

Siidrikoda food rescue audit

Results of the food rescue audit, 18-10-2021

Melanie Kok¹, Jim Groot¹, Harri Moora², Kadi Väli² and Kristiina Martin²



Siidrikoda food rescue audit

Report 2223, Final, version 1

Information and/or data as presented in these slides are part of project 6239203700, commissioned and financed by Embassy of the Kingdom of the Netherlands in Tallin, Estonia and shall be treated as public. These slides are available via <https://doi.org/10.18174/557415> and were reviewed by Bob Castelein and authorized by Henk Wensink. The research that is documented in this report was conducted in an objective way by researchers who act impartial with respect to the client(s) and sponsor(s).

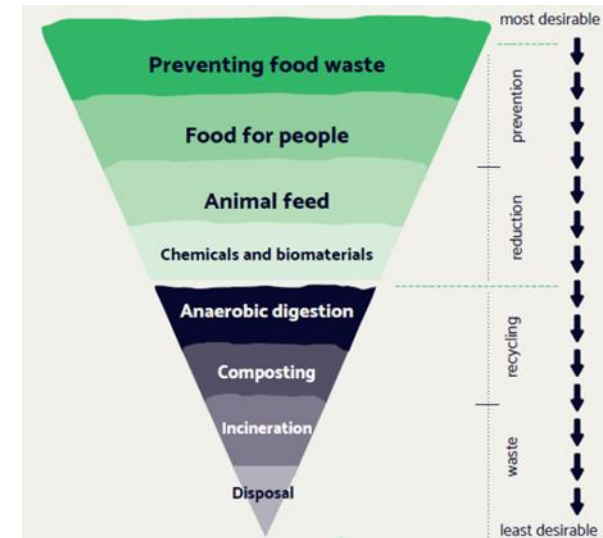
All copyrights reserved

This research project has been carried out by Wageningen Food & Biobased Research (WFBR), which is part of Wageningen University & Research.

PO box 17, 6700 AA Wageningen, The Netherlands, T + 31 (0)317 48 00 84, E info.wfbr@wur.nl, www.wur.eu/wfbr.

Introduction

- Siidrikoda is the oldest cider house in Estonia.
- In 2020 the orchard of Siidrikoda contains 8,000 trees of specially selected varieties and is based in Valgjarve, Southern Estonia, which has a long tradition of growing apples.
- Goal of the audit is to gain insight in the food resource use efficiency.
 - Quantification of the side streams.
 - Identifying opportunities for food loss prevention, reduction and/or valorisation.



