

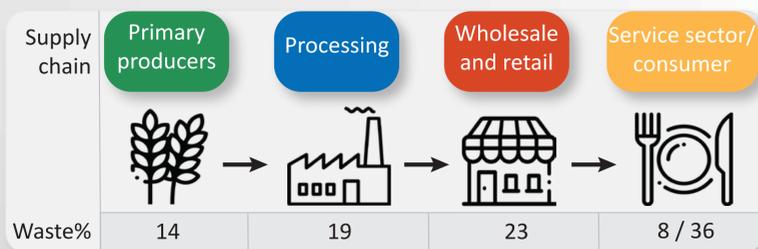
DNA-based process control for better durability and reduced food waste

Why is this project important?

- The Danish food supply chain generates annually 716,000 tonnes of food waste
- It is estimated, that a significant part of the food waste is related to durability
- Food analysis requires time and resources, better testing helps
- Environmental assessment quantifies impact improvements

The distribution of the food waste

Much of the food waste occurs at the consumer, wholesale/retail and processing parts of the supply chain. Below is an illustration of the food waste distribution.



The main goals for the project

- Reduce food waste in the supply chain by developing and testing new DNA-based technology for process control in food processing
- A 10% reduction of the food waste in the entire supply chain, especially at the processing and at the consumer part
- Within one working day, the final results can be obtained for the DNA content of the bacteria in the sample
- Processing companies with DNAPROKON will get a powerful tool to monitor if shelf-life-deteriorating microorganisms are present

"With the new, simple equipment, it will be easy and fast to get answers to what it is that destroys the product, when it starts to rot or when gas forms the packaging. This makes it much easier to implement targeted efforts quickly in the production process"
- Project leader, Anette Granly Koch

What is DNAPROKON?



- Analysis of microorganisms in the production processing of food, data processing and process control.
- Combination of existing DNA-based analysis methods with new techniques for sample preparation as well as thorough knowledge of process hygiene and durability.



DNAPROKON provides answers to which microorganisms are present in the food and spoiling it. Allowing processing companies to quickly identify where in the process a possible problem is and take corrective actions. The solution has huge international potential

The 4 Work Packages (WP) to complete the project

WP 1-3 deals with the mapping of shelf-life-deteriorating microorganisms in the production environment and the products, as well as the development and testing of rapid methods along with associated IT tools for data processing and process control. WP 4 runs parallel to WP 1-3 and includes sustainability assessment and determination of the environmental and climate consequences of implementing DNAPROKON.

WP1 Mapping of spoilage organisms in products and production environment (TI) - Meat products, table sauces, ready meals, salads

WP2 Rapid method for the detection of shelf-life-deteriorating microorganisms (KU) . An industrially applicable rapid method is developed for the detection of the shelf-life-deteriorating microorganisms identified in WP1

WP3 Industrial test of "DNAPROKON" (TI, Stryhns, Atria, Cater Food, Simple Feast). The applicability of the fast method and IT tool is tested at the participating companies, where it is combined with the daily hygiene monitoring and durability monitoring of the products

WP4 Environmental assessment of reduced food waste using DNAPROKON (DTU). The environmental and climate significance of DNAPROKON is quantified and assessed with a focus on the entire value chain from food processing to consumer (life cycle assessment (LCA))

Important milestones

For some important milestones, technical risks could have had critical consequences

The technical risks



There were concerns that DNAPROKON's rapid method (which includes sample preparation and analysis of microorganisms) became too extensive, slow, expensive and/or complicated to use routinely in process control.

How it went



The fast method developed in the project works successfully. It is a user-friendly and inexpensive method for sample preparation and analysis of microorganisms that can be used by the quality department in daily operations. After taking tests in the morning, users can have the results in the afternoon.