

CORPORATE RESPONSIBILITY REPORT - SUPPLEMENT

# 2018

Arla Foods  
Ingredients



**Arla Foods Ingredients**  
Discovering the wonders of whey



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# SUSTAINABLE GROWTH IS A COLLECTIVE EFFORT



Climate change, the growing global population and the importance of nutrition to good health are topics that, today, frequently make headline news. All over the world, governments, businesses and individuals are also recognising their responsibility to contribute to a sustainable future, where there will be enough safe and healthy food for all and where the way we produce it minimises our burden on the planet.

The UN's sustainable development goals have set out how, through our collective efforts, we can be a part of reaching this vision for the future. For many businesses – Arla Foods Ingredients included – they have become the yardstick for measuring sustainable growth and performance. In this 2018 corporate responsibility supplement, you will notice that we have taken a closer look at the areas where we believe we can contribute.

## Our focus on resources

Environmental impact is one of our primary focus areas due to the highly resource-intensive nature of our production. Although our energy and water efficiency are not yet where we would like them to be, we have made good progress in 2018.

Installation of biogas motors at our major whey processing plant Danmark Protein is now underway, which means 80% of the site's electricity consumption will come from fossil-free sources by the end of 2019. At all sites, initiatives to reuse water extracted from whey has enabled us to reduce our reliance on drinking water supplies. Investments in new processing equipment are optimising our use of raw materials further.

## Developing the food value chain

The ongoing rollout of our Quality & Food Safety strategy is key to achieving our goal to become the leading trusted partner for safe ingredients. Over the past year, we have mapped how we work with quality across our organisation and established new global standards. The

objective is to take our operations to a new level and, through that, contribute to improved quality and food safety within the food industry at large.

In addition to improving our own way of working, we welcome opportunities to support the development of sustainable practices within the entire food value chain. This could be through our participation in industry working groups that aim to reduce the risk of chemical contaminants in food processing or through projects to improve the sustainability of milk production. We have engaged in several new activities of this kind in 2018.

## Partnerships for affordable food

Through our business interest in ingredients for infant nutrition, we have particular knowledge to share as an active member of the GAIN Nordic Partnership and in our new partnership with DanChurchAid, which we entered in 2018. By working in cooperation, the objective is to improve access to affordable and nutritious food in developing countries, where a high percentage of children are malnourished. The current projects in Ethiopia and Zambia are progressing as planned.

Our well-established research cooperation with universities continues to chart the full nutritional potential of whey and the health benefits at all stages of people's lives. There is still much to be discovered. In 2019, we look forward to sharing the latest findings.

Every year, we gain a clearer understanding of the work that is still to be done before we can call Arla Foods Ingredients a truly sustainable business. We believe our collective efforts – those of our colleagues and external partners – have moved us further in the right direction in 2018. We expect to report an even more sustainable performance in the year ahead.

**Henrik Andersen  
CEO**

# OUR CONTRIBUTION TO THE GLOBAL GOALS

The 17 UN Sustainable Development Goals are a strong tool for guiding responsible business operations and growth. At Arla Foods Ingredients, we consider the SDGs a source of inspiration and motivation in our continuous improvement work.

In this supplement, we have highlighted activities that contribute to specific goals. Our objective in doing so is to recognise the efforts of our international colleagues to make a difference – and draw attention to the many opportunities to do even better in the future.

During 2018, we have identified contributions to the following goals:

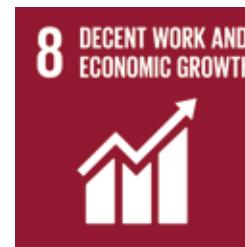


End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Ensure healthy lives and promote well-being for all at all ages

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Ensure availability and sustainable management of water and sanitation for all



Ensure access to affordable, reliable, sustainable and modern energy for all

Promote inclusive and sustainable economic growth, employment and decent work for all

Ensure sustainable consumption and production patterns

Take urgent action to combat climate change and its impacts

Strengthen the means of implementation and revitalise the global partnership for sustainable development

# ABOUT ARLA FOODS INGREDIENTS

Arla Foods Ingredients is a **global whey ingredients** company and 100% owned subsidiary of Arla Foods. We sell our ingredients to **food manufacturers** in more than 100 countries.

## Results 2018

Our net revenue totalled EUR 695 mEUR in 2018, which is 10% lower than the previous year. More information about our financial performance is available in the Arla Foods annual report.

## Market development

Arla Foods Ingredients is one of the world's leading producers of whey-based ingredients for paediatric, sports and medical nutrition, health foods and everyday foods, such as bakery, dairy and confectionery products. We have built our business around our ability to discover and deliver the components in whey that can bring value to the food industry. Our goal is to make the best possible use of our entire raw material.

## Production sites mentioned in this supplement

Our flagship whey processing facility is Danmark Protein, located in West Jutland, Denmark. This is where we produce the most specialised whey-based ingredients in our portfolio and the highest volumes overall. Our third-party manufacturing facility and second largest site, Arinco, is located nearby.

In January 2018, Arla Foods Ingredients took over 100% ownership of our AFISA facility in Argentina, a former joint venture. Our current joint venture facilities are now Biolac and ArNoCo in Germany and MVI in the UK. Information about MVI is included in the 'Ambitions & progress' chapter of this supplement for the first time this year. More performance data will be available in 2019.

Overview of production:

### *Danmark Protein, Denmark*

Advanced whey protein processing facility, including dedicated plants for hydrolysate and dry-blend lactose production

### *Arinco, Denmark*

Third-party manufacturer of products for child nutrition and milk powder

### *AFISA, Argentina*

Leading whey processor in MercoSur, producing whey proteins and permeate

### *Biolac, Germany*

Joint venture with MTS, producing whey protein concentrate and lactose

### *ArNoCo, Germany*

Joint venture with DMK, producing whey protein concentrate for further processing at Danmark Protein and lactose

### *MVI, UK*

Joint venture with Volac, producing whey protein concentrate and permeate powder



# HEALTH

Whey is a **powerhouse of nutrients** that can benefit consumers throughout life. At Arla Foods Ingredients, we continue to **discover new opportunities** for health using whey. Through our proactive Quality & Food Safety strategy, we are strengthening our ability to deliver whey-based ingredients of the **highest global standards**.



