



# CREATING NEW VALUE FROM CO-PRODUCTS FOR A CIRCULAR AGRI-FOOD SYSTEM

SUSTAINABILITY REPORT 2020



# DIRECTING THE TRANSITION TO A CIRCULAR AGRI-FOOD SYSTEM

In my first year at the helm of Duynie Group, I am honoured to present our Sustainability Report 2020. A both challenging and rewarding year presenting us with many opportunities, accelerating our ambition for a positive and structural change of the agrifood system.

Sustainability and responsible production are more than ever on the corporate agendas, because it's in the hearts and minds of many consumers and society at large. Covid-19 indicates even more that change is needed in how we produce and consume food. The health crisis added further sense of urgency to the change needed to sustain our planet's capacity to feeding a growing population.

The creation of a truly sustainable value chain that minimises environmental impact by becoming circular is required. As an innovator in creating value from co-products from the food, beverages and biofuel sectors, Duynie Group is in an excellent position to direct this transition.

Leading in sustainability and circularity will require investment, that's why also in 2020 we did our annual investment of 20% of our EBIT in innovation, enabling our suppliers to become more circular by processing their co-products into value-added products and ingredients for the consumer goods, feed and industrial sectors.

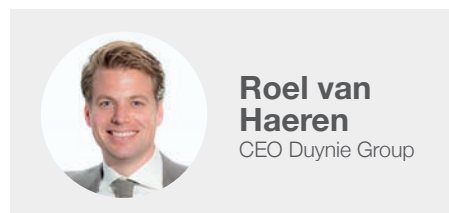
Feed is an important sector for closing loops and valorising co-products. Duynie Feed optimised its European organisation allowing for knowledge exchange and synergies to even better service our suppliers and customers across Europe.

In 2020 we further developed our potential to upcycle co-products for use in petfood and – on the longer term – human food. To this end, our new ingredients facility in Cuijk, The Netherlands, became fully operational. This new facility takes our sustainable innovation to a new level. It uses residual heat from a neighbouring bio energy plant and contributes towards climate neutral production.

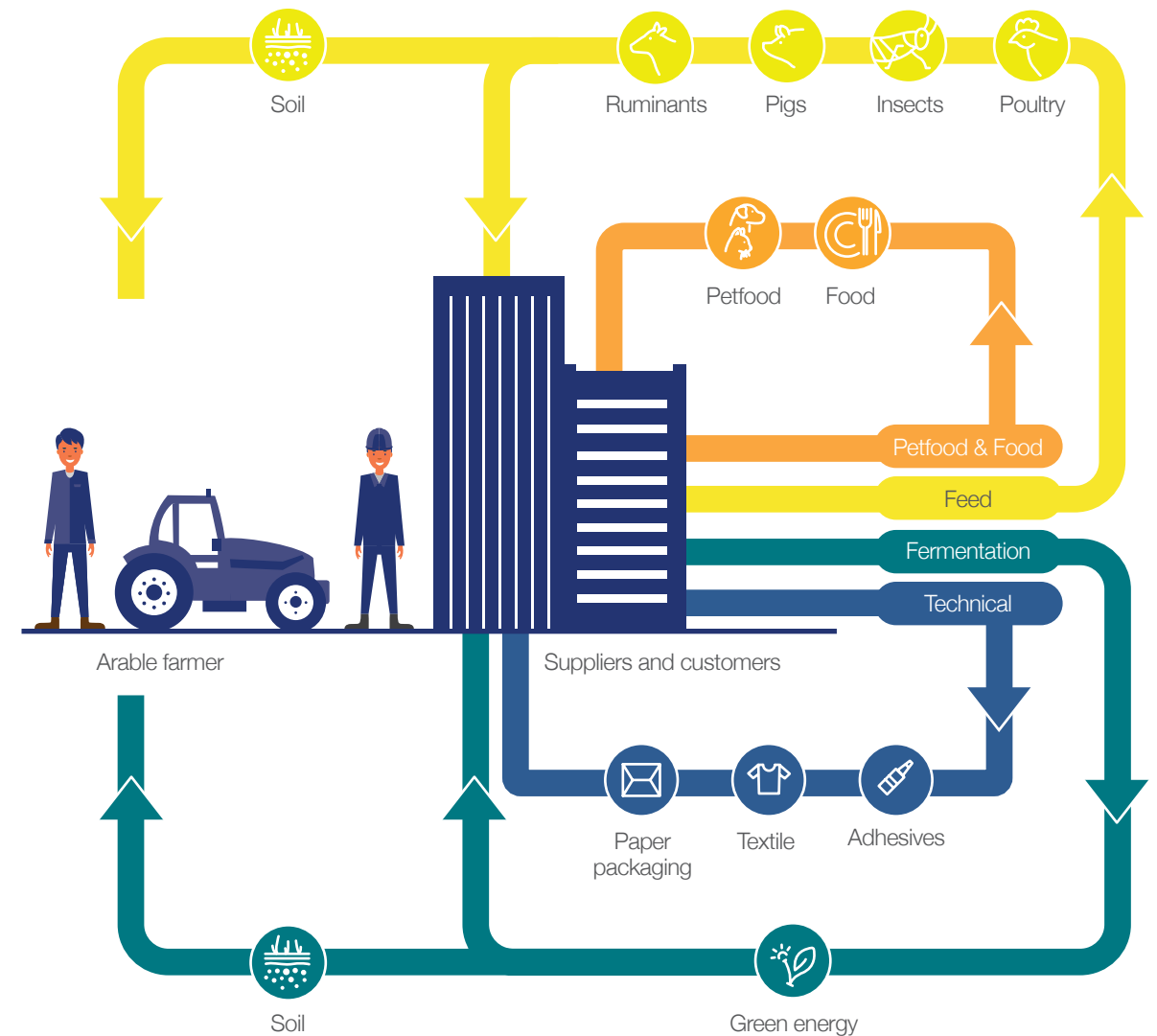
In Europe and worldwide, Duynie Consulting can provide advice on optimising the value coming from plant-based co-products, allowing industry players to become circular and reduce their environmental impact.

