DEMETER

RESOURCE EFFICIENCY OPTIMIZATION OF 2ND CLASS VEGETABLES VIA BIOREFINERY SOLUTIONS TO IMPROVE SUSTAINABILITY IN THE AGRIFOOD CHAIN AND CLIMATE CHANGE RESILIENCE

Colourbox

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FACCE SURPLUS
SUSTAINABLE AND RESILIENT AGRICULTURE
FOR FOOD AND NON-FOOD SYSTEMS

BACKGROUND

The DEMETER project will investigate new pathways to increase resource efficiency in the agrifood value chain via four pre-defined biorefinery pathways for the valorization of vegetable residues that currently are not valorized and are seen as a net loss for the vegetable growers and first transformation industries.

These four pathways are the production of high-quality juices, bulk juices, cold and hot soup production and cracking of pomace and processing residues into functional ingredients for human consumption.

OBJECTIVE

The overall objective of the project is to establish a more sustainable and resilient agrifood value chain. Thanks to the differentiation in valorization pathways and higher added value products produced out of residues, farmers will generate a higher price for their production and reduce the losses in terms of raw materials and money. Food processors will be able to guarantee more stable prices for the entire harvests to the farmers. This will strengthen the long term relationship between the vegetable grower and the food processing companies.

METHODOLOGY

The project includes research and industrial expertise from players through the complete agrifood value chain, from farmer to food processor. The research in the project will be focusing on crops in which the involved companies are mainly active and have huge residue losses: carrots, beetroot, broccoli, leek and pomace from apple and orange juice production.

The valorization of the residues and secondary quality materials through the four mentioned biorefinery pathways require specific knowledge and expertise that is currently not available to the extent that sustainable business cases can be set up. Several technological challenges need to be resolved to establish a solid value chain that is based on the agriculture residues and secondary raw materials investigated in this project.

The DEMETER project has identified research challenges for each valorization pathway. If these challenges can be resolved, a more differentiated valorization of the entire harvests in the studied vegetable value chains will be possible and will pave the way to make the value chain more resilient against raw material quality and market fluctuations.

FUTURE

It is expected that the project will identify the most suitable biorefining solutions, technologies and process parameters for direct processing of the side streams onsite at the vegetable collection and primary processing plants.

For each biorefinery pathway, DEMETER will include economic feasibility and LCA study. By the end of 2022, the industrial partners in the project aim to valorize at least 33 percent of their annual volume of secondary raw materials, with a minimum profit margin of 10 percent.