<https://www.circularfoodcenter.com/en/>

Methodology

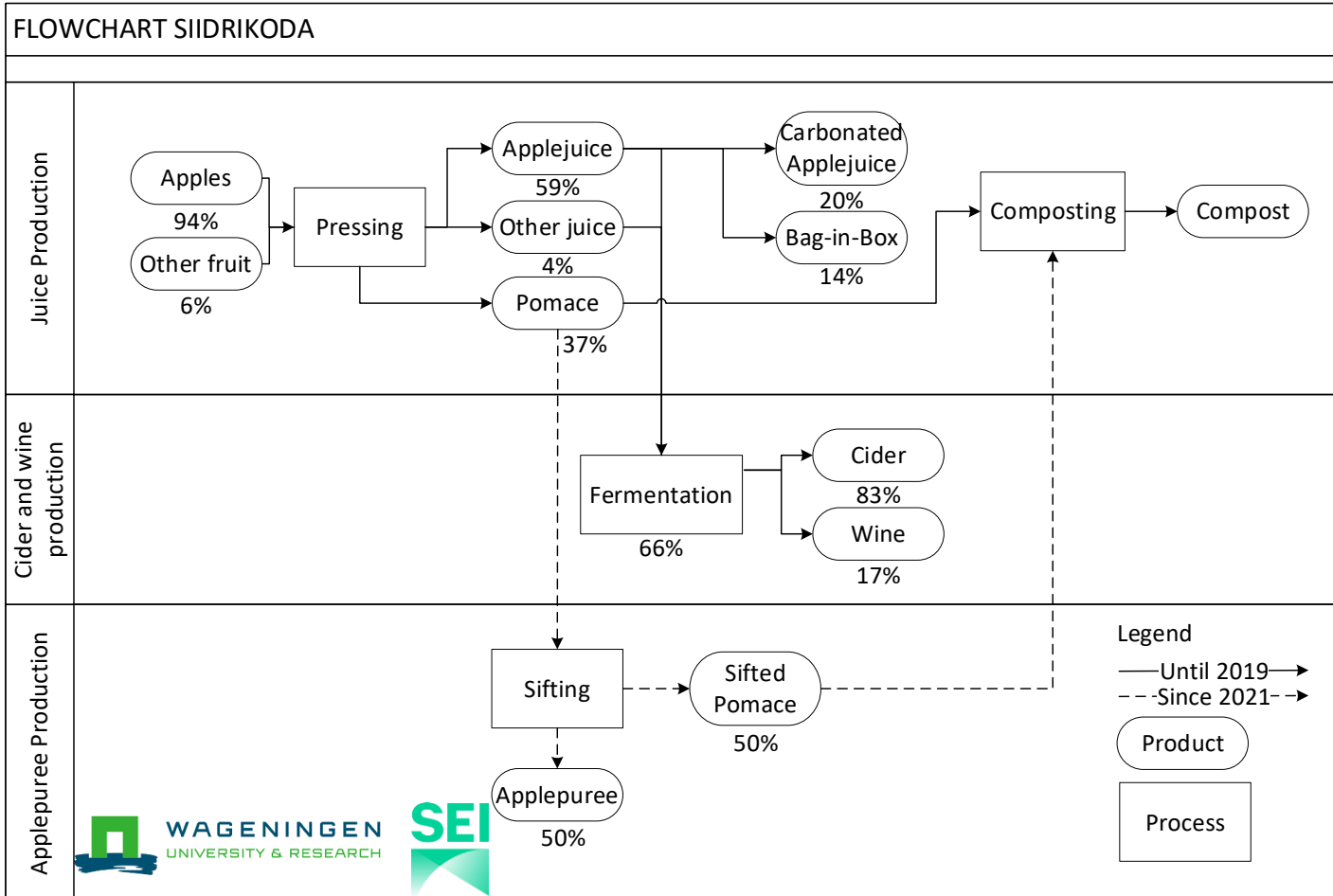
- Determining the scope for the food rescue audit.
- Identifying all processes for the company for the scoped products.
- Defining the side streams and their destinations for the different processes.
- Quantifying all side streams based on company data and company estimates.
- Finding possibilities for food loss prevention, reduction and/or valorisation.
- Reporting and disseminating the results.

Scope

- Main raw edible products entering the processing facility, including: apples and other fruits.
- All end-products including: cider, wine, carbonated apple juice and Bag-in-Box.
- All processes to produce the end-products.