We support research to investigate the role of whey ingredients in the treatment of moderate acute malnutrition



Working with university partners, we are exploring how whey components contribute to dietary treatments for chronic health conditions

**H**ealthy foods must be safe as well as nutritious. During 2018, we launched the first wave of the Quality & Food Safety strategy we finalised in 2017. Building on our existing quality assurance systems, this lays the foundations for a more proactive approach to achieving our long-term ambition, which is to become the leading trusted partner for delivering safe ingredients.

Definitions of quality often depend on perception and a company's position in the food value chain. At Arla Foods Ingredients, we have an ongoing dialogue with key global customers to define quality and food safety. While this knowledge exchange enables us to meet our customers' requirements, it also helps prepare us for new food safety risks and issues. The common goal is the continuous improvement of industry standards.

#### Establishing global standards

The aim of the Quality & Food Safety strategy is to raise global Arla Foods Ingredients operations to a new level.

In developing the strategy, one of our key tasks was to map our performance throughout the value chain. This confirmed that all our sites have a strong focus on quality, but that they approach it differently from place to place. One of our 2018 priorities was to establish global standards to ensure a uniform way of working, for example with whey sourcing, microbiology analyses, incident handling and quality management. These standards are currently being implemented.

#### New guidelines for whey sourcing

As our business grows, so does our need for whey. In 2018, we appointed a whey team to establish a global procedure for assessing and working with new suppliers. The procedure includes guidelines for reviewing varying practices and traditions at dairies around the world and their potential impact on whey quality. Our goal is always to ensure the whey is suitable for producing ingredients that meet the highest food safety standards. Suppliers must also comply with the Arla Code of Conduct.

#### Contaminant monitoring

Our global monitoring programme uses random sampling to test for contaminants in the products produced at our factories. The list of contaminants is regularly adjusted in response to changes in legislation, customer demands and alerts about new potential risks. In 2018, we initiated a revision of the entire programme, including the content and frequency of the tests we carry out and how we communicate the results. The revision process will be complete in 2019. Global monitoring runs at least twice a year and is in addition to our regular safety and quality assurance tests.

#### Upgrade in quality controls

Tighter quality controls are in place at our largest whey processing plant, Danmark Protein, following the rollout of statistical process control (SPC) of all products in 2018. By compiling 1400 data sets collected from routine batch quality analyses, the SPC program has identified quality norms for each product. Any deviations from these norms are quickly highlighted, enabling swift

investigation and mitigation. Developed by our in-house data scientists, SPC ensures a faster response to food safety issues, reduces product waste and provides customers with better delivery security.

A food safety and hygiene upgrade is also in progress to raise the level of bacteriological control at Danmark Protein. Until now, critical 'red zone' requirements for safety and hygiene – indicating the highest level of control – have applied to the production of the most sensitive products for infant formula. Once the upgrade is complete in 2019, all production areas will be designated red zone.

### Our quality & food safety strategy



### Number of quality & food safety control checks from farm to ingredient

	Farm	Transport milk	Dairy	Transport whey	AFI production	Ingredient
<b>Food grade</b>	5-7	4	14	3	44-51	35-150
<b>Infant Medical grade</b>	5-7	4	14	3	69-76	35-150

## **Health & nutrition studies**

Many studies have documented the effect of milk and whey on human health and well-being. At Arla Foods Ingredients, we continue to support research that builds new knowledge about how whey components can contribute to effective nutrition.

### *Effect of protein quality in malnutrition treatment*

A series of clinical studies in Malawi have found that children with moderate acute malnutrition recover better when whey protein and permeate are added to ready-to-use supplementary food (RUSF). In 2018, a further study set out to investigate the effect when the protein quality of RUSF is optimised through the addition of skimmed milk powder – using the digestible indispensable amino acid score (DIAAS) to determine protein quality.

Led by the founder of Project Peanut Butter Dr Mark Manary, the study aims to enrol 1800 children in total and will run until June 2019.

### *Tuberculosis research in Guinea-Bissau*

Tuberculosis patients in Guinea-Bissau are often already undernourished when diagnosed. Aarhus University has now completed the second year of a clinical study to investigate the effect of a whey protein concentrate (WPC) supplement on weight gain and recovery. The results are expected in 2020/2021. Arla Foods Ingredients is supplying the WPC for the study.

### *Dietary interventions for obesity and diabetes*

A collaborative study with the University of Bath in the

UK has shown that a combination of whey protein and milk calcium raised GLP-1 hormone to a similar level as that seen after gastric bypass surgery. The hormone, which is normally poorly regulated in obese subjects, is known to reduce insulin resistance and support appetite regulation. So, the study findings are an encouraging sign that targeted nutrition may be an effective strategy against obesity.

Working with UK scientists at Newcastle University, we are co-funding another clinical study to follow up findings from 2017 that a pre-meal drink with whey protein improves blood sugar control in middle-aged men with type 2 diabetes. The new, more in-depth study will follow the effect on blood glucose and appetite when subjects consume the pre-meal drink before all main meals over the course of a week. We expect the study to be complete in 2020.

### *Clinical study of patients with shorter bowels*

Research suggests that whey peptides may help improve the quality of life for patients who have had part of their bowel removed due to inflammatory bowel disease or Crohn's disease. We are now supporting a PhD research project to investigate this theory. The project will test whether whey peptides improve the absorption of water and salts in the bowel – countering the dehydration and loss of body salts that patients often experience. If effective, the peptides could become an active ingredient in future clinical nutrition products for this growing patient group. Scheduled to commence in 2019, the project is a collaboration with Aarhus University Hospital in Denmark.



