

# Sustainability Report

FY24



Our journey began in the fertile fields of southern Sweden. Here, we took our first steps under the vast and ever-changing sky. Each crop held hope for the future, and each harvest confirmed our ambition.

We believe in the power of nature and in turning what the good earth provides us into something enriching. With courage, care, and responsibility as our guiding principles and commitment as our driving force, we create in unison with nature. We transform nature's gifts into moments that unite people, bring smiles, and build memories. In harmony with our surroundings and each other, we shape a future where our potato starch and flavors provide unique experiences.

Every step we take is a step towards a more sustainable and inspiring world. Enriching people's lives is our promise to ourselves and the world.

**Lyckeby Group – Enriches life.**





# Table of contents

- Words from the CEO ..... 5**
- The Year in Brief..... 7**
- About Lyckeby Group..... 8**
- Sustainability Strategy..... 14**
- Governance and Business Conduct..... 24**
- Focus Areas ..... 29**
  - A value-adding workplace ..... 30
  - Sustainable cultivation ..... 40
  - Resource-efficient operations ..... 51
  - The products of the future ..... 63

## About the report

This report from Sveriges Stärkelseproducenter Förening u.p.a. (hereinafter Lyckeby Group) is our seventh sustainability report and covers the period 1 September 2023 to 31 August 2024. It constitutes the formal sustainability report according to the Swedish Annual Accounts Act.

The sustainability report covers the parent company Sveriges Stärkelseproducenter Förening u.p.a., together with the wholly owned operating and sales companies Culinar Sverige AB, Culinar Danmark ApS, Lyckeby Culinar a.s., Lyckeby Culinar s.r.o., Culinar Polska Sp. Z.o.o., and Lyckeby Culinar Shanghai Ltd, and the part-owned subsidiaries Lyckeby Amylex a.s. and Solam GmbH. The report has been developed with inspiration from the EU Corporate Sustainability Reporting Directive (CSRD) and the associated European Sustainability Reporting Standards (ESRS) as part of the preparations for new requirements in sustainability reporting.



**”We have exceeded our energy reduction target, which is very positive.”**

**HANS HOLMSTEDT**  
CEO and Group CEO



# Words from the CEO

Lyckeby Group operates through our brands, Lyckeby, Solam, Culinar, Kockens, and Lailas in a global market of around 80 countries. Over the past financial year, we have continued to be affected by inflation and an uncertain business environment, with the constantly shifting discrepancy between supply and demand having a major impact on our operations. At the same time, natural catastrophes, unrest, and war have unfortunately continued throughout the world, creating enormous human suffering and reminding us of the vulnerability of our society. Our ambition to work in a long-term, methodical way with our sustainability process as a natural part of our operations has never been so important.

The group's overarching strategy contains four focus areas, in which sustainability is one of the four foundations (Sustainability, Employees, Growth, and Profitability). These foundations are intended to ensure our long-term and strategic sustainability work as a self-evident, high-priority aspect of our business. In parallel with our long-term strategy, my feeling is that the prevailing world situation has further increased our commitment—both as a company and as individual employees—to our sustainability

process, through which we continue to take important steps toward our ambitious goals.

During the past financial year, we have changed the group's management structure, which will further support our long-term strategy and not least our sustainability work. Our new management structure involves synchronizing all parts of the company and better exploiting resources and knowledge throughout the entire organization. This eliminates duplicate work, helps reduce complexity, and improves best practice. In line with our new management structure, Kockens AB has been merged with Culinar Sverige AB, with a continued focus on the convenience goods industry and foodservice.

Here are a few examples of our activities during the past year:

Culinar continues to strive for improved social, economic, and environmental conditions for growers around the world, and the decision has been taken to significantly increase the share of sustainably grown products according to the SSI criteria. Our work with climate-smart packaging continues on an ambitious level, including reducing packaging

weight, adapting primary and secondary packaging to pallets, and using bio-based/recycled plastic where possible.

Efforts to reduce the use of plant protection products for growing starch potatoes continue with the same enthusiasm, in a close collaboration between our growers and grower advisors. We are well on the way, but can already say that we will not be able to achieve our extremely ambitious goal as planned. We continue to work hard on this issue, but we will almost certainly fail to reach the final reduction without using modern plant breeding techniques.

We continue to improve and refine our ways of working, with the task of reducing our energy consumption being a key priority. Through major investments and trimming, we have succeeded in reducing our energy consumption in excess of our goal, which is very positive. At the same time, we have also increased the share of bio-oil in our factories, which has resulted in reduced carbon dioxide emissions.

*Continued on next page*

We are continuing investments at high speed, in both short and long-term projects with economically and environmentally sustainable goals.

One example is our new storage silo in Nöbbelöv, which was constructed from 'green' concrete and will significantly reduce our transports and needs for packaging material on the starch side. Forthcoming investments aim at reducing water consumption as another important step.

During the year we have prepared to end our hydroxypropylated range, which will take place in late 2024. At the same time we are continuing to develop what we call the products of the future, which include our clean label range. In close collaboration with our customers and partners, we see a continuing increased interest in the green protein shift and E number-free starches—an interest we aim to satisfy.

The work on our shared core values continues, with aim of giving all of our employees and managers a sense of community that will create a strong company culture and a sustainable organization in the long term.

An important step in 2024 for our future sustainability reporting was carrying out a materiality analysis for the Swedish operations from a double perspective as part of our preparations for CSRD compliance.

My ambition is for us to work with all of our employees, owners, customers, and collaboration partners to continue developing our sustainability process. Personally, I am convinced that we must accelerate this process with regard to our environment and nature, for us as humans, and not least from an economic perspective.

Finally, I'd like to take the opportunity to thank all of our colleagues, growers, and owners for their fantastic commitment during the past year.

**HANS HOLMSTEDT**

CEO and Group CEO

# The Year in Brief

## Scope 1 and 2

calculated carbon footprint for operations in the Czech Republic

## 1,5 GWh

energy savings with new starch production

## New starch silo

in 'green' concrete enables more effective logistics

## Extended goals

for certified sustainable share (according to SSI) for ten spices by 2030

## New research results

from SLU that can facilitate reduced need of plant protection products in potato cultivation



# About Lyckeby Group

Lyckeby Group began in 1927 as the agricultural cooperative Sveriges Stärkelseproducenter. Today the group consists of a number of companies and has two business areas—Starch and Flavor. The agricultural cooperative has around 600 members in southern Sweden, of whom about 360 are active growers of our primary raw material—starch potatoes. The group has around 370 employees in Sweden, a further 130 employees in the Czech Republic, and has a turnover of approximately 3,3 billion SEK.



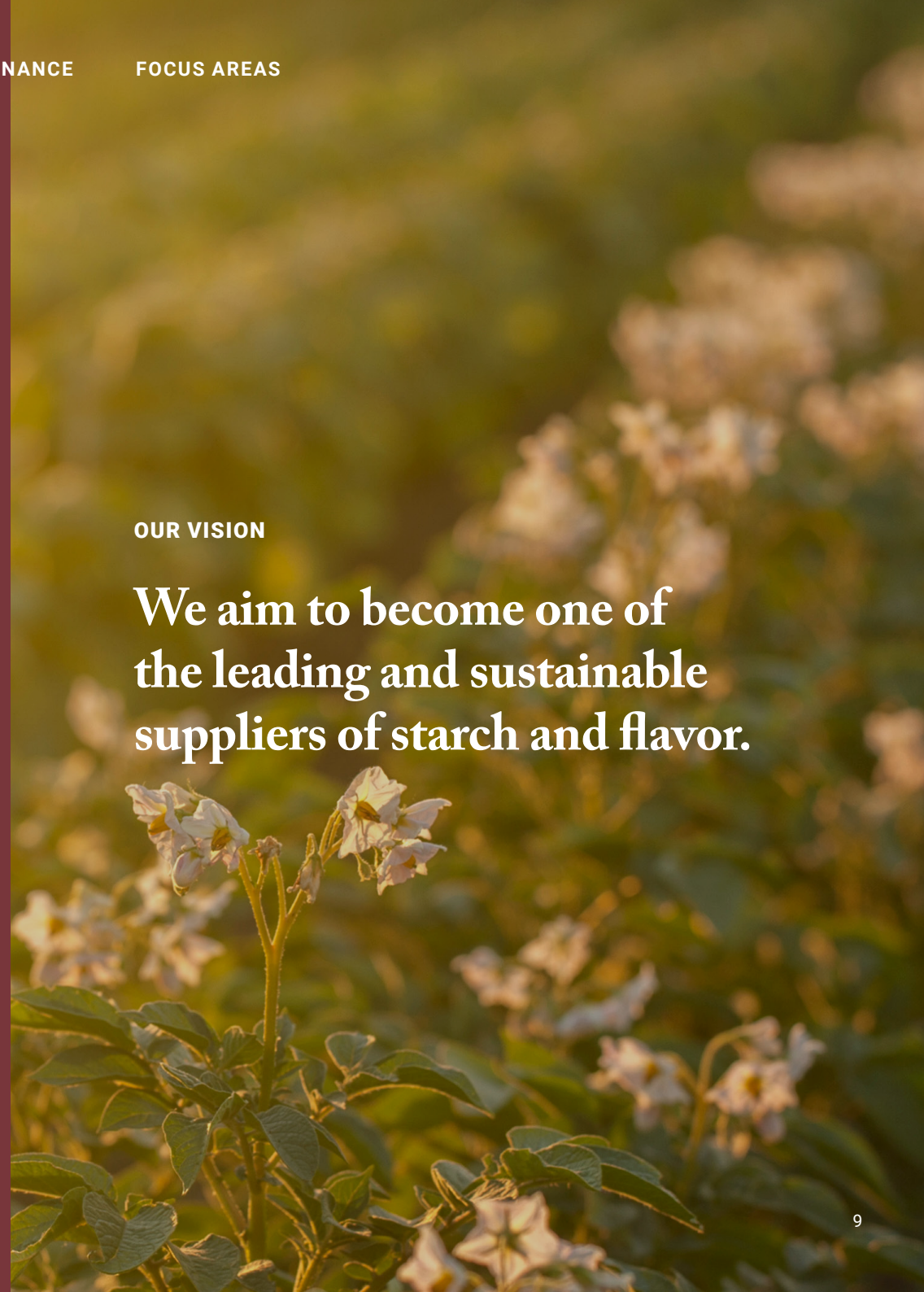


OUR MISSION

**We create opportunities from what the earth has to offer.**

OUR VISION

**We aim to become one of the leading and sustainable suppliers of starch and flavor.**



# Starch business area

Our business concept is to transform potatoes grown by our owners into high-quality, functional starch. We make use of the content in the best way, then sell it to selected markets around the world.

This means that we intend to create added value for the consumer's experience by increasing opportunities for the food and paper industries, through offering the conditions for high-quality, nutritious, and sustainable food, together with a significant performance improvement for paper. This can include promoting transparent and ethical production, and offering alternatives that are environmentally friendly and fair for all those involved in the chain. By working to improve food choices, our organization strives to have a positive impact on people's health and well-being, and on the environment.



Lyckeby offers customized, functional starch products and potato fiber to the global food industry.



Solam offers value-added starch products to the paper industry in Europe.

# Flavor business area

We produce and offer flavorings and functional ingredients for the food industry, convenience goods industry, and foodservice. We want to create the best flavor experiences through innovation and genuine knowledge. We strive to make it easier for people and companies to succeed in delivering their offerings. This means that we offer products and services that support our customer's ability to satisfy the end consumer. By helping people succeed in the kitchen, we want to promote a healthier and more enjoyable cooking experience for our customers' customers.



Culinar offers a wide range of spices, other ingredients, and unique blends to the food industry in Europe.

**KOCKENS®**

Kockens offers dried herbs and spices to consumers, restaurants, and catering in Sweden.

*Lailas*

Lailas offers flour mixes free of gluten, milk, and eggs to consumers.



# Where to find us

Lyckeby Group has six production units\* in Sweden and one in the Czech Republic, all located close to where our starch raw materials are grown.

## 1. NÖBBELÖV

This is the base for our starch operations. We receive starch potatoes from our growers and process them into native potato starch, protein, and fiber. Some of the native starch is then further processed into modified food starch. The facility also hosts our research and development center, which focuses on the development and application of starch in food and paper applications.

## 2. FJÄLKINGE

This is the base for our flavor operations. Here, purchased raw materials are mixed with ingredients from Nöbbelöv to make dry and liquid food ingredients. We also pack Kockens spices here. Fjälkinge is also the site of our development center, targeting flavor innovations in different food applications.

## 3. BÄCKASKOG

This is our seed center. We also carry out some packaging of products here, including Kockens potato starch.

## 4. MJÄLLBY

This is one of the sites where we receive starch potatoes from our growers and process them into native potato starch, protein, and fiber. Some of this is transported to Nöbbelöv, but the majority is transformed on site into starch products for the paper industry.

## 5. HORAŽŮVICE (TJECKIEN)

This is the base for our starch and flavor operations in the Czech Republic. We receive starch potatoes from our local growers and process them into native potato starch, protein, and fiber in our starch operations. Some of the native starch is further processed into dextrin for use in the food and technical industries. In our starch operations, purchased raw materials are mixed with ingredients from our starch operations to make dry and liquid food ingredients.

