European Network for Rural Development

Bioeconomy Case Study

PULP2VALUE

COUNTRY
Multiple

PROJECT PROMOTER
European Confederation of Sugar Beet Growers

FUNDING
Horizon 2020, EUR 6 589 180

DURATION
2015 – 2019

CONTRIBUTION TO
- increasing efficiency of biomass resource use,
- creating value through improved production methods or processing technology,
- creating value through increased cooperation among value chain actors,
- scaling up a pilot project to commercial scale

KEYWORDS
Added value, bio-based waste, residues, by-products, cooperation, pilot project, value chain

CONTACT
agnese.litti@cibe-europe.eu

WEBSITE
http://pulp2value.eu/

The initiative

PULP2VALUE is an Horizon 2020 project that aims to demonstrate an integrated and cost-effective cascading biorefinery system for refining sugar beet pulp.

The project will demonstrate the extraction of high value products for a great variety of end uses including detergents, paints, coatings and composites, but also for applications in personal care and the oil and gas industry.

The project will stimulate the development of new value chains in sugar beet growing areas by connecting sugar beet processing with various other sectors including the chemical and food industries. It will increase resource efficiency through the diversified use of a by-product of the sugar beet industry and establish an expanded European portfolio of value-added products that have a low environmental impact.

RESULTS

- ✓ This ongoing project, now in its second stage, aims to be a catalyst for economic development in sugar beet growing areas by connecting them with new cross-sectorial value chains.
- ✓ It will target nine new value chains resulting in a market potential of at least 350 000 tons and a potential revenue of 200 million euro.
- ✓ 2 individuals are directly employed in/by the initiative

Funded by the European Commission

Context

Europe produces around 13 million tonnes of sugar beet pulp each year. Currently, most of this pulp finds its way into low value feed, bio-fertilizer or it is used for creating green fuel gas.

Objectives

This pilot project aims to demonstrate an integrated and cost-effective cascading biorefinery system to refine Sugar Beet Pulp (SBP). The system will allow the conversion of 65% of pulp dry mass into high-value products as microcellulose fibers (MCF), arabinose and galacturonic acid.

By using multiple extraction techniques, PULP2VALUE will expand the range of high value products that can be developed from what has formerly been an underutilised by-product of the sugar beet industry. The range of new end products can include detergents, paints, coatings and composites, etc. and can also be used as applications in the personal care, oil and gas industry.

Activities

The PULP2VALUE consortium consists of seven partners; the Royal Cosun, the Wageningen University (Health and Nutrition and Food and Biobased Research), the Bio Base Europe Pilot Plant, Orineo, Refresco and the nova-Institute.

The project is built around several work packages, focusing on:

- WP1: Project management
- WP2: Technological support of the demonstration
- WP3: Design, install and operate the biorefinery processes
- WP4: Establish value-chains and product development
- WP5: Integration, optimization and scale-up of the biorefinery processes
- WP6: Process benchmarking & economic, environmental evaluation
- WP7: Dissemination, exploitation and intellectual property management.

Together with the other partners, the Royal Cosun is now planning to optimize, integrate and scale-up these production processes to demonstration level and establish long lasting supply chains.

This project received funding from the Bio-Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme. The grant agreement No 669105.PULP2VALUE is of a total budget of EUR 11.5 million with a EUR 6.6 million contribution from HORIZON 2020. The marketing and sale of the high value products developed throughout the project will in the medium term pay back the investments and generate profits.

Environmental sustainability

Environmental sustainability is ensured by the fact that PULP2VALUE explicitly builds on research that has already been carried out by its stakeholders. A sustainability assessment is being carried out by one of the consortium members, nova-Institute (Germany) to monitor the environmental benefits. This assessment aims to evaluate the environmental, economic and resource efficiency benefits that come from the utilisation of sugar beet pulp for the production of high value products. Overall, nova-Institute will provide market research, technoeconomic evaluation, Life Cycle Assessment, and the establishment of a communication and dissemination strategy.

The project followed the guidelines provided under the Horizon 2020 funding scheme and the Bio-Based Industry partnership. The project is one of the two European demonstration projects that are being funded by the European Bio based Industries Joint Undertaking (BBI JU). The topic of the initiative is: Functional additives from residues from the agro-food industry (BBI.VC3.D4).

Funded by the European Commission