# INSPIRATION

At Arla Foods Ingredients, **we collaborate** with customers, universities, NGOs and other organisations on **research and development** studies and in industry associations and community projects. Such **partnerships provide inspiration** and support for developing our business and industry in a sustainable direction.



Our research activities and participation in industry working groups contribute to improved health and wellbeing for all



We are currently participating in studies to promote the sustainable and efficient use of natural resources throughout our value chain



As part of our climate change efforts, we are supporting a project to help farmers measure and reduce their carbon footprint



We continue to share knowledge and invest in collaborative projects to develop new sustainable technology

**M**ilk is essential to our value chain and, as such, contributes to our overall carbon footprint. So, we recognise our responsibility to play a role in improving the sustainability of milk production. In 2018, we joined our parent company Arla Foods in projects that will provide dairy farmers with new knowledge and tools for reducing their climate burden.

One of them is a five-year professorship and research project at Aarhus University, which will focus on the entire milk production system. The objective is to explore opportunities for local cultivation of cattle feed that improve the soil, biodiversity and the nutritional content of milk.

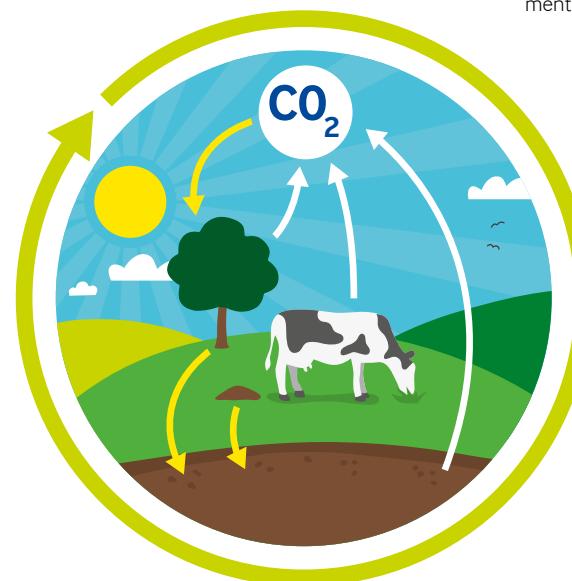
Arla Foods Ingredients is supporting another project to develop a method for calculating carbon sequestration on dairy farms. Here, the goal is to fill a gap in farm-level carbon footprint assessments, which currently omit the counter-effect of farmer initiatives to recapture carbon in the soil. Using the method, farmers will gain a more complete overview of their carbon footprint.

Other investors and partners are Danone, Nestlé, Fonterra, McDonalds, FrieslandCampina, the International Dairy Federation and the Global Round Table for Sustainable Beef. A draft of the new method should be complete by the end of 2019.

### Industry working groups

Since 2017, Arla Foods Ingredients has participated in a Global Food Safety Initiative technical working group aimed at standardising the composition and usage of cleaning agents, sanitisers and disinfectants. Here, our role is to lead the drafting of general user guidance, support the development of guidance for detecting chemical traces and help establish a procedure for assessing the food safety risks of contaminants.

In addition, a member of our quality team now represents Denmark on a Specialised Nutrition Europe (SNE) working group responsible for risk assessments of chemical contaminants in special nutrition products, particularly infant formula. The purpose is to support European public policy decisions by commenting on draft legislation and ensuring producers can continue to deliver specialised nutrition products when new legislation is enforced.



### Investigation of breast milk

Just as breast milk is known to be the optimal source of nutrition for new-born babies, it is also widely recognised that the composition of breast milk varies from one mother to another. We have co-funded a three-year industrial PhD project with Odense University Hospital in Denmark to map some of these differences, which may have implications for growth and health in later life.

One of the key findings is the significant variation in the content of osteopontin (OPN) in breast milk from Danish, Chinese, Japanese and South Korean mothers. A bioactive protein, OPN is involved in infant immune development and is also present in whey. Variations in other breast milk components associated with satiety, blood pressure and cholesterol were found to be related to infant weight and sex.

Additional studies are required to confirm these findings, which may prove valuable in the future development of optimised formulas for non-breastfed infants.

### Professorship at new diabetes centre

Arla Foods Ingredients is co-investor in a nutrition professorship focused on obesity and type 2 diabetes at the new Steno Diabetes Centre in Aarhus, Denmark.

Established at Aarhus University Hospital in January 2018, the centre provides a platform for diabetes prevention, treatment, research, collaboration and education. Through continuous dialogue and collaboration with the centre, we expect to gain input for developing milk ingredient solutions that can support future strategies for treating or even preventing obesity and type 2 diabetes. Arla Foods and the Novo Nordisk Foundation are also financial contributors.

### Investment in infant probiotic

Infant nutrition is a key focus area for us at Arla Foods Ingredients. This has prompted our investment in Evolve BioSystems, a small start-up company in the USA that has developed a probiotic for mixing with breast milk.

The natural transfer of bacteria from mother to child is, today, increasingly jeopardised by the growing number of births by caesarean section and by antibiotic treatment of the mother during pregnancy. When this transfer does not take place, infant gut health may be compromised.

By helping to release nutrients in breast milk, the probiotic contributes to a protective environment in the infant gut and promotes the development of a healthy immune system. Evolve BioSystems is a spin-off from University of California, Davis.