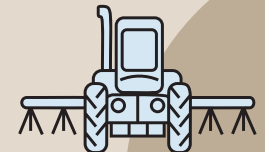
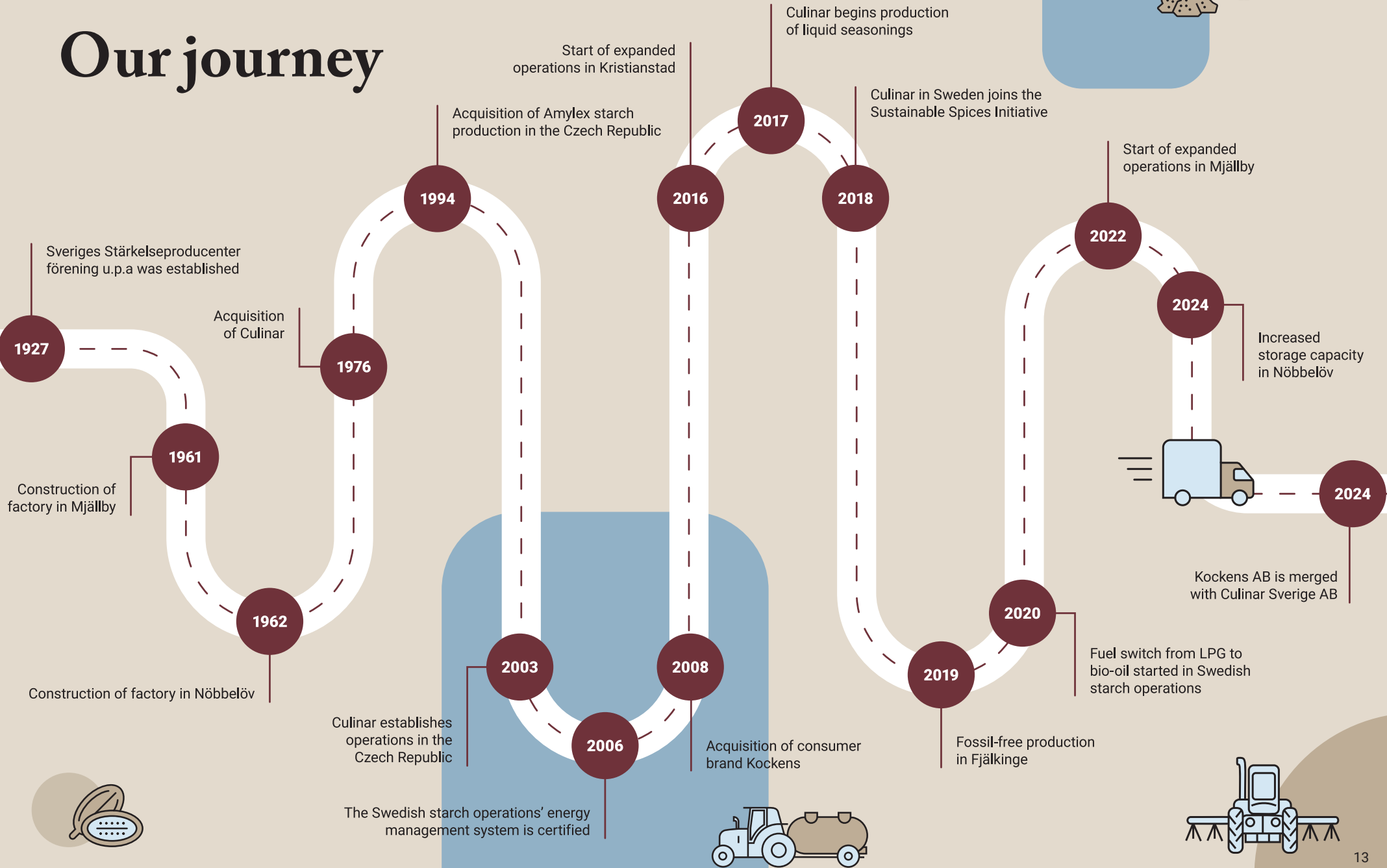
\*In addition to these production units, the group has smaller sales offices in Denmark, Poland, Germany, Slovakia, and China.

- Starch and flavor
- Starch
- Flavor





# Our journey





# Sustainability Strategy



# Our strategy

As a group with 100 years of history, and where our operations are based on cultivation, we have evaluated and adjusted our sustainability strategy and business model many times. The goal is always to ensure long-term profitability for the business while simultaneously making a contribution to people and the environment. For our business to survive, the next generation of growers must be able to continue using the soil.

Our strategy is very clear. We will continue to expand our range of high-quality, modern, and value-added products. As a business we need never doubt that our products have a self-evident place in a sustainable future. With this knowledge behind us, we constantly strive to develop our way of working, aiming to minimize negative impact from our operations and to maximize their benefit to society. By developing new products with improved functionality, and by renewing our processes and implementing new techniques, we ensure that our products have the lowest possible environmental impact and are healthy and sustainable in the long term.





# Our value chain

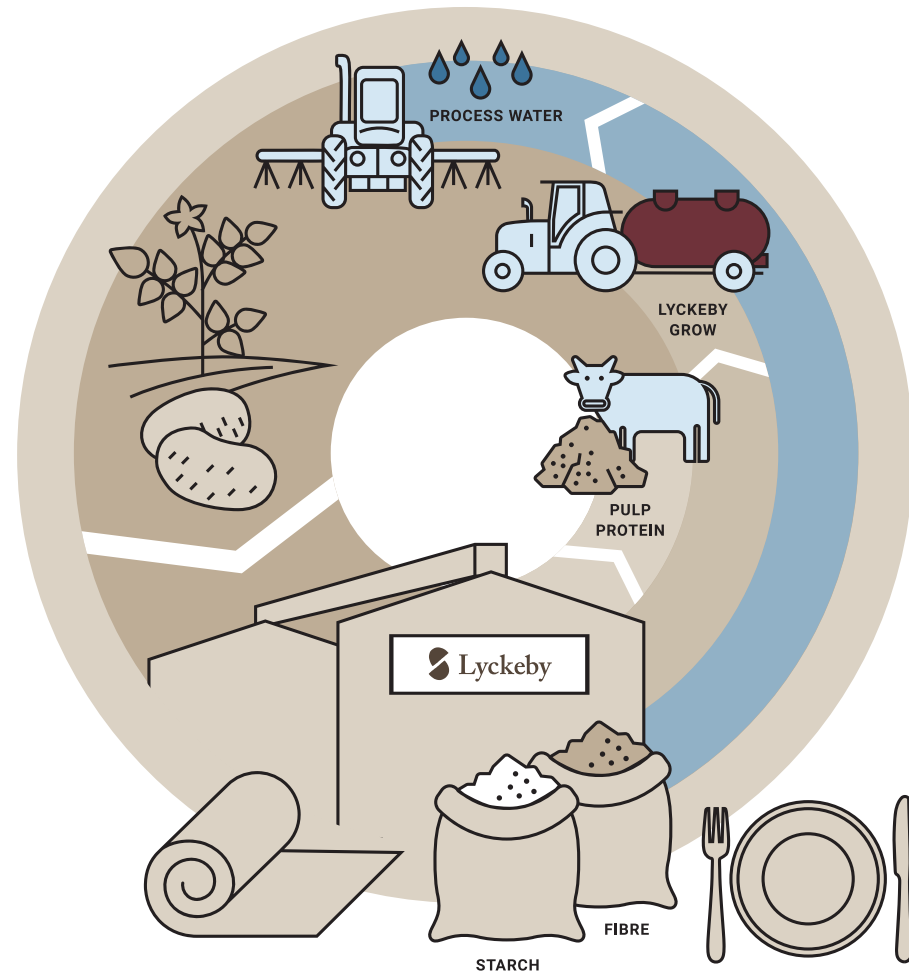
We are dependent on a range of resources, products, and services to run our operations and create value for our customers and owners. The value chains for our two business areas, Starch and Flavor, demonstrate both similarities and differences. Similarities in that both value chains begin with the raw material from the grower, which is then transformed in a number of steps and finally used in food or paper. Differences in that our activities take place in different parts of the chain.



# Value chain – Starch

We buy potatoes, in Sweden from our potato growers and owners, and in the Czech Republic from our contracted growers. Then we process and utilize the potato in the best possible way so we can offer customized, functional potato starch products to customers within the food and paper industries. We focus on markets and applications where potato starch has high potential, giving our customers added value. Our offering always includes support and knowledge within the areas of product development, applications, logistics, and quality, from our highly experienced team. Our mission is for the starch potato to be the most profitable alternative for our growers.

In addition to transforming the starch, we also make use of side streams from other components in the starch potato, as far as possible. We transform the potato fiber to a food-grade product and sell the protein as animal food, while in our Swedish operations the juice and surplus water are transferred back to the fields as concentrate to fertilize and water the crops—a circular process we are very proud of!

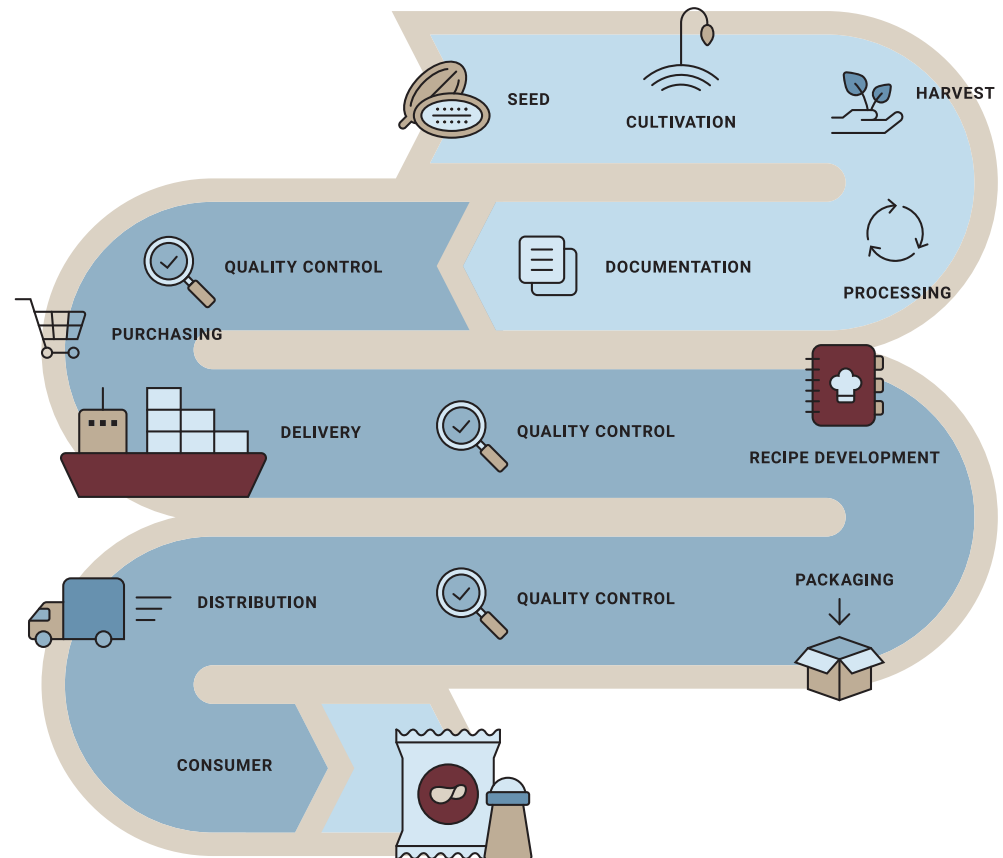


# Value chain – Flavor

At Culinar, we blend spices from all over the world with other functional ingredients (including Lyckeby’s potato starch) to create ready-to-use flavor and texture ingredients for the food industry. Our role in the value chain is to simplify and streamline logistics and blending in the customer’s end process. We also want to provide opportunities for them to choose more sustainably grown ingredients.

Contributing support and knowledge within applications such as snacks, meat and deli, bakery, etc., is an important part of our business. Here we collaborate closely with the customer so the consumer receives a good end product. As well as application knowledge, we also optimize packaging and manufacturing to minimize waste and simplify handling of ingredients by the customer.

At Culinar, we also create and pack products that are sold directly to the consumer and to the catering industry under the Kockens brand.



# Stakeholder engagement

As we develop our sustainability process, we listen to our internal and external stakeholders. Through constant contact with them, we ensure that we are aware of and can act on the most important issues for our business. Mapping and analyzing the stakeholders' expectations of the business is

a big part of creating long-term value and reaching our goals. The table below shows who we talk to, how, and the issues we focus on. This helps us to get to grips with the social and environmental issues that mean most to our stakeholders—and thus to our business.

	Employees	Customers	Owners/Growers	Collaboration partners	Society
<b>Important issues for different stakeholders</b>	Health and safety Satisfaction and community Diversity, gender equality, and equal treatment Knowledge and skills development	Food safety Sustainable food production	Sustainable cultivation Global supplier cultivation and working conditions	Supplier review	Biodiversity Climate impact
<b>Dialogue channels</b>	Staff development reviews Employee surveys Intranet	Customer satisfaction surveys	Financial reports Board meetings	Contract and review meetings	Website and social media

# Materiality assessment

In 2024, we carried out a materiality assessment for the Swedish operations from a double perspective as part of our preparations for CSRD compliance. This materiality assessment forms the basis for sustainability reporting and has been used to identify impacts, risks, and opportunities for and from our operations. In 2025, the Czech operations will also be included in this assessment.

## Identifying significant topics

Our starting point was the structure in ESRS 1 and went through all the areas it includes during our identification of impacts, risks, and opportunities. Material from earlier environmental assessments based on ISO 14001 etc. was used as the foundation and we enlisted external experts to avoid missing anything or becoming locked into established patterns of reasoning.

## Assessments

Assessments carried out in the analysis were based on the guidelines in ESRS 1 for impact materiality and financial materiality. The analysis is based in facts and knowledge about our value chain, stakeholders, risks, and due diligence. We have as far as possible used quantitative

information for the impact assessments, and external consultants have participated in the analysis, assessment, and controls to check the objectivity of the work.

## Stakeholder perspectives

During the materiality assessment, we have taken into account perspectives and feedback from our stakeholders. The important issues vary between different stakeholder groups. The different issues have been weighted to contribute to the materiality assessment carried out. The stakeholder perspective has been captured by participants in the analysis, with the sustainability managers and external experts ensuring the inclusion of perspectives from social and collaboration partners as well as growers and to some extent customers. In addition to these inputs, specialists have participated in the analyses of S1 (HR/Employee perspective), S2 (Purchasing/Supplier perspective) and G1 (Market/Customer perspective) to capture specific issues and stakeholder perspectives.

**Decision making and internal controls**

The results have been confirmed and approved by the management team.

The materiality assessment will be updated on an annual basis to keep it current and relevant to our business and our sustainability process.

**Implementation and follow-up**

The majority of the topics assessed as material were already part of our sustainability process and were associated with activities and goals as part of our management system. We have procedures for reporting to the Board and the process of updating the materiality assessment will be evaluated regularly to ensure that we are performing it in a relevant way.

The diagram to the right shows which of the sustainability topics in the ESRS standard are currently assessed as being material for our operations, and in which section of the report we describe our work linked to each aspect.

**Impact materiality**

- E1 Climate change mitigation (own operations)
- E1 Climate change mitigation (raw material)
- E1 Climate change mitigation (packaging)
- E1 Energy
- E3 Water
- E4 Biodiversity
- E5 Material use
- S2 Workers in the value chain

**Double materiality**

- S1 Own workforce

**Financial materiality**

- E1 Climate change adaptation
- G1 Business ethics
- G1 Modern plant breeding

**Read more in the following sections**

- A value-adding workplace
- Sustainable cultivation
- Resource-efficient operations
- The products of the future
- Governance and business conduct

## In conversation with the sustainability managers

Lyckeby Group has two sustainability managers. Khirim Fager is responsible for the flavor operations, while Eva Lundholm handles the starch side.

