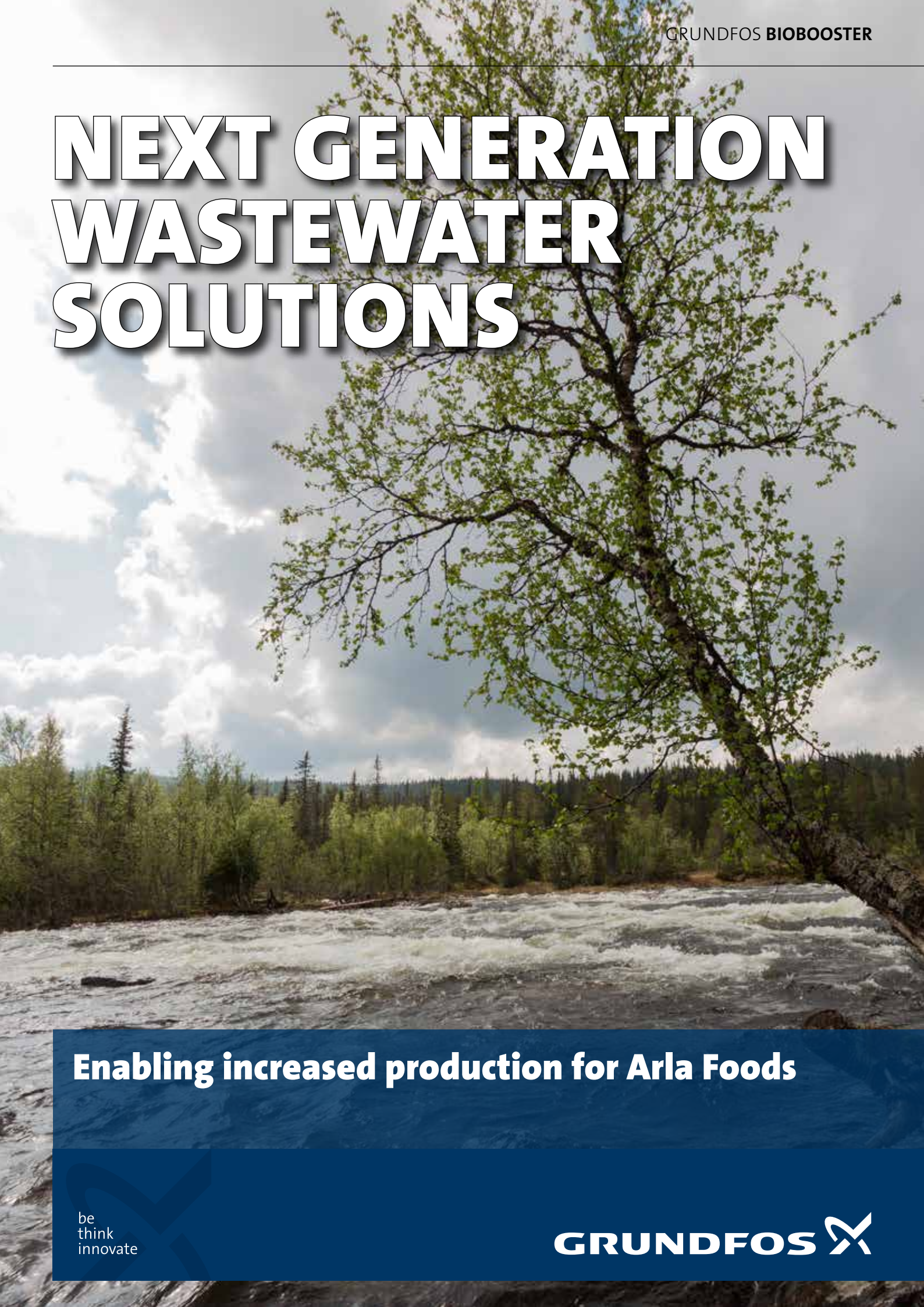
NEXT GENERATION WASTEWATER SOLUTIONS



Enabling increased production for Arla Foods

be
think
innovate

GRUNDFOS

A HELPING HAND TO THE MUNICIPALITY

“The Grundfos BioBooster is a good solution for Arla Foods that I can see being used for other industries, not just dairies. I think that all industries should take care of their own wastewater.”