**Carbon sequestration.**  
A new method will give farmers a better overview of their actual carbon footprint



#### Research partnership

The public-private partnership Arla Food for Health provides research funding for studies within the fields of metabolic syndrome, malnutrition or immune response. Six of the ten projects in the current funding portfolio are of interest to strategic R&D at Arla Foods Ingredients, focusing on:

- Mechanisms behind the weight-regulating properties of milk-derived proteins (University of Copenhagen and Aarhus University)
- Characterisation, functionality and biological effects of milk fat globule membrane in infant formula (University of Copenhagen and Aarhus University)
- Bioactive milk ingredients as protectants against gut inflammation (University of Copenhagen)
- Optimal combinations of milk proteins and ketone bodies to counteract muscle wasting in hospital patients (Aarhus University)
- The role of milk protein and whey permeate in supporting the growth and development of children with moderate acute malnutrition (University of Copenhagen)
- The influence of age on milk protein absorption and the influence on hormonal and metabolic regulation (University of Copenhagen, Aarhus University and University of Birmingham)

Arla Food for Health is a partnership between University of Copenhagen, Aarhus University, Arla Foods and Arla Foods Ingredients.

# NATURAL

Our production sites are **committed** to cutting our energy and water consumption by at least 3% a year up to 2020 and to **reducing greenhouse gas** emissions by 25% compared to 2005. A new **next-step environmental strategy** will be developed in 2019.



Continuous improvements reduce our reliance on municipal water supplies and increase water efficiency through wastewater reuse



We are investing in new technology to improve energy efficiency in production and enable our transition to biogas as a renewable energy source



We pursue an ongoing goal to make the best possible use of our raw material and reduce waste

**W**ater represents more than 90% of the content of raw whey. So, for a number of years, all our plants have focused on recycling whey water to reduce our consumption of drinking water from public supplies. At the same time, we look for opportunities to cut our water requirements overall.

Water reuse increases the demands on wastewater treatment capabilities, as all water used for interior cleaning of pipes, vats and other equipment must – at minimum – be of drinking water quality. Our joint venture plant ArNoCo, for example, made good progress in this area during 2018. Of the 1500m<sup>3</sup> water extracted from whey on a daily basis, 60% is now used for cleaning in place (CIP), 20% for production and 10% for the steam boiler. Only 10% is discharged without reuse.

In Denmark, our Danmark Protein plant has optimised its seal water systems to reduce the water volumes used to cool, lubricate and seal the many thousands of pumps in operation. Our Arinco plant will implement a similar seal water optimisation in 2019 along with other water-saving opportunities highlighted by a total plant assessment.

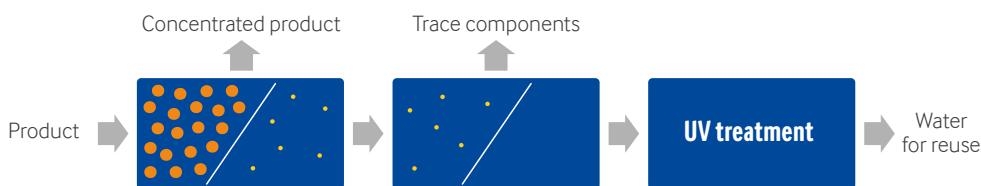
Other initiatives at Danmark Protein include recycling condensed water from the spray drying process and a cleaning verification programme. Cleaning verification is a major project that involves reviewing all 1200 of the plant's CIP operations to identify opportunities to reduce water use without compromising cleaning standards.

In Argentina, our AFISA plant reports that, due to continuous improvements, municipal supplies accounted for just 10% of total water consumption in 2018.

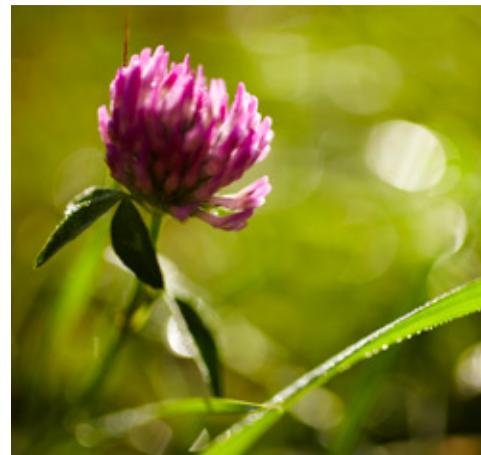
#### Efficiency in production

Improvement projects to lift our production capacity have enabled further energy and water savings in 2018. These include the introduction of new equipment at Danmark Protein which has increased the dry matter content of hydrolysates by 35%, so less time and energy are required for drying. Following an optimisation of production planning in the spray drying towers, product batch sizes have also been increased. Fewer product change-overs mean the number of 12-hour cleaning cycles can be reduced – saving energy and water in the process.

## Improving our use of water



Water and energy optimisation often go hand in hand at our whey processing plants. Use of reverse osmosis filtration, for example, increases the volume of water available for reuse and reduces the energy required for spray drying of final products.



## Improved raw material use

As a company built to create value from the primary by-product of cheese production, we remain focused on making the most of our whey raw material. An investment in a microfiltration plant at Danmark Protein is part of this continuous improvement – optimising raw material use in the production of one of our speciality ingredients for infant nutrition. Microfiltration is a reliable method for removing, for example, heat-resistant bacteria and other impurities. As a result, all ingredient batches now meet the strict specifications of infant nutrition manufacturers. This has eliminated off-spec production and related waste.

Another project is targeting the nutritious milk calcium in mother liquor – the mineral-rich waste stream that remains when protein and lactose are extracted from whey. The objective is to remove calcium and other minerals from the mother liquor before it is dispatched for biogas production.