### Quick facts – Khirim and Eva

Khirim Fager has a long history of working with quality and food safety in the food industry. For the last 5 years she has been at Culinar, where her position has increasingly focused on sustainability. Today she is the Quality and Sustainability Manager.

Eva Lundholm has worked in our starch operations for 23 years, in different positions but above all with a focus on environmental issues. Today she is the Environmental and Quality Manager.



### **What's it like to be a sustainability manager at Lyckeby Group today?**

"It's exciting! Eventful on all fronts. The demands from outside are increasing, and we're altering the organization internally to match this and to collaborate more on these issues", says Eva.

### **You represent very different operations within the same group. How does your collaboration work?**

"Yes, the challenges are very different in the flavor and starch operations when it comes to many issues, although of course there are areas of overlap", says Khirim. "But it also gives interesting perspectives when we collaborate. We have been a group for a long time, but in recent years we've begun to see clearly that we should be working together more. In the new organization there's only one CEO, and a group management team of which we're both members. That creates clarity."

### **Are you in scope of the new sustainability reporting directive, CSRD?**

"Actually it's only the flavor side that's in scope of the directive", says Eva. "Because the starch operations are run as an economic association, that side isn't covered by these demands. But we've chosen to do all the work together within the group. The reporting isn't the same, but the underlying work is."

### **What does the directive mean for your operations?**

"In the last year we've done a lot of work on CSRD alignment. At first glance, it felt very big and complicated", says Khirim. "But we've worked systematically, teased out the details together, and tried to keep it on a level that feels reasonable to create benefit for the business. The system built into the directive is something we've been looking for. All topics are included and it's given us greater clarity about what's truly important for us as a group. The timing was right for us and it has helped us decide on a shared direction."

"Khirim and I have driven the process together and have also made a point of involving our specialists in the materiality analysis", Eva adds. "It's been very educational for us all, both as individuals and as an organization."

### **Will you be changing anything as a result of the work with CSRD?**

"Yes", says Khirim. "The directive has a big focus on governance, and it's helped us see that at Culinar we need to review our goals and action plans regarding the environment. We have previously focused on the important social issues in the supplier chain, but we feel that we need to reinforce the environmental side. The starch operations' management system is certified according to ISO 14001, and now we intend to start that process too."

"One concern when we started the work was that we would need to come up with many new measurement points in the operations", says Eva. "But now we've worked through the whole thing we realize that most of these were already in place. And when it comes to data quality and audits, we're already very familiar with handling this, and secure in our way of working. That was a relief, I have to say!"

"But of course there will be a greater administrative burden when it comes to the annual reporting, particularly in the flavor operations", says Khirim.

### **How does the future look—what are your ambitions and challenges?**

"It's fun to work in a company that's doing well and which has high ambitions for its sustainability work. We are truly willing to take on change and make the investments required to get the results we want. But of course there are challenges", says Khirim. "On the flavor side we buy ingredients from all over the world, which places big demands on our work with the suppliers when it comes to everything from social issues to the climate. It takes a long time to connect to the right suppliers, who can find smart solutions. But who knows what the future will bring—perhaps cinnamon from Denmark and pepper from Poland?"



# Governance and Business Conduct



# Sustainability governance

We are an international group carrying out a range of activities, and implementation of a sustainability process in our organization requires good internal communication and understanding at every stage. Our focus areas set the direction for development investments and improvement work, but the sustainability of our business is also based in sound business conduct and legal compliance in our everyday activities. Our starting point is our code of conduct, our management system and policies, which were drawn up to ensure economic, environmental, and social compliance.

We hold all the relevant authorizations for our operations and work systematically on issues such as occupational health and safety and fire safety. Our management system is certified to several standards and our code of conduct is evaluated annually through employee dialogues that provide information for improvement. Where required we also evaluate it through an internal audit.

The Swedish starch operations are certified according to ISO 9001, ISO 14001, ISO 50001, ISO/FSSC 22000, Non-GMO, EU organic, Halal, Kosher, FSSC FEED, and GMP+, and the flavor operations are

certified according to ISO 9001, BRC Food, KRAV, EU organic, Rainforest Alliance, and Fairtrade. Our Swedish operations are also approved for the manufacture of products labeled “Från Sverige” (“From Sweden”).

The Czech operations are certified according to ISO/FSSC 22000. The starch operations are also certified according to ISO 14001, GMP+, Kosher, and Halal, and the flavor operations according to EU organic.

## **Governing documents and policies within ESG can be found in the following areas:**

- Environment
- Quality
- Food safety
- Health and safety
- Discrimination
- Gender equality
- Ethical behavior (Code of Conduct)
- Supplier behavior (Supplier Code of Conduct)

# Sustainability is integrated into our company management structure



# Business conduct

Lyckeby Group operates globally, which offers business opportunities but also regulatory compliance risks. We have several measures in place to ensure ethical and sustainable business conduct.

## Business ethics

Lyckeby Group conducts business with suppliers and customers in a global market, and in some cases in high-risk countries. Conducting business with parties in these countries can pose significant sustainability challenges. Our business culture means we take responsibility for complying with current legislation regarding product safety, economic laws, and requirements regarding corruption, human rights, and working conditions. Our employees working with sales are all trained in our business ethics to ensure this is applied in practice. We have zero tolerance for corruption, bribery, or human rights abuses.

Over the years, we have built close partnerships with our customers in long-term and trusting relationships, which means that both we and they know how we do business. Our requirements for suppliers and employees are summarized in our codes of conduct and policies, which are based,

among other things, on the UN resolutions on trade embargoes, the Convention on the Rights of the Child, and guidelines from our banks. With high levels of transparency and support within the entire chain of sales, logistics, product development, and quality, we create security both for the customer and for our own employees. This in turn leads to good business transactions and we gain important insights from our customers about how we can become even more sustainable.

## Fair competition

Compliance with competition law is an important part of our sustainability work. Because we are the sole supplier of, among other things, Swedish potato starch and other products, it is particularly important for us to maintain a fair and open market.

If any customer should feel that we are misusing our position on the market, they can report this to the Swedish Competition Authority. If any irregularity should occur, this could lead to serious consequences for both us and for the market as a whole. We therefore have internal controls and training to ensure that all employees are aware of



and follow the rules in this area. Fair competition is a fundamental part of our business ethics and sustainability strategy.

### **Whistleblowing**

Employees, business partners, and other stakeholders are encouraged to speak up and report misconduct to the immediate manager. If the circumstances are such that the whistleblower wants to communicate anonymously, they can do so directly to HR via our whistleblower system. Whistleblowers are protected from any form of retaliation or discriminatory action as a result of having submitted a report. All reports of misconduct or suspected violations of the code of conduct, policies, or laws are investigated.

### **Crisis management**

We have a well-developed crisis management function within the Swedish operations to ensure continuity and security. This has also been updated during the past year. Heads of departments within the operations are responsible for ensuring that the guidelines are followed in their respective areas and that their staff comply with them. In a crisis situation, we follow a structured process that includes the collection of information, investigation, assessment, management, and follow-up. This systematic approach helps us to deal with incidents quickly and effectively.

### **Work with the corporate culture**

For us, a strong and ethical corporate culture is a foundation, and it is important that our employees have a shared view of what we stand for. We strive to create a working environment where all employees feel respected and where ethical principles are part of our everyday business. For new employees, we have a comprehensive induction process that includes an introduction to our ethical guidelines, working methods, and the code of conduct. Additional training is provided to employees working with high-risk countries and areas. Our policies are always available on the intranet for all employees.

# Focus Areas

We have chosen to focus our sustainability efforts within four main focus areas we feel are most relevant from a risk and impact perspective. These are presented in the following sections. These focus areas are common to our two business areas, and follow our value chain, centering on the processing of cultivated raw materials. Our focus on these areas means we can contribute to a more sustainable world. Here, we present our focus areas and the Agenda 2030 goals to which we link our sustainability process.

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**Sustainable cultivation**  
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**The products of the future**  
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**Resource-efficient operations**  
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# A value-adding workplace

Our workplaces should generate value in the form of security, satisfaction, diversity, and equality for everyone working in them. The basis for this approach can be found in Swedish legislation and is reinforced by our corporate culture, which is characterized by commitment, pride, and loyalty. Our employees generate value for the business through their knowledge and commitment. In return, we want to give them a workplace that creates value and quality of life, in the form of security and job satisfaction. So that everyone can contribute to our sustainable development, we also need to ensure we have the right skills and culture, in which everyone's capacity is utilized. Our responsibility as an employer is based in legislation, practice, and central collective agreements. In addition to this, we apply local agreements on conditions, and local policies on rules, procedures, etc., which further reinforce our position. But our work goes much further than this. To ensure our future, it is important to be an attractive employer on every level, for both new and existing employees.

## Material topics

- Starch & flavor

Health and safety

An attractive employer

**“We are conscious that an inclusive and multi-cultural workplace, where our employees have room to grow and where we can offer interesting career opportunities, makes us a more attractive employer.”**

**Charlotte Olsson, HR Manager**

# Health and safety in the workplace

We strive to ensure that our employees can feel safe, well, and satisfied in their workplace. Naturally, our goal is for there to be no workplace accidents, and for us to be able to provide support and appropriate measures to minimize illness.

Our systematic occupational health and safety process, with procedures for safety rounds, action plans, and follow-up, is thoroughly implemented and a natural part of our work. Risk and consequence assessments are carried out for all changes, and close collaboration with unions helps ensure any risks are detected at an early stage.

Our goal is zero workplace accidents leading to absence. By increasing our reports of incidents, we improve our opportunities to prevent accidents. We are currently reviewing definitions and metrics for our work with health and safety in our Swedish operations. From financial year 2024 onward, reporting will take place according to the new definitions, in line with global standards. One important change is that we can distinguish between different types of incidents more clearly, which simplifies both reporting and follow-up. We have started to add more specific searchable

information, such as accident with sick leave, accident without sick leave, incident area, equipment, employment type, etc. Increased information about accidents and incidents makes it easier to develop specific actions that completely eliminate or substantially minimize the risk of recurrence.

Giving our employees the conditions to be able to carry out their tasks safely is a self-evident part of our business. These conditions can take the form of things such as training, information, or equipment that promotes the culture of safety. We continue to strengthen our safety culture through active and systematic occupational health and safety work in the form of safety rounds, risk assessments, and information/training, but not least by making our employees understand that occupational health and safety is part of our everyday work. We also intend to review the intervals between occupational health and safety-related training, so that we have a consistent approach in all our operations.

In the Czech starch operations, a number of changes were made during the year in the production environment to improve the working

environment. Among other things, the floor in part of the facility was modernized to prevent the risk of accidents and a new bagging plant was installed to reduce the physical load on employees.

## **A sense of community and job satisfaction make for long-term employees**

In the modern working world, a sense of community and job satisfaction are becoming increasingly important, both to retain employees and also to achieve sustainable and long-term results.

To promote a sense of community and job satisfaction, we have created a well-being group in the Swedish operations, which together with HR arranges various activities, aiming to make it possible for everyone to be able to participate. Employees are able to make suggestions and requests to the well-being group for activities that we then try to organize.

Some of this year's activities included a Pilates taster session, a golf competition, an inspirational lecture on the theme of health, and healthy breakfasts. We have also invited the employees to mulled wine and nibbles at Christmas time, with a

red carpet and uplifting music. We have done this at the shift change in all of our facilities.

In the Czech operations, joint activities were also arranged for employees of Amylex and Culinar. For example outdoor activities, product tastings, cultural activities such as cinema and theatre visits, a Christmas party, and a motivation event prior to the start of the campaign in the fall. The business is a major employer in Horažďovice, and is also active both as a sponsor and participant in cultural and social events and projects in the town. Annual events are also held in which retired colleagues participate.

#### **Knowledge and skills development**

The knowledge and skills of our employees are central in our efforts to develop our business in a sustainable way and to create efficiency throughout the whole of our value chain. We require both general knowledge of sustainable development and future challenges and more specific knowledge in more business-specific issues. In general, we work with employee appraisals as the basis for employee skills development, and also with recurring training linked to our management system. In some cases, we also provide more targeted training initiatives. During the year, we have implemented a skills-enhancing initiative in the Swedish operations for the employees with line management responsibility, through training provided by Prevent. And of course the social work environment issues form a natural part of this. We have also introduced specific sponsor training to

improve how we help new employees and seasonal workers feel part of the social context. In the Czech Republic the focus has been on increasing expertise in climate calculations, and employees have been trained in this area.

We fully accept that we can constantly improve our promotion of general awareness of sustainability issues, and that this is a gradual process. Our future goals include introducing sustainability information as part of our induction program for new employees, and improving our employees' access to ongoing information about our sustainability work via information and articles on our intranet.

#### **Diversity, gender equality, and equal treatment**

The fact that everyone is of equal value, and that it is important to utilize everyone's skills and commitment, are important foundations in our business. This means we all have the same rights, opportunities, and responsibilities within all areas, regardless of gender, age, ethnic or cultural background, disability, or sexual orientation. This naturally also means that all forms of discrimination and harassment are prohibited in the workplace. Our policy forms the basis for this, and we work actively to apply it in all of our processes, such as recruitment, personal development, and salary negotiations. For example, we use clear requirement profiles during recruitments to ensure that we are focusing on expertise and minimizing the risk of discrimination.

We produce annual documentation of all efforts related to equal treatment, including salary inventory. The purpose is to detect, rectify, and prevent unreasonable salary differences between men and women. In the Swedish operations this is done in collaboration between the company and the local union branches. Together, we have determined that we are within the framework of what can be considered reasonable.

In general, we have a more even division between men and women at managerial level and in specialist positions than in total among all employees. The proportion of men/women is very close to 50 % in our management teams. In total in the business we have more male employees—around 67 %. It has traditionally been more difficult to find female candidates for the more technical positions, but we are working to increase the proportion of women. The work on values that began last year in the Swedish operations has continued during the year and we are planning continued activities to reinforce this in the organizations and for managers to be able to use value-based leadership.



# Our values

During 2023, we carried out a process to draw up the Swedish operations' core values: Commitment, Courage, Caring and Responsibility. During FY24, we have worked with definitions, implementing them in the starch operations and starting to implement them in the flavor operations. These values are intended to guide our business and to help create a strong corporate culture where everyone works toward the same goal. We know that community and job satisfaction is very important to all our employees—and our employees are very important to us.