Göran Nilsson, VA Manager, Vimmerby Energi & Miljö (the water utility serving the Vimmerby municipality)

Grundfos BioBooster on-site at the Arla Foods milk processing plant, Vimmerby

Georg Stefansson, Operator for Dalkia, carrying out an inspection at the Grundfos BioBooster plant

The **Grundfos BioBooster** plant

The biological tanks share a common access platform

BOOSTING WASTEWATER TREATMENT TO MEET DEMAND

Arla Foods, Vimmerby, Sweden is a large milk processing plant producing milk powder. Faced with growing demand for their product and a change in their production structure, Arla Foods decided in 2012 to increase the production at the plant, which had to be implemented on a very tight time schedule.

However the municipal wastewater treatment plant was only able to treat 1000 m^3 of the estimated 1400 m^3 per day coming from the extended dairy. The municipality’s wastewater treatment plant was already running at full capacity and it was estimated that expanding the plant would take 3 to 4 years.

A scalable solution, delivered when needed

Arla Foods could not wait for this. Grundfos BioBooster was therefore entrusted to deliver an onsite wastewater treatment plant, enabling Arla Foods, Vimmerby to treat the additional 400 m^3 per day.

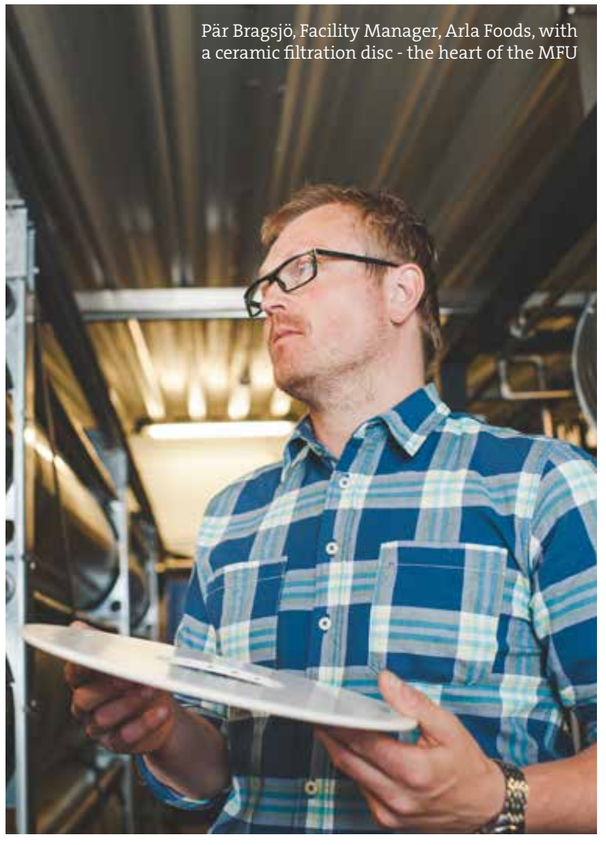
A contract for the Grundfos BioBooster solution was signed in November 2012 and the plant was up and running by May 2013. Site work at the plant was less than two months, ensuring minimal disruption to Arla Foods’ operation.

This next generation wastewater solution meets the strict requirements for removal of nitrogen and phosphorous in Sweden, and the treated water is discharged to the local river.

Grundfos and Arla Foods have previously worked together on water treatment projects. Arla Foods works to high environmental standards and is willing to support innovative new solutions, such as those developed by Grundfos BioBooster.

Inspecting the water at the plant

Membrane Filter Units (MFUs)



Pär Bragsjö, Facility Manager, Arla Foods with a ceramic filtration disc - the heart of the MFU

MEETING CUSTOMERS' NEEDS

The decentralised Grundfos BioBooster wastewater treatment system offers ease of installation and robust operation. Because it is a flexible and scalable system, it can be adapted to changing wastewater treatment needs.

ROBUST OPERATION

- Membrane Biological Reactor (MBR) ensures excellent effluent quality by removal of all particular materials and bacteria
- Ceramic membrane with superior longevity and robustness for in case of fouling
- Advanced control utilising newest on-line sensors allowing for very low manning demand despite the advanced treatment technologies used in the solution
- SCADA enabled for unmanned operation and for remote service by Grundfos BioBooster specialists, if needed.

BENEFITS FOR THE INDUSTRY OWNER

- Low operating costs
- No chemical pre-treatment is required
- State of the art fine bubble aeration system allows for very low energy consumption
- Scalable solution - an additional Membrane Filter Unit (MFU) can easily be added to support increasing capacity
- Automatic dewatering of sludge in the MFUs lowers excess sludge disposal costs
- Low personnel requirement

ARLA REQUESTED, GRUNDFOS DELIVERED

"We sent them our requirements regarding the purity of the discharged water and they said 'no problem'. One advantage of having our own decentralised treatment plant is the cost. It is almost half the price of treating water in the municipality's treatment plant so that justifies this installation. I can strongly recommend the Grundfos BioBooster – the plant technology is very advanced, but still easy to operate."