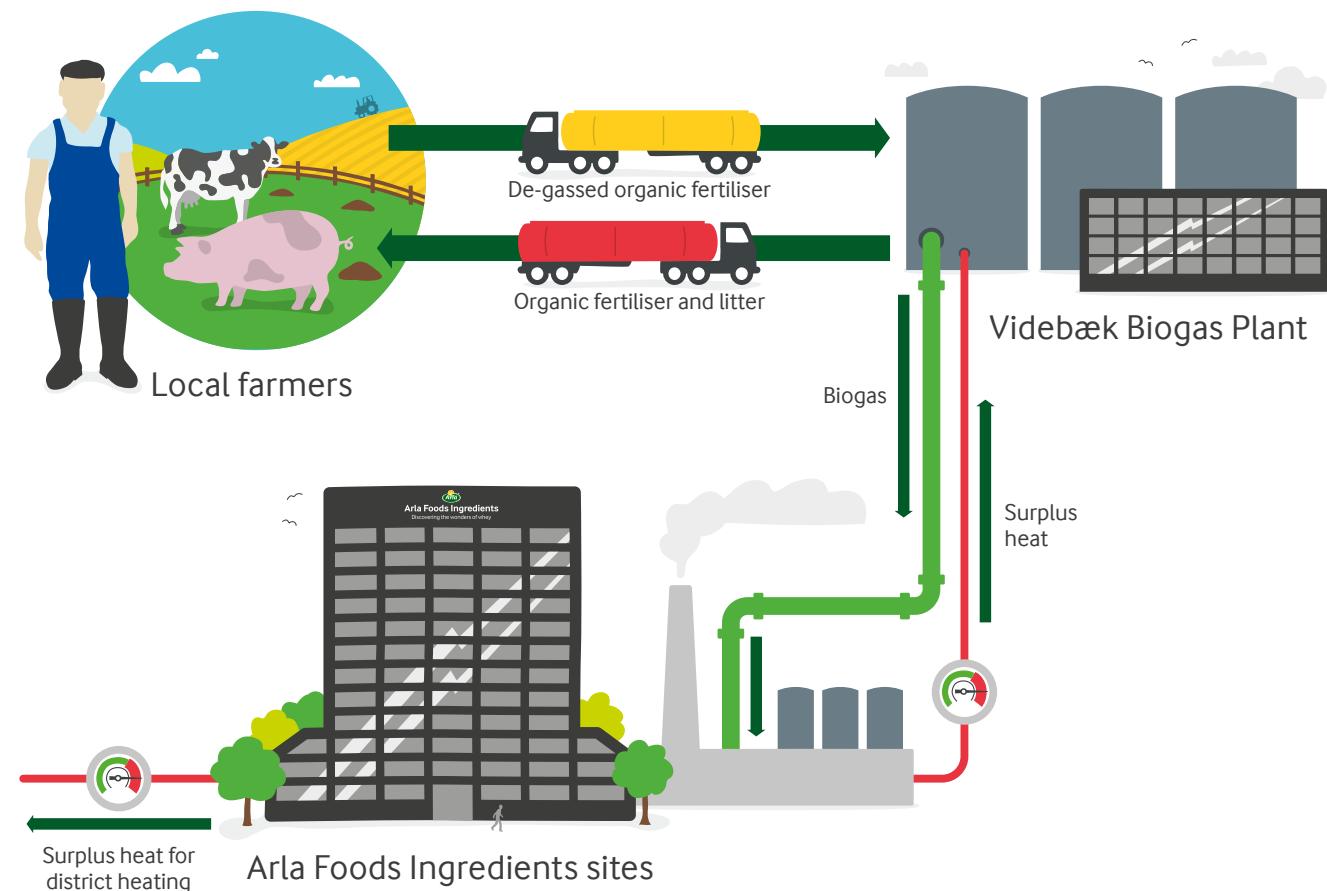
## The road to biogas

Our transition to renewable energy is gathering pace in Denmark, where investments in locally produced biogas are reducing our reliance on fossil fuels. Since 2016, biogas motors installed at our infant nutrition plant Arinco have supplied the power grid with 30% more electricity than the plant needs to operate. Waste heat is both used to produce steam for processing needs and sold to the local district heating plant, which uses it to heat 1,500 homes.

Our most energy-intensive plant, Danmark Protein will come on board with biogas in 2019. Preparations in 2018 have included the construction of a new building to house two 35-tonne biogas motors. Once in operation, the motors will cover around 45% of the plant's electricity consumption, which averages 115,000MWh a year. Heat from the motors will be used to produce 1,700kW of steam and 3,300kW of hot water for process heating.

## Transport savings

Our Arinco plant has saved 60,000km on truck transport after constructing a new 10,000m<sup>2</sup> warehouse next door. Previously, all the plant's infant nutrition products were stored in an external warehouse 20km away while awaiting the final quality and safety approval before dispatch.



# The road to biogas

# HUMAN RIGHTS

Human rights are fundamental to our business success. Within Arla Foods Ingredients, we seek to provide a **positive working environment** and good opportunities for personal development. Abroad, we work in partnerships to help build an **affordable and sustainable food supply** for vulnerable consumers.



We contribute actively to sustainable food production systems that provide access to affordable, safe and nutritious food



We sponsor community projects that promote global citizenship and gender equality and upgrade educational facilities in schools



We take action to secure a safe working environment for all colleagues



We are committed to close international partnerships that work towards sustainable development in developing countries

Our activities to promote safe, healthy and affordable food supplies in developing countries are becoming increasingly integrated in our business. Early in 2018, we cemented our close working relationship with the NGO DanChurchAid (DCA) by entering a partnership agreement to share knowledge and expertise and develop new affordable food concepts. Like Arla Foods Ingredients, DCA is a founder member of the GAIN Nordic Partnership, which aims to facilitate sustainable supply chains in developing countries and make nutritious food more accessible to low-income consumers.

The initial outcome of the partnership agreement is the Sustainable Food Platform initiative, which has obtained financial backing from the World Resources Institute and P4G. A new global network aimed at accelerating green economic growth towards 2030, P4G hosted its inaugural Copenhagen summit in October. At the event, DCA and Arla Foods Ingredients presented an affordable protein-rich biscuit made with drought-resistant quinoa grown by Ethiopian farmers. The Sustainable Food Platform focuses primarily on Ethiopia and will use experience gained in Kenya and Uganda.