We want our shared values within the group to serve as a support that strengthens us in our everyday work and contributes to a pleasant and dynamic workplace where we can all develop together. By living according to our values, we show that we care about our customers and each other.



# Commitment

We are dedicated to understanding our customers' needs and challenges just as much as we are committed to our own development. We are driven by the recognition of the value our products can provide. We strive for a collaborative approach that is humble and supportive, helping each other succeed at every level, whether it's with major projects or small details.

“For me, commitment is about finding meaning in your work. That might mean growing in a role, strengthening relationships, contributing to change, or showing appreciation and enthusiasm. In my role, I really appreciate the opportunity both to work strategically and creatively and to work in a team where, together, we help each other to develop and achieve better results. That makes me feel committed.”

**Cecilia Holmberg**, Product Manager





## Courage

For us, courage means standing up for each other and daring to speak up when something feels wrong or goes wrong. We are honest, challenge established structures, and continuously seek improvement. Drawing on our expertise and extensive experience, we are confident to make tough decisions and prioritize effectively.

“At Lyckeby we have an open and permissive culture where we stand up for each other. We share knowledge and use our courage as a driving force to develop. Here people dare to take initiative and challenge themselves and each other. By trying new things out, we learn invaluable lessons. For me, courage is about creating opportunities.”

**Magnus Nilsson**, Maintenance Manager



## Care

We demonstrate care by acknowledging and supporting each other to foster a productive environment where we can flourish and experience a sense of belonging. We aim to cultivate an inclusive culture where the diversity and perspectives are seen as an asset that enhances us, adds excitement and furthers innovation.

“Caring is a source of joy and motivation and these driving forces inspire me every day. At Lyckeby and Culinar, we show warmth and care for each other, and this creates a working environment where people feel seen and appreciated. This genuine care spreads like ripples on the water, and every act of caring can brighten up someone’s day. By caring for each other, we not only strengthen our relationships, we also create a pleasant workplace that welcomes everyone.”

**Linda Strömbäck**, HR Coordinator





## Responsibility

We act responsibly towards each other, our customers, and our communities. We are committed to fulfilling and following up on our promises and always work proactively with the company's best interests in mind. With care for our environment and the future, we actively work to minimize our climate footprint, from cultivation to the finished product.

“For me, responsibility means that you are given a great deal of space to resolve things and plan your obligations in the best way. During my time at Lyckeby, I have experienced this many times, as I have had the opportunity to occupy different roles at different levels within the company. Freedom with responsibility is incredibly stimulating and rewarding for me as an employee, and this permeates our entire organization.”

**Jonas Magnusson**, Production Manager

# Sustainability data by business area and country - A value-adding workplace

## OWN EMPLOYEES

	2023/2024					2022/2023				
	Starch Sweden	Starch Czech Republic	Flavor Sweden	Flavor Czech Republic	Total	Starch Sweden	Starch Czech Republic	Flavor Sweden	Flavor Czech Republic	Total
<b>Employees</b>										
Number of employees <sup>1)</sup>	173	79	200	53	505	153	74	212	52	491
Employees covered by collective agreements (%)	100	100	100	0	90	100	100	100	0	89
Number of employees other subsidiaries <sup>2)</sup>					25					18
<b>Gender equality<sup>3)</sup></b>										
Number of female employees	44	16	68	34	162	41	14	80	34	169
Number of male employees	129	63	132	19	343	112	60	132	18	322
Women in management	5	3	2	5	15	4	3	3	6	16
Men in management	6	7	3	2	18	4	7	4	1	16
<b>Health and safety</b>										
Number of work-related accidents	9	2	7*	0	18	4	2	6*	1	13
Number of fatalities caused by work-related injuries	0	0	0	0	0	0	0	0	0	0
Sickness leave (%) <sup>4)</sup>	3,1	4,4	2,8	4,9		3,3	6,7	3,3	3,3	

The table contains data from companies within the group with more than five employees and refers only to collected data from Lyckeby Group's own employees.

<sup>1)</sup> The number of employees is calculated as the average during the financial year including fixed-term employees.

<sup>2)</sup> Refers to employees at sales offices in Denmark, Poland, Germany, Slovakia, and China. These employees are employees of subsidiaries and are not included in other reported figures.

<sup>3)</sup> The gender affiliation 'Other gender' has been excluded from the table as no data was reported.

<sup>4)</sup> Sickness leave has been calculated by the number of sick hours in relation to working hours during the financial year.

\* Refers to the period covering the full year in 2022 and 2023 respectively, not the financial year.



# Sustainability goals within this focus area - A value-adding workplace

Area	Goal	Outcome
Health and safety	Zero workplace accidents that lead to absence	< 20
An attractive employer	Introduce sustainability information into the program for new employees	Implemented in parts of the group, work continues



# Sustainable cultivation

The flavor operations purchase raw materials from all over the world and many of these are grown in high-risk countries, which represents a significant challenge in the form of guaranteeing food safety, cultivation conditions, working conditions, human rights, and environmental impact.

Potatoes for our starch production are cultivated close to our facilities, in southern Sweden and the south-west Czech Republic respectively. The two regions have different challenges, but both involve working to ensure a good long-term yield.

## Material topics

- Starch
- Flavor

Climate change mitigation (raw material)	Biodiversity	Climate change adaptation
Climate change mitigation (raw material)	Biodiversity	Working conditions in the value chain
Purchasing from high-risk countries	Climate change adaptation	

**“We promise to actively contribute to sustainable development in the cultivation of our raw materials around the world, through clear commitments that make a difference.”**

**Khirim Fager**, Quality and Sustainability Manager, Culinar Sverige AB





# Environmentally sustainable cultivation of starch potatoes

We have a very good and close relationship with our suppliers, not least because a majority of them are partners in our business. Together, we work to achieve higher harvests, a lower carbon footprint, and low use of plant protection products. The incentive here is both environmental and economic.

The potato, which is the raw material for our Swedish starch production, is grown by about 350 growers in southern Sweden, on an area of about 8000 hectares. Naturally, we follow up on their social responsibility and our code of conduct applies to all suppliers, but we focus above all on the environmental challenges as we judge these to be greater than the social ones.

## Biodiversity in the cultivated landscape

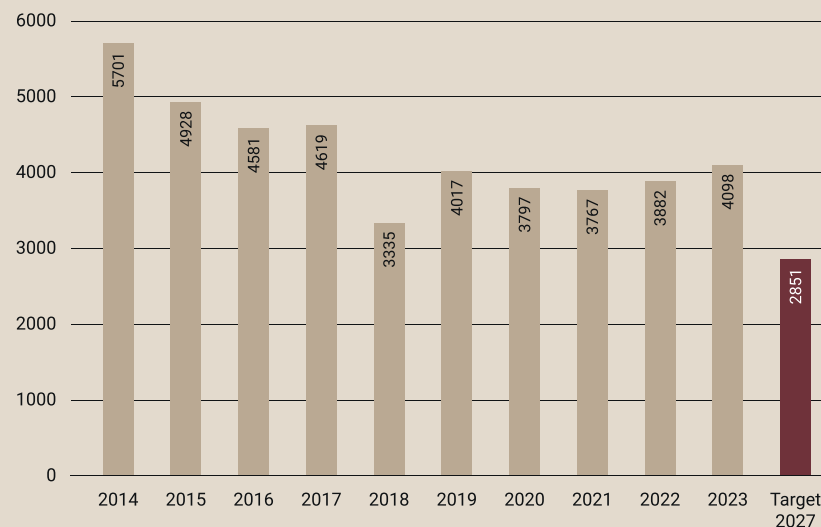
During the past year, we have carried out an analysis of the impact of the Swedish starch operations on biodiversity, and of the financial risks and opportunities related to biodiversity and ecosystem services, as a basis for our materiality analysis. Overall, there are major challenges in terms of biodiversity in the Swedish agricultural landscape, which can be seen, among other things, in the

presence of birds and butterflies—something included in the follow-up to the Swedish environmental goal “A varied agricultural landscape”. For example, the number of grassland butterflies has decreased by 30 % during the period 2010–2020 and the trends become much more serious if we look at a longer perspective. Regarding the financial perspective, potato cultivation, and thus

starch production, is of course dependent on the natural ecosystem of which it is part. This applies above all to the soil organisms that contribute to the soil structure and fertility, but also natural pest control, etc.

We consider that the main topics we can work with to contribute to biodiversity in the agricultural

USE OF PLANT PROTECTION CHEMICALS (GRAMS ACTIVE SUBSTANCE / HA)



landscape are preventing leakage of nutrients and plant protection products to natural environments around fields and promoting access to small biotopes in the landscape.

**Halve the use of plant protection products**

Ten years ago, we set the target of reducing the amount of plant protection products used per hectare by 50 % from 2014 to 2025, because we know potatoes are a sensitive crop, and that the use of plant protection products is high. Now we are approaching the end of the target period, we have achieved a 31 % reduction, including by developing forecasting tools for fungal attacks. We also support our potato growers with weekly reports during

the growing season, giving recommendations on the dosage of plant protection products. The recommendations are based on existing forecasting models for blight and Alternaria. We continue to work hard on this issue, but we will almost certainly fail to reach the final reduction without using modern plant breeding techniques to produce potato varieties resistant to potato blight. See more on page 67. We have high hopes that we will have access to such technology and have extended the target period to 2027.

**Space for flowers in the cultivated landscape**

Rationalization of the cultivated landscape has created problems for wild animals and plants,

including insects being affected by the lack of flowers in the landscape. Potatoes are one of the few flowering crops in a normal crop rotation, and when the rapeseed has flowered, potatoes offer food for insects such as bumblebees. As well as our raw material providing insect food, for several years we have sponsored the Hela Sverige Blommar [The Whole of Sweden Flowers] project, which finances flowering field margins around Sweden.

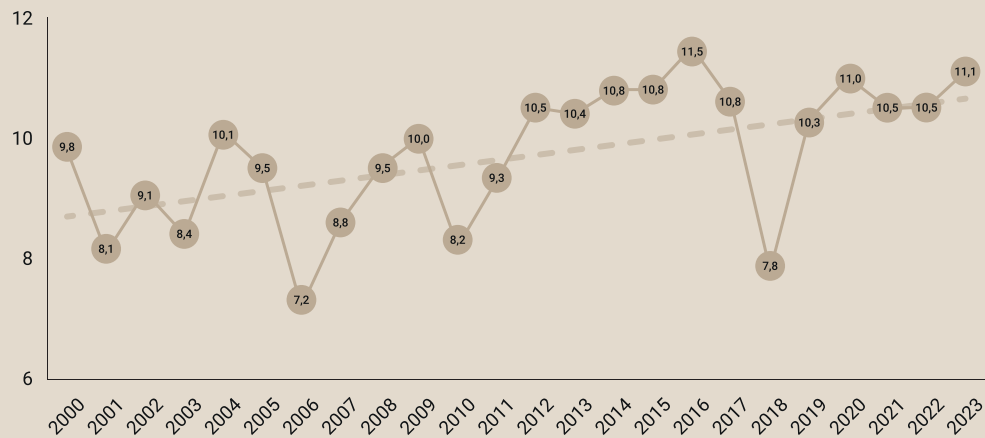
Another way of working with access to small biotopes in the landscape is to streamline cultivation so that we get higher harvests per hectare of cultivated land, which also reduces the carbon footprint because a large part of the footprint comes from nitrous oxide emissions from the soil. For our Swedish growers, we have seen a very positive development, with 10 % higher yields now than in the early 2000s.

Harvest development over time among our Swedish growers, measured in tonnes of commercial starch per hectare. The rolling 5-year average has increased by more than 10 % since the start of the measurement series.

**Animals and nature in our own backyard**

Our factory in Nöbbelöv is surrounded by approximately 35 acres of high conservation value grazing land, which is classified as a habitat protection area. In a 2017 inventory, at least 100 growing sites were found with more than 3 500 plants of the rare *Helichrysum arenarium*. When we laid new

**YIELD (TONNES COMMERCIAL STARCH/HA)**



Harvest development over time among our Swedish growers, measured in tonnes of commercial starch per hectare. The rolling 5-year average has increased by more than 10 % since the start of the measurement series.

roads in the area in 2020, 1 500 of these plants were moved to a nearby nature reserve. During the next year we will carry out a follow-up inventory to see how things have gone for the plants. We have also created areas of bare sand to provide habitats for sand-dwelling insects, wild bees, and other Hymenoptera. Many bees, wasps, and beetles that rely on sandy soils to survive are now threatened, so these environments are so important.

We have also created environments where sand-dwelling insects thrive at our flavor operations facility in Frokinge. During the construction of a storage tent on the site, about 1 000 m<sup>3</sup> of soil and sand was excavated. This has been used to create about 2 000 m<sup>2</sup> of sandy environments that benefit biodiversity.

In the Czech operations, we have long worked time to make the factory area greener, above all by planting trees. This work continued last year as well.

#### **Impact on climate change from potato cultivation**

For the third year, we are updating our calculations of the Swedish starch operations' climate footprint in Scope 1, 2 and 3 using the same calculation model. The total carbon footprint from potato purchasing was around 15 000 tonnes of CO<sub>2</sub> equivalents this year, corresponding to approximately 40 % of Lyckebys carbon footprint, when we include our direct emissions of greenhouse gases

from production and indirect emissions from elements such as raw materials, packaging, and transports. Almost half of the emissions take the form of nitrous oxide from the cultivated areas, and it is difficult to affect this. Other emissions are caused above all during production of mineral fertilizer and through the use of fuels during cultivation. However, we see that the carbon footprint per kilo of potatoes is lower this year than before, primarily due to high harvest levels.

The climate impact calculation indicates which activities we need to prioritize in the future to reduce our total carbon footprint in accordance with our goal to reduce emissions in Scope 3 by 20 %. You can read more about this on page 57.

We follow up the growers' use of fuel and fertilizer, and during the past year we have seen significant climate-related improvements. This year, 69 % of growers have used biodiesel mixed with diesel, compared to 38 % last year. Fertilizers with a better climate performance (known as BAT fertilizers) were used on 54 % of the cultivation area, compared to 40 % last year.

In the Czech operations, we have not yet calculated the carbon footprint in Scope 3, but in the past year we reduced emissions from the transport of potatoes by buying from growers closer to our production. The average distance from our suppliers

has reduced from 85 to 79 km in the last year and we are now buying 55 % of the volume from farms closer than 60 km.

#### **Potatoes in a future climate**

Growing potatoes is a prerequisite for our operations and it is therefore important for us that cultivation produces good harvests. The Swedish climate is suitable for growing potatoes today and is expected to continue to be suitable for a long time to come. However, water shortages, flooding, and other extreme events may become more common and disease pressures may increase. It is also probable that we will see increased raw material prices as a result of poorer growing conditions globally.

