

OÜ Siidrikoda - Utilisation and production of industrial pomace into apply puree

Adding value to apple waste.

EAFRD-funded projects

Location: Põlvamaa, Estonia

Programming period: 2014-2020

Priority: P2 - Competitiveness

Focus Area: Farm's performance, restructuring & modernisation

Measures: M16 - Cooperation

Funding: Total budget 178 925.49 (EUR)
 RDP contribution 161 032.94 (EUR)
 Private 17 892.55 (EUR)

Timeframe: 2020 to 2022

Project promoter: OÜ Siidrikoda

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Website: n/a

including proto-type development, industrial scale-up and pilot tests.

- Optimisation of the pre-processing activities of industrial apple pomace.
- Subsequent implementation of a new production line in the Siidrikoda facility (not part of CAP funding).

The results of this project helped Siidrikoda to reduce waste from apple juice and cider production by creating a new production line. With the new research findings, a previous waste product can now be turned into a viable food item for further food production. This signifies an important step towards zero-waste production contributing positively to improved sustainability and circular economy.

It is expected that in the medium to long-term, the project results will also help to create new jobs in the rural area of South-Estonia.

Summary

The manufacturing company OÜ Siidrikoda from South-Estonia recognised the importance of collaborating with a food laboratory for product research and development. This led to extensive knowledge about apple varieties, yeasts, and production methods with which Siidrikoda has created its unique product range.

While the production of cider is increasing, so is its waste in the form of fruit pulp. This is called pomace and has often been considered a by-product or waste of cider production. Seeking to improve the company's sustainability by working towards a zero-waste approach, the idea was born to explore if it is feasible to utilise and valorise pomace as a viable food product.

The CAP-funded project supported the associated research and development activities.

Project results

The main results include:

- A successfully completed research and development process,

Lessons & Recommendations

Waste minimisation and circular economy projects in the agri-food sector can benefit companies, consumers, and citizens.

The research findings show that apple pomace should be treated as a raw material for apple puree production, and not as waste. However, for smaller producers this process might be considered too expensive and not cost-effective. In this case, Siidrikoda recommends small producers to seek cooperation with other producers and to centralise apple pomace processing and utilisation.



The project was successful because Siidrikoda managed to fulfil all the research and development tasks, including the development of technology to achieve a suitable prototype on an industrial scale. Therefore, it is important to complete all stages of research and development.

Context

Estonia's Siidrikoda cider has become a popular award-winning brand gaining local and international recognition. The company has access to more than 9 000 apple trees (more than 30 different cultivars) growing in South-Estonia where the firm is located. In 2019, the new factory opened its doors housing 1 500 m² of production area, a restaurant, a conference room, a brandy cellar, and a distillery.

Siidrikoda embraces nature, but science also has an important role to play. For this reason, the company works in partnership with the Centre of Food and Fermentation Technologies (TFTAK) already for many years. This has led to extensive knowledge about apple varieties, yeasts, and production methods with which Siidrikoda has created its unique product range.

However, the production of cider leaves fruit pulp. This is called pomace and considered a by-product or waste of cider production. Seeking to reduce waste, the idea was born to research and develop how best to reuse pomace.

Objectives

The overall goal of Siidrikoda is to work efficiently as a company aiming towards a zero-waste production and circular economy approach. By valorising one of its main waste products, apple pomace, and turning it into apple puree, the company aims to increase its product portfolio and know-how in processing technology.

The project aimed to undertake comprehensive research and development into how apple pomace could be further utilised. It explored the feasible options and processing technology required for maximising the productive use of this raw material for human food consumption.

Activities

The project activities focused on research and development tasks and included:

- Researching different apple juice production parameters that can potentially influence the subsequent production of apple puree

from apple pomace. In addition, producing an overview of the identified apple purees and their properties.

- Organising a focus group to support the new product development based on apple puree obtained from pomace. This informed the product development stage of the project, including prototype development and consumer research.
- Conducting further research on the shelf-life of the new products / prototypes, exploring a number of variables including different preservatives, processing methods, and storage temperatures.
- Running a scaling-up exercise from lab-scale to semi-industrial scale. This was a crucial activity which showed that some of the apple pomaces still needed additional processing before they were suitable for the production of apple puree.
- Testing the puree production with larger commercial amounts of apple pomace. This showed that some of the industrial apple pomaces were too dry and therefore, unsuitable for an effective production process.
- Investigating the options for pre-processing of apple pomace in terms of economic and operational feasibility without compromising on the quality of the end product.



Main results

The funded activities of the project demonstrated that apple pomace can be successfully used to produce high-quality apple puree.

The main results include:

- A successfully completed research and development process,



including proto-type development and industrial scale pilot tests.

- > Optimisation of the pre-processing activities of industrial apple pomace.
- > Subsequent implementation of a new production line in the Siidrikoda facility (not part of EAFRD funding).

The results of this project helped Siidrikoda to reduce waste from apple juice and cider production by creating a new production line. With the new research findings, a previous waste product can now be turned into a viable valuable food item for further food production. This signifies an important step towards zero-waste production contributing positively to improved sustainability and circular economy.

It is expected that in the medium to long-term, the project results will also help to create new jobs in the rural area of South-Estonia.

Key lessons

Waste minimisation and circular economy projects in the agri-food sector can benefit companies, consumers, and citizens.

The project was successful, because Siidrikoda managed to fulfil all the research and development tasks, including the development of suitable technology to achieve a suitable prototype on an industrial scale. Therefore, it is important to complete all stages of research and development.

The research findings show that apple pomace should be treated as a valuable raw material for apple puree production, and not as waste. However, for smaller producers this process might be considered too expensive and not cost-effective. In this case, Siidrikoda recommends small producers to seek cooperation with other producers and to centralise apple pomace processing and utilisation.

“Apple pomace is not waste but should rather be looked at as a raw material for apple puree.”

OÜ Siidrikoda

Additional information:

n/a