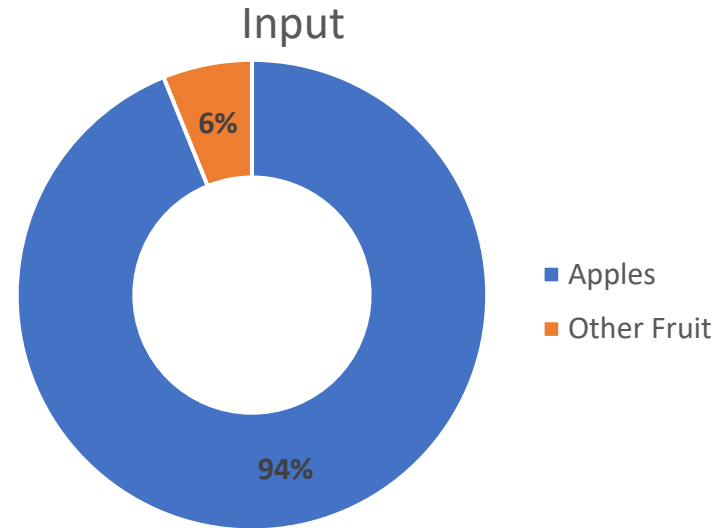


Results: Food flow diagram and quantification



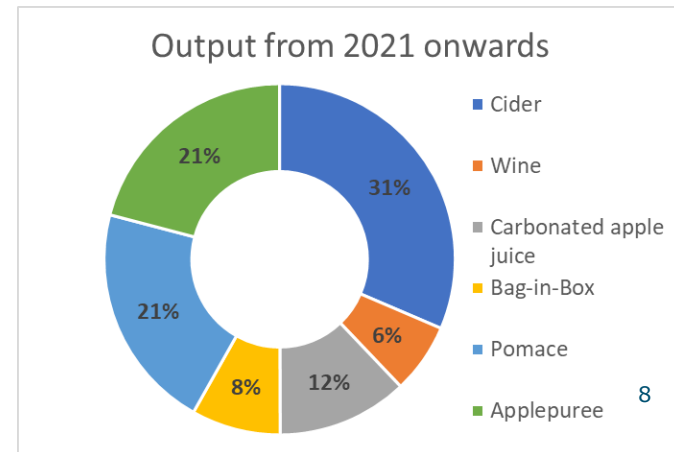
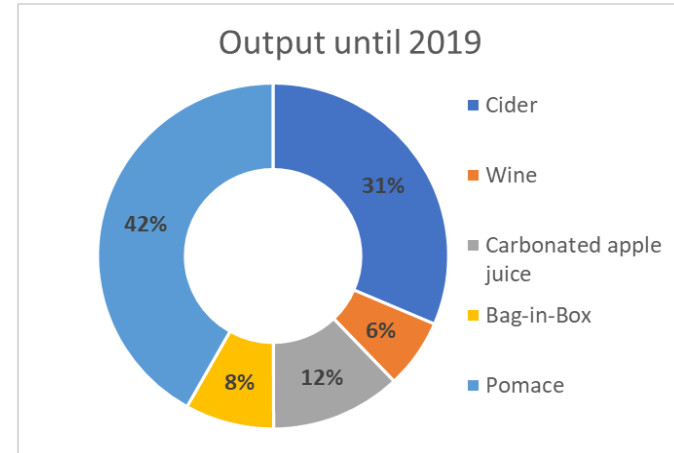
Results: Input quantification

- Inputs include apples and other fruit.
- After the process 'pressing', fruit juice and pomace is obtained. The fruit juice is the main product and pomace is the side stream.



Results: Output quantification

- Fruit juice is partly sold as carbonated apple juice and Bag-in-Box.
- The other part of the fruit juice is fermented into cider and wine.
- From 2021 onwards applepuree is a new product made from half of the pomace.



Measures: Already implemented measures

- Company has performed several research projects/studies on valorization possibilities for pressing waste/pomace.
 - Fiber study - Investigation of the use of processing residues from apples and other domestic horticultural products for fiber production and study of the impact of the obtained fibers on the human microbiome (2020-2022).
 - Puree – Production of apple puree from industrial apple pomace originating from apple juice and cider production facilities and subsequent utilization of the obtained puree in different products (2014 -2018).

Possibilities for valorisation (1)

■ Biorefinery.

● Fibre.

- Food
- Feed

● Pectin.