Potatoes are a crop that enjoys a little extra water when summers are dry. Many of our Swedish growers water their potatoes, while very few of our Czech suppliers have the opportunity to do so—something that is visible in the harvests. We think this will become an increasingly important issue when the effects of climate change become more obvious, both in terms of dealing with precipitation and arranging for watering in dry conditions. This is something we take into account when we develop new potato varieties and in our cultivation development, where we address issues such as the time of year and day it is most effective to water crops.

## Meet Karin, one of our potato growers

Our growers are central in our ambition to reduce our environmental impact from cultivation to finished product, and to ensure good quality throughout the entire chain. We spoke to one of our growers about sustainable cultivation.

### Karin Dahlqvist

**Name:** Karin Dahlqvist

**Age:** 35

**Location:** Fågelmara in Blekinge

**Name of farm:** Möllehall

**Area of potato cultivation:** 23 ha



**How long have you been a member of the Sveriges Stärkelseproducenter association, and what made you choose to start growing potatoes and join the association?**

I started working at home on the farm in 2015 and have been a member since 2017 when my brother-in-law and I took over the growing side of the business. We were already growing crops on the farm, so it was natural to continue.

**What is your experience with Lyckeby as an association?**

I feel that there is openness and a proximity to the decision-makers.

**What's the best thing about growing potatoes?**

It's fun to see the results of the hard work at harvest time – that there's such a big yield from what we sowed in the spring. And that the profit is good.

**What is unique about your operation and cultivation?**

Nothing unique in itself perhaps. We're mostly growing on light sandy soils, and in places we have quite a high incidence of stone. We destone before we sow the potatoes directly into the beds. And because we live in a relatively dry area, irrigation is an important aspect for us.

**What's your approach to the use of plant protection products in potato cultivation?**

Of course our intention is to reduce the use of chemicals, but it's currently necessary to use them to maintain the harvest. Hopefully, new methods will be developed in view of how the climate is changing.

**How do you see the future of cultivation?**

I have a positive view of cultivation in the future. Here on the farm, I look forward to developing our activities and streamlining them so we can meet the future challenges of climate change, which can lead to increased problems in terms of water supply and drought. The development of new varieties of potatoes is important, to improve parameters such as drought resistance, storage resistance, starch content, etc. Up to now, potatoes have been the most profitable crop for us and I hope that will continue to be the case.

## Increased ambitions for sustainably produced flavor products

Spices, herbs, and vegetables are the foundation of our flavor operations, and the thing that gives our products their uniqueness and character.

The opportunity to purchase these ingredients from suppliers around the world is a fundamental prerequisite for the long-term survival of our business, but there are many challenges. We put a lot of effort into ensuring that our raw materials and products are sustainable in the long term, produced in an environmentally and socially responsible way, safe for the consumer, not counterfeit, and of good quality.

To be able to influence global cultivation in a sustainable direction in the long term, it is important for us to work together with other actors in the industry. Since 2018, the Swedish flavor operations has been an active member of the Sustainable Spices Initiative (SSI) – see the fact box for more info.

We also use SSI’s definition of sustainable spices in our goals. This definition focuses primarily on social conditions in the supply chain, which are both a risk and an opportunity for the actors, but the environment and climate impact are also part of the definition, which is based on growers carrying out certain activities in their cultivation. Our goal has thus far been in line with SSI’s goal for 2025 (of our top three spices, 25 % of what we buy should be sustainably grown).

In 2023, we evaluated our sustainability ambition and have realized that we want to do more by 2030. From 2025, we will increase the number of products included in the goal from three to ten and the proportion of sustainably produced raw materials purchased to 25-80 %. We are including our ten largest products by volume, which means that we cover a total of 30 % of our spices, herbs, and vegetables compared to the previous 10 %. This means we are taking a big step toward being able to offer our customers more sustainably produced spices.

These are our new commitments for the proportion of sustainably produced raw materials according to SSI by 2030:

- Onion 40 %
- Bell pepper 50 %
- Garlic 50 %
- Tomato 80 %
- Cinnamon 30 %
- Caraway 70 %
- Oregano 30 %

We set goals for these three spices some time ago. Brackets give this year’s outcome compared to these goals:

- Chili 25 % (10 %)
- Pepper 40 % (37 %)
- Turmeric 50 % (46 %)

### Sustainable Spices Initiative (SSI)

The SSI is a global platform that brings together actors in the spice and herb trade to promote sustainable agriculture. SSI supports the definition of sustainable agriculture that involves the efficient production of safe and high-quality agricultural products, while improving the natural environment and social and economic conditions. SSI uses various standards and certifications to assess the sustainability of raw materials. If the supplier complies with these standards, the raw material is considered sustainable. SSI also runs specific projects to increase farmers’ knowledge and to promote sustainable farming. Member companies must set goals in line with SSI’s requirements and report their results on an ongoing basis.

### Supplier management

In addition to the commitments we have made through SSI, we manage sustainability risks in the cultivation stage through our supplier code of conduct and supplier audits. Our code of conduct clearly links our requirements to international conventions and guidance such as the UN’s Guiding

Principles on Business and Human Rights, and the Convention on the Rights of the Child. Our intention is thus to help reinforce implementation of these conventions in the supplier chain and to promote continued development of sustainable cultivation.

We have a systematic process that allows us to gradually work our way down the supplier chain, contributing to improvements within these areas. We have chosen to use the recognized SEDEX platform as one of our tools to work with supplier chains, share information, and follow up on external audits. During the past year, we have clarified the purchasing process, which has in turn clarified our requirements for membership in SEDEX. Suppliers in low-risk countries must carry out a self-assessment, while actors with activities in high-risk countries must have carried out a full audit according to the SMETA methodology. These requirements will be implemented gradually over the next few years. The work to clarify our processes is also a preparation for future EU requirements regarding due diligence.

We continuously visit and audit our suppliers both for product safety and compliance with our code of conduct. You can read about our supplier visit to Vietnam this year on page 48. To secure our value chains as well as future access to raw materials, long-term relationships with suppliers are extremely important, and we see great value in working together. The spice trade is a complex one, because many spices are grown by small farmers in developing countries. Small-scale

agriculture has many advantages, including for biodiversity, but they are risks such as low pay and poor working conditions for the farmer, their family, and any employees. In some cases the families have no finances or opportunities to allow the children to go to school, so instead they must stay at home and help out with farm. Because spices are used in most food products and consumed all over the world, demand is expected to increase in line with the increasing population. Secure supplies of spices for a growing population will only be possible if spice production gives an economically attractive and sustainable income for growers, as they are increasingly leaving agriculture for more secure sources of income. We therefore feel we have the opportunity to make a big difference through our purchasing.

#### **Impact on climate change from sourcing**

The raw materials we purchase for our operations are of very different nature and from different origins. When we carried out a survey of Scope 3 for the Swedish flavor operations in 2022, it was clear that raw materials are a major contributing factor to our emissions. Next to packaging, raw materials account for most of our carbon footprint. During the year, we have decided to draw up climate goals to achieve by 2030. Here we see that there is most to do through long-term and strategic purchasing. This applies both to processed ingredients that are often produced in Europe and to agricultural raw materials that are primarily grown in other parts of the world. Strategic supplier choices for our purchasing enables both better

data and collaborations on measures to reduce our carbon footprint. During the year, we have also seen a need to establish a structured environmental management system in the Swedish flavor operations, allowing us to also work systematically with climate issues in the value chain.

#### **Food safety**

As a food company, making safe products for customers and consumers is an absolute prerequisite. To achieve this, we work closely to comply with laws, regulations, and guidelines throughout the value chain. This starts with our raw materials. Safe raw materials of the right high quality can be a challenge in the current turbulent global situation. So it is particularly important for us to evaluate each raw material and as far as possible ensure the highest quality. Among others we evaluate these aspects:

- Cultivation certification
- Certification of production and processes (GFSI)
- Quality characteristics defined according to ISO standards
- Specific risks linked to the raw material
- Unique inspection programs for each raw material

We have been working for many years according to the BRC Food Standard and ISO 9001 (quality). We have a well-established quality and food safety system in which risk analysis, product compliance, employee knowledge and awareness of food safety, as well as customer and consumer contacts, are important aspects.

## Visiting Vietnamese pepper growers

We talked to Paulina Norup, Supplier Quality Manager at Culinar in Sweden, about one of this year's supplier visits.

**Hi Paulina! You traveled around Vietnam in March this year and visited both growers and processors of pepper. What was the purpose of the trip?**

The purpose of the trip to Vietnam was to expand our understanding of pepper production, from cultivation to processing. We carry out approximately ten supplier visits every year, and each trip is carefully planned to cover several important areas. This is partly about building knowledge and better understanding the value chain, and partly about evaluating our requirements for quality and sustainability. Another central goal is to strengthen relationships with our suppliers, which is crucial for us to make a difference together.

**But why pepper from Vietnam?**

Pepper is a big product for us in terms of volume, and Vietnam accounts for a large proportion of that raw material. We also have a strong relationship with our suppliers that is highly transparent and gives us the opportunity to see the entire chain from field to finished product.





**What did you do in Vietnam? Who did you meet?**

We visited both farms (Rainforest Alliance certified and conventional) and facilities where the pepper is processed before it comes to us in Sweden. We visited several different suppliers, but we spent most of the trip with one of our main suppliers, which produces pepper with a large network of growers.

**What was the most interesting thing you saw?**

It's always very exciting to visit farms and to understand what the conditions are for this particular crop, and what differences the various certifications and support programs make. And of course production facilities are also interesting. It feels important to verify that they meet the high standards we expect.

**What was the most important lesson you brought back home with you?**

It was great to see our suppliers' commitment to cultivating pepper, with training and support to growers in terms of plant protection and water use, etc. Everywhere we went we received a very warm welcome. The feeling was that everyone had a positive image of their work. It feels very reassuring to work with such a supplier! We also learned a lot about what is grown along with pepper, which is important when it comes to allergens. A trip like this also makes you feel humble when you think of how much work goes into every gram of pepper we buy.

And it really gave us an understanding of how important it is for growers to collaborate in networks, for example in meeting the EU's requirements for food safety, pesticides, etc. It requires a great deal of competence and administration, which it is unreasonable to expect every individual grower to possess. Collaborations are also important to resolve common challenges for long-term sustainable cultivation.

**What are the most important sustainability issues in the pepper value chain?**

Cultivation of spices, including pepper, often takes place in high-risk countries, where it is always particularly important to keep track of social issues. Not least in the agricultural sector, there is a risk of poor working conditions, for example in terms of pay levels, health and safety, and child labor. Water issues are also becoming increasingly important as climate change makes access to water more difficult.

**How are you helping improve the situation for spice growers in Vietnam and other countries?**

The income they get from us for the spices is clearly crucial. This is the precondition for the growers having a long-term business, and our foundation for long-term security of supply. During periods when the market price for pepper has fallen, for example, many growers have switched to growing durian instead. There are rapid changes

and it is very important for us to keep ourselves updated and to clarify our requirements regarding quality and sustainability. For us to find a balance and also keep up to date with all the other challenges and solutions, we need long-term strategic suppliers that we trust. Establishing these relationships and working long-term is the best thing we can do for the growers. We have a great responsibility to contribute to better conditions and a more sustainable production. Our trips are an important part of the process of gathering the knowledge we need to drive change in the right direction

**Where will you go next?**

We're currently working on the plan for next year's supplier visit, and it currently looks like we will be meeting onion and garlic suppliers in China. We will also go to Turkey and visit the oregano growers.

# Sustainability goals within this focus area - Sustainable cultivation

Area	Goal	Outcome
Climate impact (raw material)	Reduce emissions from potato cultivation in Sweden for Scope 3 by 20 % from 2017 to 2025	Thus far, we have reduced emissions by 14 % but will find it difficult to achieve the goal in time, and have extended the target period until 2027
Biodiversity	Reduced the quantity of plant protection products used by our Swedish potato suppliers by 50 %, by the year 2027 maintaining the same yields	We have achieved a 31 % reduction
Workers in the value chain	100 % of our suppliers should have signed the Code of Conduct and been risk assessed by 2025	Ongoing work
	Increase the proportion of sustainable purchases (SSI's definition) by the end of 2030 for our ten largest products purchased by volume	We have increased target levels during the year and made a greater commitment Read more on page 46



# Resource-efficient operations

By making use of side streams and working efficiently, we create sustainable production with high circularity. In our factories we constantly strive to ensure that all operations use the least possible input in the form of energy and chemicals. Energy efficiency has always been a high-priority issue, and our Swedish production facilities have been certified according to ISO 50001 for many years. We also undertake continuous improvement of our measurement and monitoring systems for our carbon footprint, in parallel with taking measures to reduce greenhouse gas emissions, for example through energy optimization and by replacing fossil fuels in production and transports. As one aspect of optimizing resource use, we also strive to increase material recovery in our operations. In addition to adding value to the starch, we also make use of side streams, creating sustainable production with high circularity.