Pär Bragsjö, Facility Manager, Arla Foods

A shared vision for sustainability - Pär Bragsjö, Facility Manager, Arla Foods, with Søren Nøhr Bak, Segment Director, Grundfos BioBooster.

IMPRESSIVE PLANT PERFORMANCE

The Grundfos BioBooster treatment plant was built to handle 400 m³ of wastewater daily or in practice almost 50% of the milk processing plant's total wastewater flow. Removal efficiency is extremely high for chemical oxygen demand (COD), nitrogen and phosphorous, and the levels are under the discharge limits set for wastewater by the municipality. The treated water is released into the local river. The capacity of the Grundfos BioBooster unit at Arla Foods equals a wastewater treatment plant for 18,000 people.

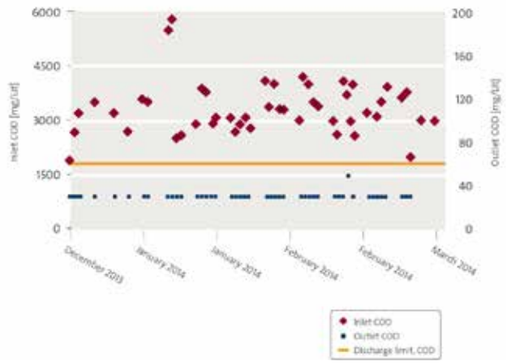
MAINTAIN HIGH PURITY LEVELS

"We take tests every day to check on the quality of the water and it is so clean after going through the Grundfos BioBooster membranes that it can be discharged directly to the local river."

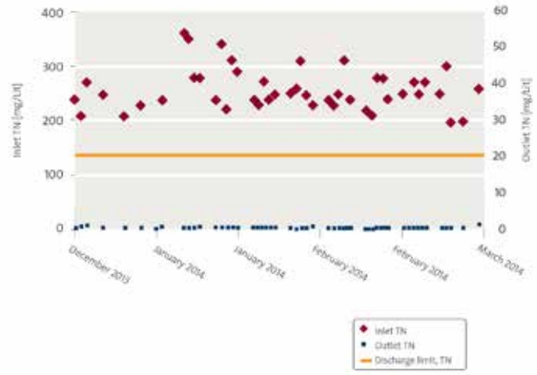
Georg Stefansson, Operator, Dalkia (the company in charge of daily operation and maintenance at the plant)

High treatment efficiency

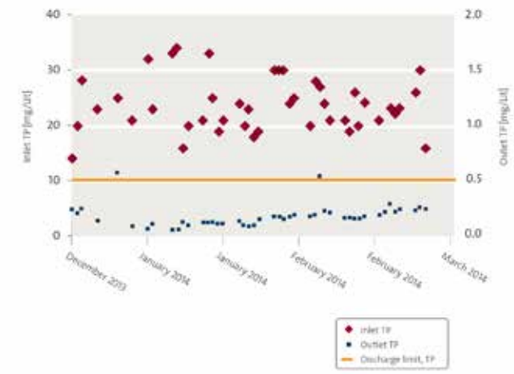
Total COD removal
(Discharge limit 60 mg/Lit)



Total Nitrogen removal
(Discharge limit 20 mg/Lit)



Total Phosphorus removal
(Discharge limit 0.5 mg/Lit)



98.4%
Nitrogen removal efficency

99.1%
Phosphorous removal efficency

99.9%
COD removal efficency

One access point for all logistics and services at the Grundfos BioBooster plant

Grundfos BioBooster

Grundfos BioBooster A/S is a 100% Grundfos-owned subsidiary developing and delivering solutions for wastewater treatment and water re-use for applications in the food and beverage industry and for treating municipal and hospital wastewater.

Grundfos has been a global leader in advanced pump solutions and a trendsetter in water technology for more than 60 years and turnover in 2013 was EUR 3.1 million. Today 2.5 million Grundfos pumps in operation collect water for 800 million people. And our pump solutions distribute water to more than 600 million people. Grundfos is raising the bar for sustainable product solutions within energy efficiency and water, focusing on the entire product life cycle.

For further information, please write to biobooster@grundfos.com

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