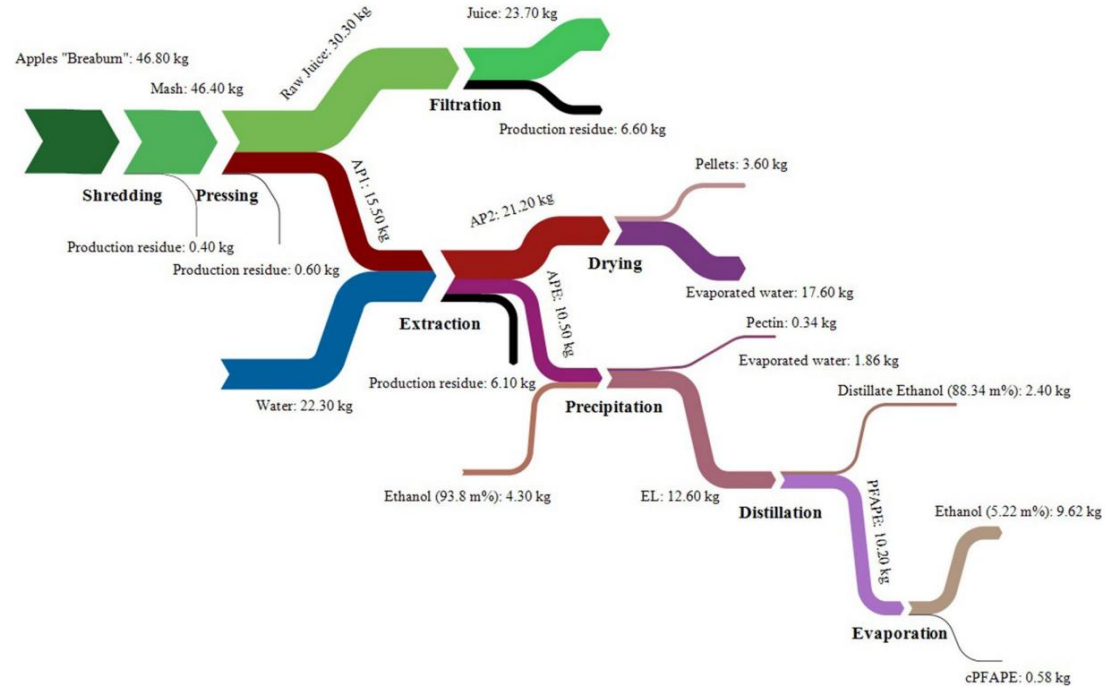
- Anti-oxidant

● Molasses.

- Food
- Feed

● Ethanol.

- Alcoholic beverages
- Energy



<https://link.springer.com/article/10.1007/s12649-020-01245-5>

Possibilities for valorisation (2)

- Apple brandy or 'Calvados'.
 - Fermenting pomace
 - Distilling the alcohol
 - Dutch brand made from sidestreams: 'Appelstook'.



<https://rotterdamse-appel-maatschappij.myshopify.com/pages/appelstook>

Possibilities for valorisation (3)

- Baking ingredients.
 - Semi finished products for industry.
 - Or specialties like biscuits made from brewer's grain and apple.

<https://www.incubaker.nl/index.php/portfolio-item/appelschillenshow/>

<https://www.foodfromfood.eu/valordraf-sowepo>



Possibilities for valorisation (4)

- Apple fiber powder for consumers.
 - To add in shakes, smoothies, juice or yogurt.

<https://www.myprotein.com/sports-nutrition/100-apple-fibre/10530314.html>



Possibilities for valorisation (5)

- Enhanced shelf life of processed meat.
 - Anti-oxidants in apple may have a possible effect on shelf life of processed meat.



<https://ilvo.vlaanderen.be/nl/nieuws/componenten-uit-appel-verlengen-houdbaarheid-van-vlees>

Possibilities for valorisation (6)

■ Feed.

- Organic feed for cattle and pigs.
- Feed specialties like healthy horse treats.

<https://equifirst.eu/en/horse-treats>



Possibilities for valorisation (7)

- Notebooks.
 - Paper enhanced with applefiber.
 - Reused leather enriched with applefiber.

<https://www.castelliitaly.com/appeel-eshop>



Possibilities for valorisation (8)

- Apple leather.
 - Used as textile.
 - Shoe as example.

<https://komrads.world/>



Thank you

Data was collected in
collaboration with Siidrikoda.

For questions:

Melanie Kok

Melanie.kok@wur.nl

Kristiina Martin

kristiina.martin@sei.org