## Material topics

- Starch
- Flavor

Climate change mitigation (own operations)

Energy consumption

Water consumption

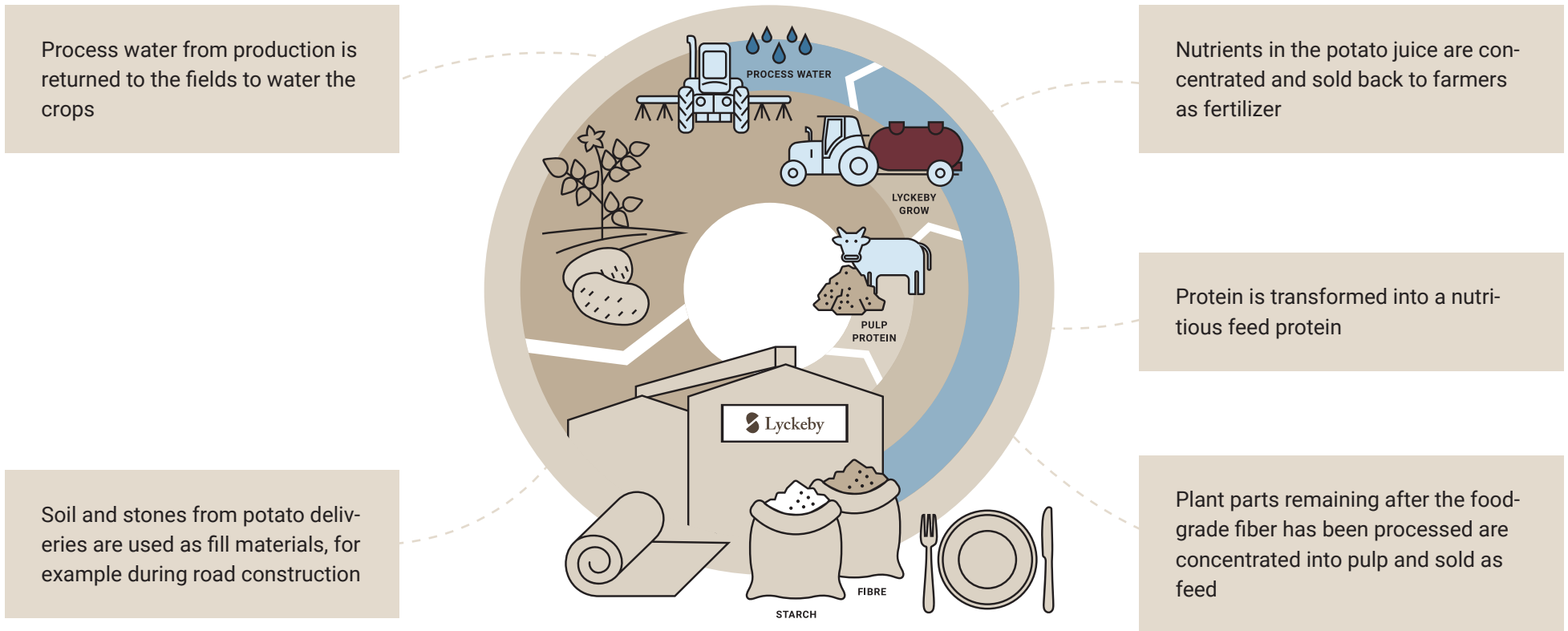
- We have not identified any material focus area-related topics, but report only basic information.

“We are very proud of how efficient our operations are in terms of resources, and that our by-products also benefit society. Nothing should be wasted.”

**Eva Lundholm**, Environmental and Quality Manager

# Circularity in starch production

The potatoes delivered to the starch factory are fractionated into starch, fiber, and protein. The starch and fiber are refined into our main products, but we also make use of the by-products. This means that our production is a good example of a circular system where the majority of the raw materials are utilized in a resource-efficient way. In our factories we also work continuously to ensure that fractionation, purification, and processing use the least possible input in the form of energy and chemicals.



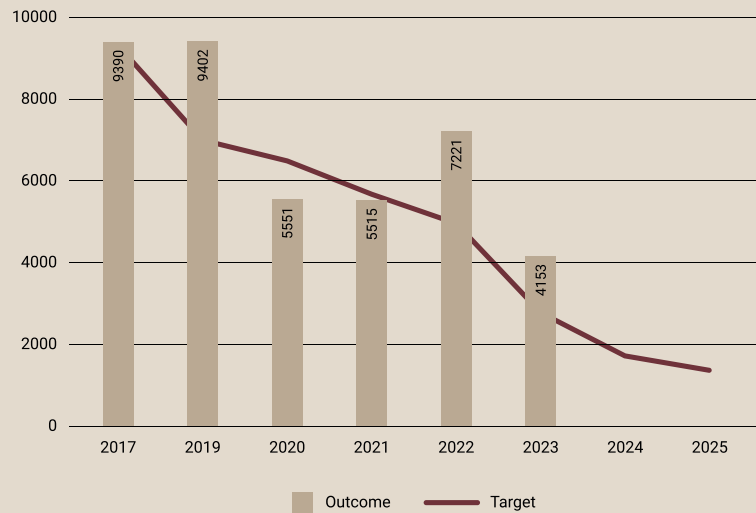
# Climate action in starch production

Starch production is an energy-intensive operation, and consequently energy and climate action are extremely important in our sustainability process. We calculate our carbon footprint and have achieved significant reductions of direct emissions from the Swedish starch operations through energy efficiency measures and a transition to

renewable fuels. Since 2020, we have replaced a large share of the fossil fuels in our Swedish starch production with bio-oil, which has reduced our direct emissions of greenhouse gases. Our goal has been to reduce our carbon dioxide emissions in Scope 1 and 2 by 85 % over the period 2017–2025. The outcome for 2023 was 6482

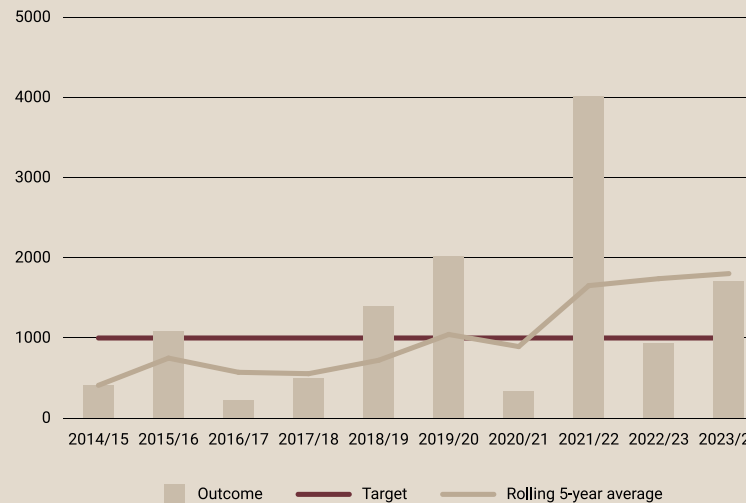
tonnes of CO<sub>2</sub> equivalents and represented about 17 % of the total carbon footprint (including Scope 3). This is a 56 % reduction since 2017, which we have achieved with an increased involvement of bio-oil. However, during the year, we evaluated the opportunity for securing deliveries of bio-oil and concluded that we will not reach our current target

**GHG EMISSIONS LYCKEBY SCOPE 1 & 2 (TON CO<sub>2</sub>-EQUIVALENTS)**



Carbon footprint (Scope 1 and 2) over time for the Swedish starch operations.

**ENERGY SAVINGS PER YEAR (MWH)**



Energy savings over time for the Swedish starch operations.

We have chosen to set a target of absolute savings rather than energy consumption per produced tonne so we can more clearly see the total effect of our measures. Our energy consumption varies a great deal depending on the product mix we are producing, which means an efficiency target is not always appropriate.

by 2027. We have therefore chosen to extend the target period by two years. This year we have also calculated the carbon footprint (Scope 1 and 2) for our Czech starch production for the first time. In total, emissions were 8 857 tonnes of CO<sub>2</sub> equivalents, and the main sources of emissions are the use of electricity, together with LPG and natural gas in production. This information will be used to help draw up goals and action plans.

### Major investments in energy savings produce good results

Optimizing energy use is the foundation of useful climate action, and the focus on saving energy continues to intensify in society as a whole. Our target in the Swedish starch operations is to make energy savings of 1 GWh/year calculated as a rolling five-year average. This year we have taken another big step, and both this year's saving and the rolling 5-year average are well over 1 GWh. The main reason for this is that the new energy-efficient plant is now in operation in Mjällby.

In September 2022, the Mjällby+ project was finished and a completely new facility was ready to use in Mjällby. The new energy-efficient plant where we now produce almost half of our commercial starch is optimized based on 20 years' experience of this type of production. We have also made major efforts to recover heat from the drying process. This was an opportunity for us to start again from the beginning so we have been able to design the facility from a totally different

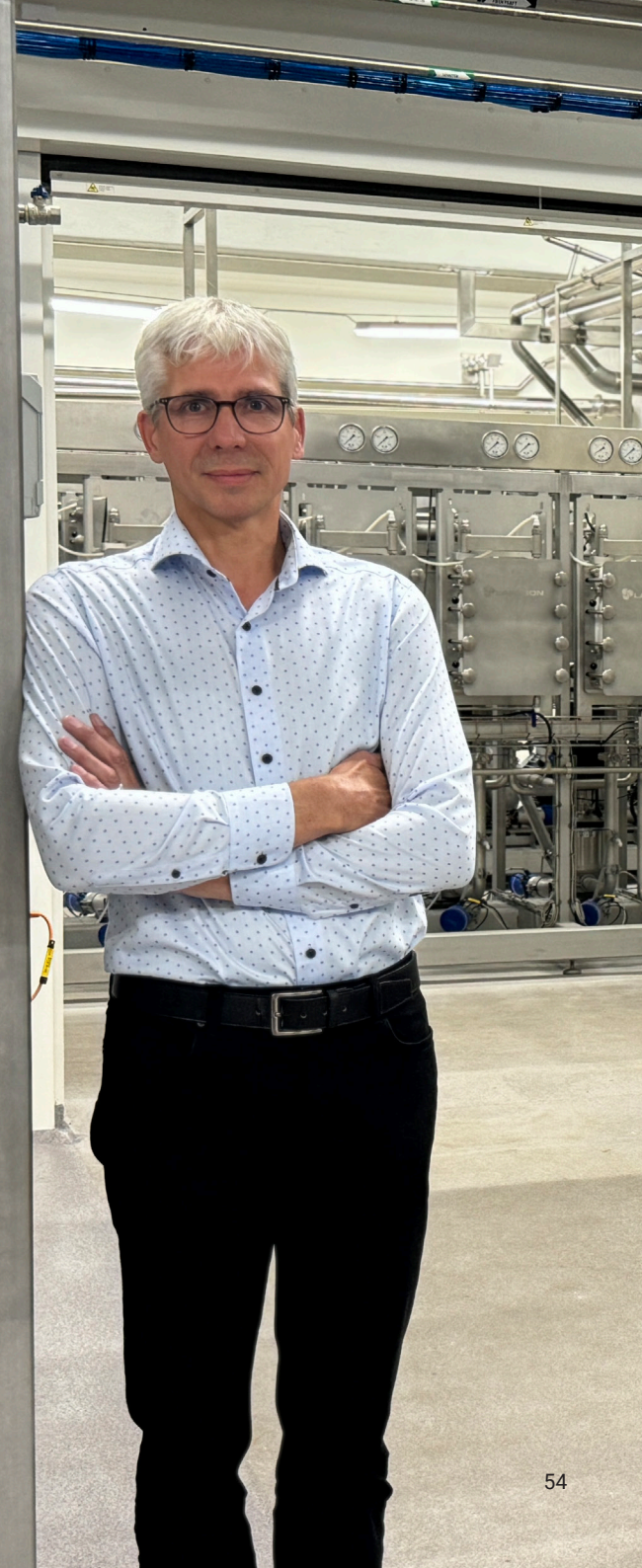
perspective, which for example means we can make cross-connections between different processes and use more efficient pumps. All of these small optimizations together produce a big effect.

We have also invested in installing more meters in our facilities, which makes it easier for us to work with automated trends and analysis. With a control system that allows everyone in the company to connect and look at the information, more people can help improve the process.

But the project hasn't only been a success in terms of energy. We are also seeing a reduction in water consumption as we reuse fruit water for internal needs such as washing.

**“We are now starting to see the result of the efficiency improvements, and the fact is that the expectations of about 10 % lower energy consumption per tonne have already been exceeded by some way, even though we haven't yet reached optimal operation because the plant's capacity isn't being fully exploited.”**

**Emiel Eggenkamp**, project manager for the project Mjällby+





# New storage silo provides increased production efficiency and reduced climate impact

In February 2024, the groundbreaking ceremony took place for the construction of Lyckeby's new storage silo, which is planned to be operational in mid-2025.

The new storage silo is being built to cope with the increased production of potato starch and will be constructed next to the three other storage silos in Nöbbelöv. The storage volume will be 50 000 tonnes, or 70 000 cubic meters of potato starch – and it will hold more than the three other silos that were built around 50 years ago and were made to last for 100 years.

The new silo is an investment for the future—the result of an important strategic decision to grow, and an important milestone for us. With our new storage silo, our logistics will improve significantly and transports will decrease, resulting in increased production efficiency and a reduced climate impact.

This is the first silo of this size to be built in ‘green concrete’—a climate-enhanced concrete—which means that the carbon footprint of the silo is 288 000 kg lower than if we had built it in ordinary concrete. This is something we are extremely proud of. The roof construction uses glulam beams, sandwich panels, and roof coverings.

The volume of the silo will be about 3 600 m<sup>3</sup>. The total height of the silo will be about 52 meters and its size will make it a landmark in the local landscape.

We got to talk with Jonas Oskarsson, the project manager for the silo project in Nöbbelöv.

#### **How long has the silo project been in the planning stage?**

We began planning the project in 2017/2018, when we saw a need for increased storage capacity. From the outset we intended to have the new silo in Mjällby, but we soon realized that it wouldn't be big enough and our thoughts started to turn to the idea that we might need two. In the end, this led to the decision that a single really large silo was the best solution. And that it would be best to build it in Nöbbelöv, because we have the largest production here. Then came a time when conditions changed, with the pandemic and other disturbances in the world, and the project was put on hold for a year.

#### **What are the environmental benefits of the new silo?**

When we made the decision to close one of our facilities, we realized that the storage capacity of the other facilities wouldn't be sufficient. Since then, a lot of the starch has been stored in big bags at external warehouses, which means increased transports and increased use of packaging. With our current production, this corresponds to about 15 000 big bags per year to be filled, emptied, and transported. And if we increase production, there will be even more. With the new silo, we avoid this whole stage, which is positive both economically and environmentally. We have also chosen to use energy-efficient blowers, which means that we save electricity in our production.

#### **The silo is being constructed in ‘green concrete’. What does that mean?**

‘Green concrete’ is concrete where a certain proportion of the cement binder has been replaced. Cement has a very high carbon footprint, and by replacing it with by-products from other industries (such as fly ash), the total carbon footprint of the concrete can be significantly reduced. The reason for using concrete is that it is a durable material and the only structural material that works in the long run.

**With the new silo, we save transports as well as packaging, which is positive both economically and environmentally.**

**Jonas Oskarsson**, Project Manager



**Reducing our indirect emissions**

We have set a goal of reducing Scope 3 GHG emissions by 20 % for the period 2017–2025. These emissions, from potato cultivation (including production of input products), production of process chemicals, packaging, and transports (Scope 3) represent the majority of our carbon footprint, but are also more difficult for us to influence than the direct emissions from our production.

Thus far (2023), we have managed to reduce emissions by 14 % since 2017. Compared to 2022, we see lower emissions, above all due to higher crop yields from potato cultivation, but also because native (unmodified) starch, with less use of chemicals and packaging, has represented a larger share of production. Business travel data was updated this year for the first time since the pandemic and we see clear reductions here too, probably as a result of travel patterns having changed since the pandemic. We are continuing to streamline our resource use and to work with other opportunities for reductions, but because a large share of our emissions is related to our production volumes, it is difficult to achieve reductions while maintaining or increasing production. This year, we have made the decision to include the goals in our strategy for 2027, thereby extending the target period by two years.

