) and a European standard to measure the bio-based content. More research is needed on a standard test method to determine biodegradation in nature; both on land and in (sea) water, since natural circumstances cannot be controlled. This is important because of discussions about littering and 'plastic soup'. Last but not least, our research on recycling showed that much more standardisation research is needed for the recycled plastics in general and most probably also other materials like textiles. I am therefore glad to see the ambitious plans of the EU on the circular economy.

# Towards a bio-based future

*The Open-Bio project is designed to determine the best methods to encourage consumers to buy bio-based products. By identifying what final users want to know about these products, the team hope to encourage industry to move towards more sustainable products and manufacturing*

As awareness of the human impact on the environment continues to build and build, so too does the sense of responsibility each individual has, in terms of how their actions have consequences. Where before, for example, products were used without any real consideration for where they came from and where they would end up when finished with, now there is more of an onus on traceability and appreciating the full life cycle of a product. Consumers want to know the environmental effects of the products they are using and need information to make purchasing decisions.

It follows that if environmentally friendly products are produced, such as bio-based products (meaning a product that is composed of biological or renewable materials), the attributes of these should be promoted. In addition, the public need to be able to trust the information they are given. With these points in mind, the three-year Open-Bio (Opening bio-based markets via standards, labelling and procurement) project was established in 2013. The aims of the project are to discover how markets can be opened for bio-based products and to investigate how methods of standardisation, labelling and procurement can lead to market development.

## UNDERSTANDING CONSUMER NEEDS

Open-Bio, led by Project Manager Ortwin Costenoble of the Netherlands Standardization Institute, is now completed and has developed standard tests on determining the bio-content, biodegradability, compostability, recyclability and functionality of bio-based products. A key consideration has been to define the properties of bio-based products in order to subsequently discover what final users and consumers want to know about the products to consider purchasing them. 'There is already ecological labelling in place for some products or markets, and there is a growing labelling on composting or degradation in soil,' explains

Costenoble. 'We also have sustainably grown feedstock for biofuels that is now also getting ground in bio-based products. The challenge is to see if these claims can be combined and their ways of working can be harmonised.'

Through the course of their investigations, the team has found that the better solution is to require different levels of, for instance, bio-content or biodegradability per product. Importantly, they discovered that while consumers do not know much about bio-based products, this does not mean that they want a lot of detailed, technical information. They view labels as helpful, so they should therefore be easily understood at the point of purchase, and be clear in how bio-based labels add to existing labels.

## A STANDARD MEASURE FOR BIO-BASED CONTENT AND BIODEGRADABILITY

The work the team has performed has been collated into a database designed to encourage and support public procurers interested in buying bio-based products and services. The database has been developed into a tool that provides relevant information, including the potential applications for specific bio-based products. Encouragingly, the team has found that key information for public procurers is about the general environmental benefits, or the specific functionality, as opposed to more detailed product information. The team collated the information and then surveyed public procurers to understand their perceptions – ones that inform what product data and properties are displayed to maximise the effectiveness.

Perhaps the most important element of Open-Bio, however, is that standardised methods to measure the bio-based content and biodegradability have been developed and agreed upon. The greater the buy-in for methods of standardisation, the more effective those standards will be.

*'The ultimate goal is to ensure that producers will inform their customers about the biological content of a product, or its capability to biodegrade'*

## Project Insights

### FUNDING

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement number 613677

### PARTNERS

Agricultural University of Athens • University of York – Green Chemistry Centre of Excellence • Wageningen University & Research (WUR) • Stichting Energy Research Centre Netherlands (ECN) • Organic Waste Systems (OWS) • Nova-Institute GmbH • Netherlands Standardization Institute (NEN) • Fachagentur Nachwachsende Rohstoffe eV (FNR) • Technical University of Berlin • Biomass Technology Group (BTG) • Hydra Institute for Marine Sciences • Novamont • Institute of Analytical Sciences (ISA) • LeAF

### CONTACT

**Ortwin Costenoble**  
Project Manager

T: +31 15 2 690330

E: [Ortwin.Costenoble@nen.nl](mailto:Ortwin.Costenoble@nen.nl)

W: <http://www.biobasedeconomy.eu/>

### PROJECT MANAGER BIO

**Ortwin Costenoble** graduated from Delft Technical University as a materials science engineer. He is now a senior standardisation consultant at NEN Energy. Costenoble is the secretary for international (ISO) and European (CEN) committees and project manager of research activities on topics such as (bio)fuels quality and labelling, sustainable chemicals, sustainability criteria for biomass, chain-of-custody, biosolvents, algae and bio-based products.