#### A dairy supply chain for Ethiopia

The GAIN Nordic Partnership has made further progress with another project in Ethiopia, supported by Denmark's development cooperation agency Danida. Since its initiation in September 2016, the project partners have worked with smallholder farmers and dairies to build a local supply chain that will make nutritious and affordable yoghurt available to malnourished Ethiopian children and their mothers.

Our role at Arla Foods Ingredients is to support the dairies with application knowledge and a recipe that

includes whey permeate to increase the volume of yoghurt produced with the local milk supply. In the autumn of 2018, all partners in the project attended a workshop in Denmark to test the yoghurt prototypes. This included inviting the Ethiopian dairy team to a training session in the Arla Foods Ingredients dairy application centre.

#### Addressing malnutrition in Zambia

A similar GAIN Nordic project is underway to address malnutrition in Zambia, where 40% of children are affected by stunting. As reported in 2017, the UK Department for International Development (DFID) has provided funds for the project, which is to build a sustainable business model for producing and selling an affordable and nutritious long-life drink based on milk.

Each partner is delivering specific knowledge towards achieving the project goals. Our contribution is to design the long-life drink and train the Zambian dairy that will produce it.

The project is scheduled to run until August 2019.



#### Projects in the community

Our plant in Argentina has a long tradition for supporting local community activities. In 2018, AFISA sponsored a Global Goals World Cup event – an international initiative that champions gender equality and the UN SDGs through women's football tournaments in countries around the world. The Argentine event gathered girls from social clubs in underprivileged areas of Buenos Aires in a football league. To qualify for the tournament, each team had to take action on a chosen SDG before playing to win on the football pitch.

Involvement in community initiatives is a win-win for a good cause and for employer branding. As young people increasingly look for employers that make a positive contribution to their surroundings, we recognise such projects as important opportunities to raise awareness of our company and our values.

During the year, AFISA also donated furniture and computers to local secondary schools in Porteña, where the plant is located. AFISA will continue to sponsor the Global Goals World Cup in 2019.





### **Internships for students and unemployed workers**

Seventeen students were employed as interns at our Arinco site in 2018 as part of their education. Arinco has gained recognition over the years as a training centre for upcoming dairy engineers, dairy and laboratory technicians and apprentices from Denmark and abroad.

In collaboration with the local authority, Arinco also provides short warehouse internships for unemployed workers who are struggling to regain a foothold on the labour market. Such internships – around six a year – frequently lead to permanent employment.

### **Behavioural safety programme**

Colleague safety is a top priority in all our production plants, where continuous maintenance and equipment upgrades minimise safety risks and regular safety training ensures colleagues are up-to-date with safety procedures. However, while total work accidents have fallen in recent years, our record remains unsatisfactory. For this reason, we set a goal to reduce accident frequency by 25% in 2018 compared to 2017.

To drive this change, we have begun the rollout of the Arla global behavioural safety programme, Cornerstones. The objective is to draw attention to behaviour and the factors that influence behavioural change. Continuous monitoring and assessments follow the progress of each site in relation to the Cornerstones maturity index, where the top level is full integration of the behavioural safety principles.

The first Cornerstones workshops for role model training were held at Danmark Protein and Arinco in the spring of 2018, followed by a series of on-site events for all colleagues. This has already had a positive impact on accident figures. Similar workshops will be held at AFISA in 2019.

## Global health and safety

Behavioural safety programme (BSP) – Cornerstones maturity index



Our joint venture plant ArNoCo reports involvement in eight safety improvement projects in 2018, including equipment upgrades, staff training and new safety guidelines.

See our accident track record in the Ambitions & Progress chapter.

### **Cultural change journey**

A cultural change programme at our joint venture plant Biolac has focused strongly on colleagues' quality and safety awareness, behaviour and involvement over the past three years. The impact is now visible in site accident statistics, which show a reduction in lost-time work accidents from seven in 2016, when the programme started, to one in 2018. A risk assessment of workplace stress has also inspired a series of measures to improve the working environment. At the same time, absenteeism has fallen from 7.4% in 2016 to 6.3% in 2018. The ambition is to reduce absenteeism to 3.5% within the next five years.

### **Security risk assessments**

Keeping colleagues safe and protecting company assets are important at all times. We have conducted security risk assessments at all production sites owned by Arla Foods Ingredients and taken action to ensure a stand-

ardised, international level of security. This includes preparing crisis management plans for security-related incidents.

### **Flexible seating plan**

Organisational growth is bringing many new colleagues into our business. At our head office in Aarhus, Denmark, we could see that we were on course to run out of seating space by 2020. Based on an analysis of how much time individual members of staff spend at their desks, we found we could use our office space more effectively and, at the same time, improve cross-organisational teamwork by introducing a flexible, free-seating concept.

The concept was tested successfully during 2018. In 2019, work will begin on a new office layout before full implementation of the new seating plan, which will help maintain a positive working environment and support teamwork in the years ahead.

### **Work environment award**

Our Arinco plant has won a Work Environment Group of the Year award for its positive, involving and proactive spirit in the workplace. The award was presented at the annual conference of the Danish Dairy Industry's Work Environment Council.

# AMBITIONS & PROGRESS

This chapter gives an overview of Arla Foods Ingredients' sustainability performance in 2018 and targets for 2019. Information about overall policies and key performance indicators that apply to the entire Arla Foods group is available in the Arla corporate responsibility report.