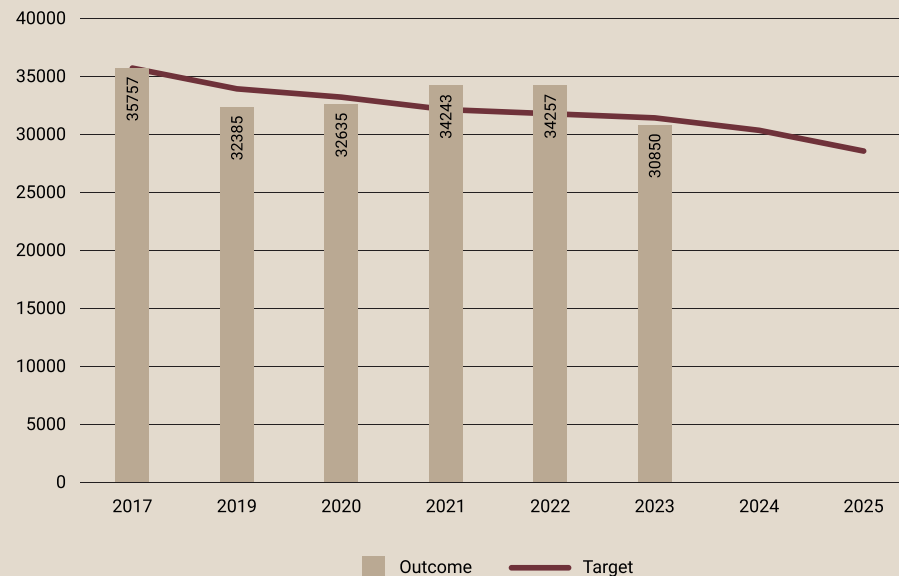
**Circular water use and efficiency**

The starch operations use large amounts of water. Although the water supply is still good in Sweden,

we are always working to reduce groundwater extraction, this also creates opportunities for development in a future climate. The new processing system in Mjällby has been optimized to save water, with the return of clean water flows between different stages of our processes, and we are also seeing the first results of that this year, with the total consumption in the Swedish operations being significantly lower than in recent years. The total amount of the savings will only be visible when the plant’s capacity is fully utilized. From a resource perspective, it is important to us that no water is lost, so we have made sure that the water we use benefits the farms around our facilities. All water used to wash incoming potatoes is used to

water nearby fields. Condensate from evaporation of the juice from the potatoes during protein manufacture is infiltrated into the ground adjacent to the facility. In the Czech Republic the wastewater is treated, first in our own treatment plant and then in the municipal treatment plant. Between 2017 and 2021, we invested in reducing the organic material in the wastewater and also obtained two new by-products—protein and fertilizer that can be used in organic cultivation. Our goal now is to reduce the wastewater volume per tonne of potatoes by 30 % by 2026, with FY23 as the base year. So far, we have reduced the volume by 3 %.

**GHG EMISSIONS LYCKEBY SCOPE 3 (TON CO<sub>2</sub>-EQUIVALENTS)**



Carbon footprint (Scope 3) over time for the Swedish starch operations.

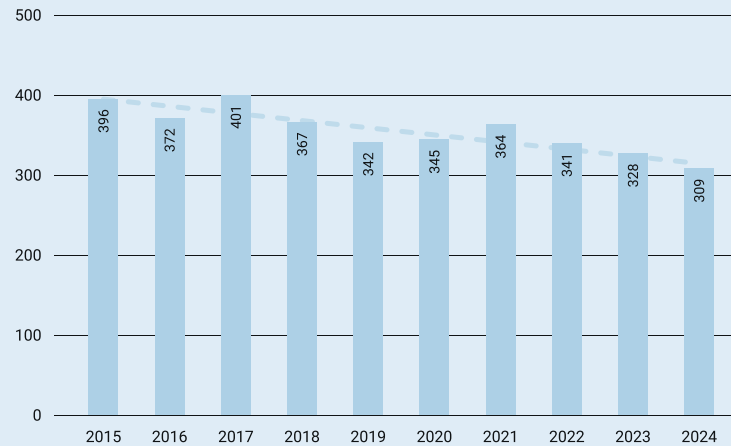
# Every little helps – even the flavor operations contribute to the group’s environmental work

Processing in our flavor operations demands significantly less energy than the starch process, but it is important to streamline use wherever possible, not least from an economic perspective. In the Swedish flavor operations, we have continued to reduce our energy use through energy efficiency improvements driven by an energy

management team. During the year, among other things, we have changed the lighting fixtures in the warehouse to modern LED technology with motion sensors, continuing to improve our energy efficiency. We currently use 14 % less energy per tonne produced than in 2015. All the energy we use in the Swedish flavor operations has been fossil-free

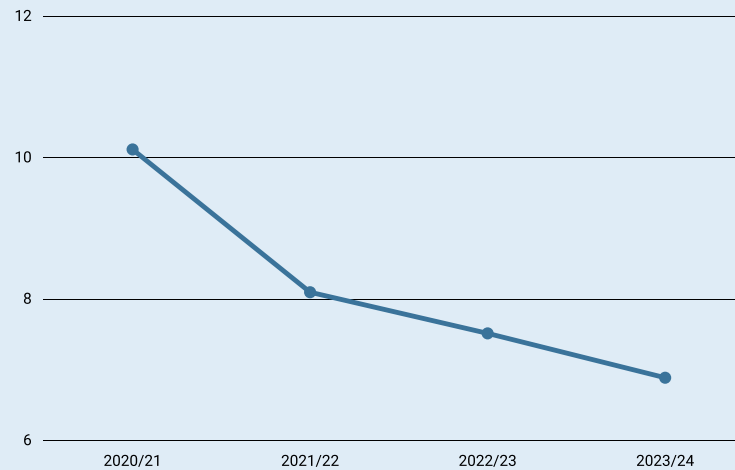
since January 2019. The plant is entirely powered by green electricity, which means that our carbon footprint in Scope 1 and 2 was 45 tonnes of CO<sub>2</sub>e for 2023 (market-based approach), which is a decrease of 75 % from the previous year. We have made major investments in electric/hybrid cars, which has had an effect on the numbers.

**ENERGY CONSUMPTION FLAVOR SWEDEN (KWH/TON)**



Energy consumption per tonne of production in the Swedish flavor operations.

**GHG EMISSIONS (SCOPE 1 OCH 2) FLAVOR CZECH REPUBLIC (KG CO<sub>2</sub>E/TON)**



Carbon footprint (Scope 1 and 2) per tonne of production in the Czech flavor operations.

We also measure the use of our charging poles and have seen a sharp increase there.

In the Czech flavor operations, work is also underway to modernize lighting fixtures with LED technology. This year we have carried out the first climate calculations for the Czech operations and can see that electricity accounts for the largest part of the carbon footprint. Energy saving measures therefore feel particularly urgent here. We are also working to minimize the energy for heating by reducing room temperatures and have installed a heat pump in our warehouse.

As an operator in the food sector, it is important for us to contribute to reducing food waste. A new focus area in our Swedish operations is to develop the precision of our manufacturing to reduce waste and reworking—right from the start. We measure this with the proportion of approved product, and this year the figure was 99.3 %.

Efforts are also continuing to optimize the use of resources in production by sorting out as much as possible from the combustible waste fraction.

As part of a drive to optimize our use of resources in production, since 2020 we have been working to increase material recovery in our production at Fjälkinge, by introducing more material recovery fractions and increasing reuse. Our goal is for more than 50 % of waste to fall into the Material

Recovery, Bioprocessing, and Reuse fractions. During the last year, we have reached our goal.

The most important climate work we do in the flavor operations is to reduce the emissions from our packaging. Last year, we carried out a calculation of the Swedish flavor operations' carbon footprint in Scope 1, 2 and 3 according to the Greenhouse Gas Protocol. The analysis clearly showed that our biggest impact is in Scope 3, as the total carbon footprint of Scope 1 and 2 accounted for less than 1 % of the total. We are therefore prioritizing our work with climate-smart packaging. You can read more about our work with the products of the future on page 63. In 2025, we plan to set climate targets for our operations.

Product transports also have a major impact and we are committed to being part of driving the shift to fossil-free transports. For Kockens products, we have signed DLF's Transport Initiative 2025, a voluntary commitment aimed at having fossil-free transports for Kockens products from 2025. We are also working to use only fossil-free fuels for transports for Culinar products by 2030, and have joined the Swedish Food Federation's Sustainability Manifesto, where one of the five commitments is "a fossil-free industry".



# Sustainability data by business area and country - Resource-efficient operations

## EMISSIONS OF GREENHOUSE GASES

	2023/2024					2022/2023				
	Starch Sweden	Starch Czech Republic	Flavor Sweden	Flavor Czech Republic	Total	Starch Sweden	Starch Czech Republic	Flavor Sweden	Flavor Czech Republic	Total
<b>Scope 1</b>										
Scope 1 GHG emissions (tCO <sub>2</sub> e)	3 903*	3 798*	45*	95	7 841	7 004*	4 478*	175*	75	11 732
<b>Scope 2</b>										
Scope 2 location-based (tCO <sub>2</sub> e)	250*	4 664*	39*	123	5 076	217*	5 438*	41*	126	5 822
Scope 2 market-based (tCO <sub>2</sub> e)	2 579*	5 060*	0*	134	7 773	1 254*	5 899*	0*	136	7 289
<b>Total Scope 1 and 2 location-based (tCO<sub>2</sub>e)</b>	<b>4 153*</b>	<b>8 462*</b>	<b>84*</b>	<b>218</b>	<b>12 916</b>	<b>7 221*</b>	<b>9 916*</b>	<b>216*</b>	<b>201</b>	<b>17 554</b>
<b>Scope 3</b>										
Other indirect emissions (tCO <sub>2</sub> e)	30 850*					34 257*				

We report emission data for Scope 1 and 2 and Scope 3 for the Swedish starch operations. The calculations exclude the smaller sales offices that have no production. Emissions are reported in accordance with the GHG protocol. Scope 1 includes emissions from the use of LPG, natural gas, and diesel in our operations, together with fuel for our cars. Scope 2 includes emissions from the electricity and district heating used at our plants. Scope 3 reports indirect emissions in the value chain (Cat. 1, 3, 4, 6, 7, and 9) and the calculations are largely founded on estimates based on industry-specific data.

\*Refers to the period covering the full year in 2022 and 2023, not the financial year.

# Sustainability data by business area and country - Resource-efficient operations

## ENERGY AND WATER

	2023/2024					2022/2023				
	Starch Sweden	Starch Czech Republic	Flavor Sweden	Flavor Czech Republic	Total	Starch Sweden	Starch Czech Republic	Flavor Sweden	Flavor Czech Republic	Total
<b>Energy consumption</b>										
Natural gas (MWh)	0*	19 198*	0*	296	19 494	0*	22 727*	0*	212	22 938
LPG (MWh)	16 295*	149*	0*	28	16 472	29 514*	155*	0*	31	29 700
Diesel (MWh)	310*	0*	0*	25	335	310*	0*	0*	21	331
Bio-oil (MWh)	27 902*	0*	0*	0	27 902	21 814*	0*	0*	0	21 814
District heating (MWh)	1 069*	0*	0*	0	1 069	1 086*	0*	0*	0	1 086
Electricity (MWh)	40 571*	7 878*	5 087*	208	53 744	34 517*	9 185*	5 390*	212	49 305
<b>Total energy consumption (MWh)</b>	<b>86 147*</b>	<b>27 225*</b>	<b>5 087*</b>	<b>557</b>	<b>119 017</b>	<b>87 241*</b>	<b>32 067*</b>	<b>5 390*</b>	<b>476</b>	<b>125 174</b>
<b>Water consumption</b>										
Total water consumption (m³)	582 735*	67 600*	12 259*	785	663 379	713 546*	66 000*	14 256*	824	794 626

The table contains data from our operations in Sweden and the Czech Republic. The smaller sales offices without production are excluded.

\* Refers to the period covering the full year in 2022 and 2023 respectively, not the financial year.

# Sustainability goals within this focus area - Resource-efficient operations

Area	Goal	Outcome
<b>Climate impact from operations</b>	Reduce Scope 1 and 2 greenhouse gas emissions from the Swedish starch operations by 85 % from 2017 to 2025	Thus far, we have reduced emissions by 56 % but will struggle to reach the goal in time and have extended the target period until 2027
	Reduce Scope 3 greenhouse gas emissions from the Swedish starch operations by 20 % from 2017 to 2025	Thus far, we have reduced emissions by 14 % but will struggle to reach the goal in time and have extended the target period until 2027
	Fossil-free transports for all Swedish Kockens products according to DLF's transport initiative, fulfilled by 2025	In 2023, 88 % of the products were transported using fossil-free fuel
	Only fossil-free energy in transports for Swedish Culinar products by 2030, according to the Swedish Food Federation's Sustainability Manifest	Ongoing work
<b>Energy consumption</b>	Implement annual energy savings of 1 GWh/year against a rolling five-year average in the Swedish starch operations	Result above the target of over 1.5 GW/h
<b>Water consumption</b>	Reduce the amount of waste water per ton of processed potatoes by 30 % by 2026 in the Czech starch operations, starting FY23	No results to report yet



# The products of the future

Developing new products is central to Lyckeby Group and our development departments always work in close cooperation with the customer. We see that the demand for sustainable solutions in the form of climate-smart alternatives, clean label, plant products, and healthier variants is increasing and our experts' long experience of working with different applications means that we know what raw materials are required to cope with different production processes. We find practical solutions.

Our starch operations are also actively working to change conditions and enable more climate-smart and less chemical-intensive potato cultivation through modern plant breeding. We also work continuously to increase resource efficiency by developing our by-products.

## Material topics

- Starch
- Flavor

Modern plant breeding

Climate change mitigation (packaging)

Material use

“Together with our customers, we find practical solutions and develop the products of the future.”

**Khirim Fager**, Quality and Sustainability Manager

# The Green Starch Factory

Lyckeby focuses on development that contributes to efficiency and smarter solutions, both in our own operations and in the customer’s production. We strive to create new starch products manufactured with lower energy and chemical inputs, which result in climate-smart, healthy, and safe food. Our products, processes, and concepts should contribute to a sustainable future. Our internal development vision, ‘the Green Starch Factory’, brings together our long-term research and development projects within the Swedish starch operations.

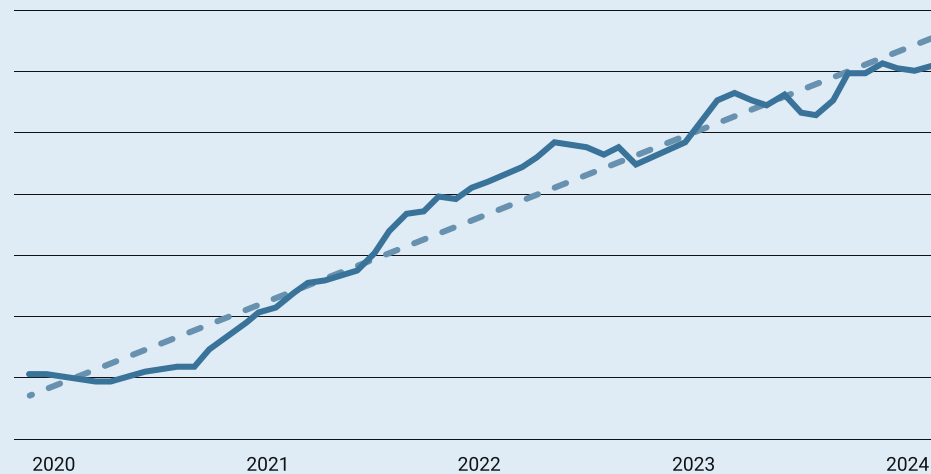
We want to create sustainable products that correspond to our customers’ needs – and ultimately those of the consumer.

**LYCKEBY CAREFUL – our clean label starches**  
Our LYCKEBY CAREFUL portfolio has been specially developed to create starch products that can cope with the food industry’s demands for process- and storage-stability while simultaneously meeting the increasingly conscious consumer’s demands for the products. We have patented the production technique that reduces energy and chemical consumption in the processing process and results in the LYCKEBY CAREFUL products.

In addition to the products having a lower carbon footprint, they are also what are known as ‘clean label’ starches, which means that they are declared without E numbers in the ingredients list on the food. Over the last few years, we have invested in potato-based LYCKEBY CAREFUL products with the function of giving consistency, texture, increasing the switch to plant-based meat alternatives,

and improving crispness in foods such as French fries. Mayonnaise and dressings are now also an application area where we offer an E number-free product to replace fat. This gives our customers the opportunity to produce a healthier product while maintaining consistency and mouth feel. Our goal is to increase sales of LYCKEBY CAREFUL tenfold between 2020 and 2025.

## SALES OF LYCKEBY CAREFUL



Development in the sale of LYCKEBY CAREFUL since 2020.



### Enzymes replace chemicals—producing functional clean label products

Using enzyme technology, we have developed a new E number-free starch that can build texture and provide superior meltability. The enzyme technology reduces the need for the chemicals traditionally used to provide similar functionality in a starch. The starch replaces milk protein and regular cheese as a raw material in processed cheese and plant-based analogues. By wholly or partially replacing milk, the carbon footprint of the finished product is reduced.

### Dextrin from the Czech Republic

We also produce clean label starches in our Czech operations - namely dextrin. Dextrin is modified physically rather than chemically, using acid and heat, and is thus declared without any E number in the ingredients list, in the same way at the LYCKEBY CAREFUL products. This starch product is often highlighted as a health product and can also replace egg in some applications. Dextrin can also be used as a replacement in polymer dispersions (plastics) in different technical applications, including during the manufacture of adhesives. Dextrin-based adhesives are used in large quantities in the manufacture of paper sleeves, and today more and more customers are looking for sustainable adhesives for other products and packaging.

### Industry cooperation for sustainable development

We are part of FINEST—which is led by RISE and funded by Formas (the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning)—a project that aims to create the conditions for an environmentally, socially, and economically sustainable food sector in Sweden. The goal of FINEST is to accelerate the transition toward a more sustainable food system by gathering expertise and promoting cooperation between different actors in the food industry. New plant and vegan products are examples of where our broad expertise in flavor and functionality from traditional food applications can be utilized.



# Modern plant breeding – changing the landscape

Lyckeby is actively participating in research and innovation projects on modern plant breeding techniques, in collaboration with the Swedish University of Agricultural Sciences (SLU), to contribute to climate and environmentally-smart food starches. With the help of the Nobel prize-winning CRISPR-Cas9 genome editor, we have developed new potato varieties whose starch is naturally more storage-stable. Natural storage-stability means that smaller quantities of chemicals and thus of energy are required to produce the starch products our customers demand. An important focus area for the research is also to make the potatoes less sensitive to blight, which would reduce the need for plant protection products in cultivation. Read more on page 67.

In previous years, we have carried out trial cultivation with starch potatoes developed with the help of the genome editor, and we continuously work with product development to evaluate how the starch functions in various food applications. Our hope is that we will be able to conduct large-scale production of new environmentally and climate-smart starch products by 2025. The regulations relating to modern plant breeding techniques within the EU are currently based on the result of the ECJ judgment dated 25 July 2018,

when the European Court of Justice decided to regulate modern techniques for plant breeding such as CRISPR Cas9 according to the GMO Directive. This is despite the fact that modern technologies can be used more safely and more effectively than 'traditional' editing methods, which are exempt from the legislation. The decision has been criticized by authorities, researchers, and industry within the EU, and we are continuing to provide information at regional and EU level on the need for and benefits of modern technologies, for example through our project for climate-smart food starches. We expect that the legislation will soon be changed, so we can use modern plant breeding technologies on equal terms with countries outside the EU. The European Commission has investigated the current legislation and how it should be possible to use modern techniques without compromising on food safety, and in 2023 released a report suggesting changes to the GMO Directive so that modern plant breeding techniques such as CRISPR-Cas9 could be used. In its statement, the European Commission was clear that the modern plant breeding technologies are necessary for us to be able to achieve our goals within Farm to Fork and The Green Deal. We welcome the European Commission's position and hope now for a rapid process to decide on a new

directive so we can market the new, climate-smart starch products and then continue working on exciting new projects within modern plant breeding.

## Cooperation on research for innovative food crops

SLU Grogrund is a collaborative program between the Swedish University of Agricultural Sciences (SLU) and industry, which aims at ensuring access to new plant varieties adapted to Swedish growing conditions and contributing to a growing, sustainable, and profitable production of food in Sweden. The program began in 2018 as part of the Swedish food strategy. Participants include academic researchers, plant breeders, and actors from the food and agriculture sectors and society as a whole. Lyckeby plays an active role in SLU Grogrund's steering group, and took part in 6 of the program's 21 projects during 2021.

# A few words from academia about CRISPR technology

**We talked about potato breeding with Erik Andreasson, a professor in the Department of Plant Protection Biology at the Swedish University of Agricultural Sciences (SLU).**

**Hi Erik! You have long been active in several research projects on the use of CRISPR technology in potato cultivation. Why is this technology so interesting?**

For more than 25 years I've been conducting research into plants' ability to cope with stress and diseases, and for the last 15 years with a focus on potatoes. And because it's difficult to accelerate potato breeding with traditional methods, the CRISPR technology is very interesting in this context. There are very large gains to be had for both humans and the environment if we can breed potatoes that are less sensitive to blight. And there's no risk of spread with potatoes, either. I am currently participating in one project in this area

and leading another, both within the SLU Grogrund knowledge center.

**Lyckeby has highlighted CRISPR as a key to achieving the goal of halving the use of plant protection products. How does that work?**

One of the main reasons why a lot of plant protection products are used in potato cultivation is that potatoes are very easily affected by blight, a serious disease which, once it has broken out in the potato field, can only be remedied with chemical plant protection products. Controlling potato blight accounts for about 75 % of the use of plant protection products in potato cultivation today. The organisms that cause the blight attacks have also begun to become resistant to the available products. So they don't work when they are needed, while there are also fewer preparations on the market. What is new now is that we have found a sensitivity gene (**read more here**) for potato blight, and with the CRISPR technology, this gene could simply be removed from the potato so that we get



potato varieties that have reduced sensitivity to blight. The Grogrund project 'Resistant Potatoes' is about seeing if this is feasible in several different potato varieties and whether abiotic stress has an effect. To completely do away with blight, we probably need a combination of resistance genes, which we are also working on via Formas, and SLU Grogrund's resistant crops.

### **Why can't we do this without CRISPR?**

There are currently no high-yield potato varieties that are resistant to blight and it is very difficult to breed new potato varieties using traditional methods (e.g. mutation or cross breeding) compared to other crops. This is one of the reasons why we still eat King Edward potatoes in Sweden today. And this means we are dependent on chemical plant protection products if we want to avoid using potato varieties producing very low yields—something that in turn is inefficient from a climate point of view, because we then get less potatoes for the same amount of fuel and the same area cultivated land. Today, it's hard to see alternatives in potato breeding.

With CRISPR, we also get other opportunities. We can improve starch quality, so that less energy is needed in the starch factory, which also reduces the carbon footprint, of course. I see many positive effects from working with CRISPR.

### **Isn't it risky to remove a gene from the potato? Genetic engineering and GMOs are, to say the least, a controversial issue. What's your view of this?**

Firstly, GMO technology itself isn't dangerous, especially for potatoes where we have no risk of spreading. I'd say that what has caused problems with GMO crops is above all how it has been handled commercially. We have recently conducted a four-year field trial in collaboration with Lyckeby, evaluating the effects of growing potatoes where we removed a gene that is sensitive to blight, and we have seen no negative consequences at all. It might be that the modified potato would be affected if it grew freely in nature, but in a field where we optimize the nutrition and growing conditions we have no such effects. Plant breeding and domestication often involve the removal of genes, so this isn't unusual.

### **If this is so revolutionary, why isn't this type of potato already available on the market?**

Under current EU legislation, CRISPR-modified crops are regulated in the same way as GMOs (genetically modified organisms), with legislation that in practice means cultivation can only take place at trial level. Work is underway to change the legislation and the European Parliament has presented a proposal that goes in the right direction, so we are hopeful that it will be possible to use this type

of plant breeding technique in the future. If we look around the world, many countries have already made considerable progress with this. China is investing heavily, and the USA and Argentina are also confident in CRISPR as a plant breeding technique. This also makes it a competition issue for European companies. Plant protection products are not only bad for the environment, they are also very expensive for growers, which increases costs for companies.

### **Lyckeby is an industry partner in SLU's project on CRISPR technology for potatoes. What is their role?**

I have to say that Lyckeby has been incredibly important in this work over time. It's very much a question of having the energy and courage to pursue an issue regardless of public opinion. It isn't always easy to stand up for something on which so many people have an opinion, and of course everything related to genetic engineering creates an emotional response. Lyckeby has long supported important research and the group is also psychologically important for those of us working with this subject. We appreciate their interest and the fact that they are always present as an important voice in the debate. And now it feels like the change that we have wanted to see for so long may actually become a reality. It's a great feeling to contribute research that can make so much difference in practice.

# Circularity and climate go hand-in-hand in product development

## Material-smart packaging

In our flavor operations, we constantly work to improve our packaging and to find future solutions in close collaboration with our packaging suppliers. Our packaging design is always based on strict demands for our products to be protected against contamination by moisture and dirt, and against impacts during transport and handling. This is our most important contribution to reducing food waste. It is also important for the packaging to be functional for the user, easy to open, and easy to use.

In addition to these basic requirements, our goal with regard to Kockens packaging is also to gradually move toward a reduced climate impact. Kockens is also affiliated with DLF Sweden's 'Plastic Initiative 2025'. As part of this, we are working to promote a circular economy, in line with the European Commission's plastics strategy, which was launched in January 2018. The shared goal is for all plastic packaging placed on the market and covered by the producer responsibility regulation to be recyclable by 2025.

For more climate-smart packaging, we have previously reduced the weight and increased the proportion of recycled glass in our spice jars, switched to bio-based plastic for lids and recycled plastic in our larger plastic containers, and during the past year we have also made several improvements to our packaging.

Kockens Foodservice has decided to remove the plastic cap on its one and two-liter packages. This solves several problems as it is environmentally beneficial and at the same time meets the EU directive on single-use plastic, which requires plastic caps to be attached to the main packaging. By instead removing the plastic cap, we take the opportunity to reduce the material used (saving about 1 tonne of plastic per year), improve recyclability, and reduce the carbon footprint. Because many consumers also don't like these attached caps, we feel that this is also in line with the needs of the users. It also results in lower costs, both for materials and investment in new production equipment for attached caps. We see only benefits from this.

We have also made several changes to reduce the amount of plastic used as secondary packaging during transports. During the spring, we optimized the stretch film for pallets and shrink film for spice jar trays, achieving savings of a total of about 6 tonnes of plastic per year

In the autumn of 2024, we will also launch Lailas 1 kg flour mix in a completely new packaging solution. We are moving from a bag-in-box solution to just a bag, saving almost half of the material in the packaging. In total, this corresponds to about 17 tonnes of material in a year, of which 3 tonnes of plastic.

In 2025, we plan to develop climate goals for the flavor operations, and packaging will be an important part of this.

In our Czech operations, we have chosen to ensure that all paper packaging is sustainably produced, by purchasing only FSC-labeled packaging.



### **Products for current efficiency and future needs**

We develop products with our customers. This is part of our offering, where our dedicated product developers put their deep knowledge of flavors and functionality at the disposal of customers to help them launch sustainable new products. Our close collaboration with customers, together with our in-depth knowledge of flavors and applications and our ability to batch-customize according to the customer's process, helps us contribute to reducing waste and increasing efficiency in production. Global events in recent years have been challenging for many food producers, with disruptions in the supply chain leading to increased costs and shortages. Culinar has worked proactively to help customers optimize recipes and processes without compromising on flavor and functionality. With our broad knowledge of how different ingredients are constructed and interact, and how the end products are affected, we continue to help our customers in every way we can.



# Sustainability goals within this focus area - The products of the future

Area	Goal	Outcome
<b>Modern plant breeding</b>	Increase our knowledge of how the CRISPR technology affects the potato's properties	Active participation in research and innovation projects
	Increase sales of LYCKEBY CAREFUL products tenfold between 2020 and 2025	Sales are increasing every year and we are more than halfway there
<b>Climate impact (packaging)</b>	It must be possible to recover 100 % of material in all of Kockens' packaging by 2025	Two items of packaging currently do not fulfill the Plastic Initiative. These will be replaced in the first half of 2025



**Our extensive expertise in taste and functionality from traditional food applications is beneficial, eg in the development of new plant-based and vegan products.**







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