## FOOD /FOOD SAFETY

<b>Ambition</b>	<p>At all times, we aim to deliver quality and food safety above and beyond the expectations of customers, consumers and the authorities. As a supplier to infant nutrition producers, the youngest, most vulnerable consumers define the quality of all our products for the food industry.</p>
<b>Impact on society</b>	<p>Any food safety issue with our ingredients is a risk to consumer health – including the health of infants, the elderly and those on special clinical diets.</p>
<b>Impact on Arla Foods Ingredients</b>	<p>It only takes one food safety incident to damage our reputation and lose the trust of our customers. At the same time, we are keen to avoid quality issues that involve inefficient production and raw material waste.</p>
<b>Priority actions for 2019</b>	<p>A company-wide campaign will anchor our quality &amp; food safety strategy in the organisation. As part of the strategy's implementation, we will develop a new competence matrix for documenting colleague skills and potential gaps at all sites, including joint ventures.</p> <p>The continuous improvement programme at our sites will include introducing statistical process control for online process parameters at our primary whey processing plant, Danmark Protein. This will enable the precise source of process variations and deviations in product quality to be rapidly located on the production line.</p>
<b>Progress in 2018</b>	<p>The quality and safety of our ingredients starts and ends with our capabilities. During 2018, we have developed a precise definition of our quality and food safety capabilities, which we will use to strengthen internal awareness and build our quality and food safety culture.</p> <p>All colleagues have participated in annual hygiene and food safety refresher training. In addition, specific food safety days were held for colleagues working within our dry blend lactose and hydrolysate facilities.</p>
<b>Impact on Sustainable Development Goals</b>	<p> <b>2.1</b> By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round</p>

## FOOD /NUTRITION

<b>Ambition</b>	<p>We are committed to mapping the full nutritional potential of the proteins and other components in whey and developing commercial products that bring these nutritional benefits to consumers. Partnerships with research institutes are essential to achieving this goal. Using our ingredients and knowhow, we want to play an ongoing active role in projects to reduce and prevent malnutrition among children and young women in developing countries.</p>
<b>Impact on society</b>	<p>People's nutritional needs change from birth through childhood to adulthood and the senior years – and they vary from one person to the next, depending on expectations for personal performance and general health. Arla Foods Ingredients contributes to nutrition for life.</p>
<b>Impact on Arla Foods Ingredients</b>	<p>The future of our company depends on our ability to operate and grow in a sustainable, responsible manner in line with the expectations of internal and external stakeholders.</p>
<b>Priority actions for 2019</b>	<p>We will consolidate knowledge and experience gained from our affordable foods projects for deployment in our overall business. New research projects are planned to document the contribution of whey components to affordable, nutritious food.</p>
<b>Progress in 2018</b>	<p>We have continued to co-fund and collaborate in clinical studies that investigate the effect of whey components on specific aspects of human health. Within affordable food, our GAIN Nordic partnership projects to develop dairy supply chains in Zambia and Ethiopia are now well underway. In collaboration with our partner DanChurchAid, we also launched a new Sustainable Food Platform initiative.</p>
<b>Impact on Sustainable Development Goals</b>	<p> <b>2.2</b> By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons</p> <p> <b>3.4</b> By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being</p>
	<p> <b>17.9</b> Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation</p>

## PEOPLE /HEALTH AND SAFETY

### Ambition

The health and safety of the people who work at or visit the Arla Foods Ingredients sites is a top priority. Our target is zero work accidents and a working environment that never compromises the physical or mental health of any colleague.

### Impact on society

There are many risks to health and safety in a company like ours that operates large processing plants and relies on transportation of raw materials and finished products. Our licence to operate is dependent on our ability to minimise those risks and provide healthy and safe working conditions.

### Impact on Arla Foods Ingredients

Every health and safety incident in or around our sites threatens our ability to attract competent colleagues and represents a major business risk in terms of lost efficiency and profitability and reputational damage.

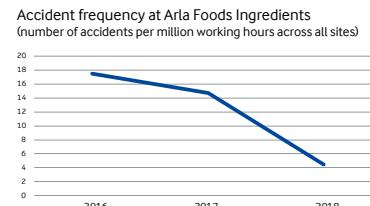
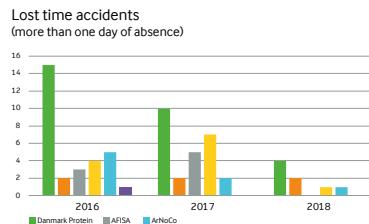
### Priority actions for 2019

We will continue to rollout and anchor the Arla behavioural safety programme at all sites.

### Progress in 2018

Accident frequency across all Arla Foods Ingredients sites fell 70% in 2018, compared to 2017 – exceeding our 25% reduction goal significantly. AFISA and our joint venture plant MVI recorded zero lost-time accidents for the year.

Rollout of the Arla behavioural safety training programme began, with workshops held at Danmark Protein and Arinco, along with on-site events for all colleagues.



### Impact on Sustainable Development Goals



**3.6** By 2020, halve the number of global deaths and injuries from road traffic accidents



**8.8** Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, including particular women migrants, and those in precarious employment

## PEOPLE /DECENT WORK

### Ambition

We want to be a workplace that tolerates and respects all people regardless of gender, ethnic origin, religious or other beliefs and sexual orientation and which provides equal opportunities for everyone to reach their potential.

### Impact on society

Proactive efforts to secure human rights in the workplace contribute to sustainable and prosperous societies and a good quality of life for citizens.

### Impact on Arla Foods Ingredients

People are our most important resource. Failure to provide a positive working environment would reduce our ability to attract new colleagues and risk the future of our business.

### Priority actions for 2019

Due to business growth, Arla Foods Ingredients has undergone considerable organisational change. Feedback from our annual colleague engagement survey – reflected in our agility score – shows that our internal change communication has been unsatisfactory during 2018. This will be a focus improvement area in 2019.

### Progress in 2018

The staff of Arla Foods Ingredients grew considerably in 2018 due to organic growth and the incorporation of the Arinco site in the business. However, this had no impact on the level of responses to our colleague engagement survey, which remained high at 97%. A third of respondents had taken the time to write detailed comments. The scores show continued improvement in colleague engagement and a strong upward trend for strategic alignment, indicating that the vast majority recognise their contribution to company goals. Overall leadership also went up by five percentage points. Finally, we are encouraged to see a further decline in the incidence of unacceptable behaviour.

The table shows the development of key performance figures from 2016 to 2018.

Category	AFI target range	2018	2017	2016	Development	Status
Employee engagement	85-90%	89%	87%	84%	2	In range
Strategic alignment	80-85%	93%	85%	77%	8	Above range
Agility	75-80%	67%	81%	76%	-14	Below range
Overall leadership	70-75%	80%	75%	65%	5	Above range
My manager	75-80%	77%	77%	74%	0	In range
Unacceptable behaviour	0%	5%	7%	9%	2	Not in range yet

### Impact on Sustainable Development Goals



**8.5** By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

## NATURE / ENERGY AND CLIMATE

### Ambition

Arla Foods has an ambition that 50% of all energy consumption should be derived from fossil-free sources by 2020. At Arla Foods Ingredients, we work hard to contribute to this goal and to improve the efficiency of our resource-intensive production in general. Our greatest challenge in this respect is the increasingly advanced nature of our ingredient portfolio. This requires us to map and optimise our use of resources at each processing step.

### Impact on society

We recognise our responsibility to make the most of our whey-based raw materials, minimise waste and to limit our impact on our surroundings. Through our consumption of energy, water and other materials, we risk contributing to climate change and to depleting non-renewable resources.

### Impact on Arla Foods Ingredients

Environmental changes that impact the supply and cost of raw materials, energy and clean water for our sites constitute a substantial business risk. Any failure on our side to address our potential impact on the environment and climate also represents a threat to our reputation.

### Priority actions for 2019

Continuous improvements are underway at all sites. Major projects include:

- Denmark Protein

Installation of biogas motors is expected to be complete in April, enabling connection to a local biogas provider. Biogas will then meet 29% of the site's energy needs, reducing CO<sub>2</sub> emissions by 22,000 tonnes a year. Additional projects will reduce the site's energy consumption by 2,300MWh/year and water consumption by 88m<sup>3</sup> a day.

- Arinco

Investment in a heat pump, buffer tank and heat exchangers will capture waste heat from the ice water plant for use in pre-heating cleaning water.

### Progress in 2018

During 2018, we have started reporting on the environmental performance of our joint venture processing plant MVI, located on the site of the Arla Taw Valley Creamery in the UK. Until 2017, energy consumption at MVI was incorporated in the total site figures. Separate water consumption figures are expected to become available during 2019.

### Impact on Sustainable Development Goals



**6.3.1** Proportion of wastewater safely treated

**6.4.1** Change in water-use efficiency over time



**7.2** By 2030, increase substantially the share of renewable energy in the global energy mix

**7.3** By 2030, double the global rate of improvement in energy efficiency



**12.2** By 2030, achieve the sustainable management and efficient use of natural resources

**12.5** By 2030, substantially reduce water generation through prevention, reduction, recycling and reuse



**13** Take urgent action to combat climate change and its impacts

### Energy efficiency

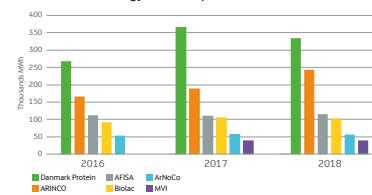
Energy consumption is falling or stable at most sites with the exception of Arinco and AFISA. Nevertheless, in 2018 overall, energy efficiency fell by 1.4% across our sites.

Energy efficiency at each site is closely linked to the product mix and related complexity of production. However, the figure for Denmark Protein, our largest, most specialised plant, shows a slight reduction in energy consumption per tonne of product produced.

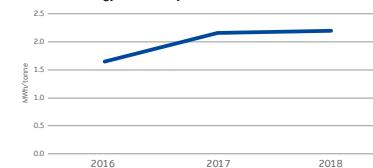
The overall goal for Arla is to improve energy efficiency by 3% a year.

Biogas accounted for 14% of Arla Foods Ingredients' energy consumption in 2018.

Total annual energy consumption at all sites



Annual energy efficiency across all sites



### Water efficiency

The figures show that total water consumption increased slightly in 2018 and water efficiency fell. Just as is the case with energy, our water requirements grow with the increasing complexity of our products.

However, due to a high focus on the treatment and reuse of water extracted from whey during processing, we have managed to limit the amount of water drawn from drinking water supplies.

At individual sites, water optimisation projects have resulted in drinking water savings of, for example, 600m<sup>3</sup> a day at Denmark Protein (equivalent to 20% of daily water consumption).

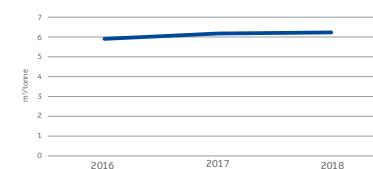
AFISA reports that water sourced from whey covered 90% of the site's water needs in 2018.

At ArnoCo, 90% of whey water was reused for specific cleaning processes – up from around 50% in 2017.

Total annual water consumption at all sites



Annual water efficiency across all sites



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Arla Foods Ingredients is a global leader in value-added whey solutions. We discover and deliver premium ingredients derived from whey, supporting the food industry with the development and efficient processing of natural, functional and nutritious foods.

Using our specialist knowledge of food products and production, we serve global manufacturers of early life nutrition, medical nutrition, sports nutrition, health foods and other food and beverage products.

Arla Foods Ingredients is a 100% owned subsidiary of the dairy company Arla Foods.

ABOUT THIS CORPORATE RESPONSIBILITY SUPPLEMENT  
This supplement to the annual Arla Foods corporate responsibility report provides insights into relevant corporate responsibility matters specific to Arla Foods Ingredients.

**Arla Foods Ingredients**  
Discovering the wonders of whey 