Innovation with co-products is at the heart of Duynie Group. We are in continuous process of research and testing new ideas and solutions. Like developing new innovative technologies that explore alternative sources of protein and improve the circularity and sustainability of the protein supply chain.

This is only one example of our many areas of innovation. For the years to come, I look forward to further presenting reports on the sustainability and circularity we achieve together with our suppliers and customers.



# CLOSING LOOPS IN AGRI-FOOD



● Novidon ● AgriBioSource ● Duynie Feed ● Duynie Ingredients

# ABOUT DUYNIE GROUP

Duynie Group is Europe's largest company active in the valorisation of plant-based co-products from the production of food, beverages and biofuel.

We create added value from co-products resulting in animal feed, ingredients for food and petfood, starch for technical application or biomass for energy production.

In 2020 we processed 4.5 million tonnes of plant-based co-products, up 7% compared to 2019. It is our ambition to increase this to 6.2 million tonnes of co-products by 2025.

Duynie Group is part of the Netherlands-based multinational agricultural cooperative Royal Cosun.

## Mission and vision

Duynie Group creates value from co-products. By investing 20% of our earnings (EBIT) every year in innovation, we continuously improve the sustainability performance of our suppliers, our customers and our own operations.

We share the belief in innovation of our parent company Royal Cosun. We sustainably manage plant-based co-products from food, beverages and biofuel companies. We prevent waste by creating new value from co-products valuable components like protein, fibres and fats for use in consumer goods, food, feed and industrial sectors.

By constantly aiming for innovation and improved processing, our perspective is to closing the loops where possible and directing the transition to a circular agri-food system.

## Values

Our core values are passionate, entrepreneurial, innovative and reliable.

**Passionate:** we are determined and enthusiastic in working with our partners to creating new value from co-products.

**Entrepreneurial:** we are driven by the needs and opportunities in the market, to service our suppliers and customers.

**Innovative:** curiosity and creativity spur us to investigate alternative routes and discover new solutions to every challenge.

**Reliable:** for our partners and for ourselves we are transparent about our options and intentions. We act responsibly towards our employees and the environment.

## Duynie Group consists of 5 divisions

### Duynie Feed

Is specialised in processing co-products like brewers' grain, steamed potato peels or wheat stillage into nutritious animal feed that is directly supplied to farmers.

### Duynie Ingredients

Produces sustainable plant-based ingredients based on co-products by using residual heat. Duynie Ingredients supplies these products to the pet food industry, with the ambition to upcycle to human food.

### AgriBioSource

Creates sustainable value by supplying co-products for biogas plants, water purification and soil improvement.

### Novidon

Extracts the value of sidestream starch by producing new products, services and applications for customers in the industrial (e.g. paper, adhesives or textiles) sector.

### MijnVoer/eFeed

Is a game changing online platform where supply and demand of compound feed, co-products and other feedstuff brought together in a new approach to feeding to be used by farmers, feed suppliers and independent nutritionists.

# DUYNIE GROUP IN EUROPE

With its head office in Alphen aan den Rijn, the Netherlands, Duynie Group has operations in ten countries throughout Europe. Together they constitute an impactful sales network supplying agriculture, petfood, food and industrial sectors. Our consulting team provides advice on optimising management and valorisation of plant-based co-products, based on thorough value chain analysis.

In three countries – the Netherlands (3), Belgium and the UK - we have five production locations and in ten countries we have thirteen sales offices, four of which are located in our home base the Netherlands. Beyond our activities in Europe, Duynie Group also offers sales services in countries worldwide.

## The Netherlands

### Alphen aan den Rijn

- Head office (Duynie Holding)
- Duynie Feed Netherlands
- MijnVoer/Efeed

### Nijmegen

- Novidon Netherlands
- AgriBioSource
- Demo plant
- Office (Duynie Holding)

### Cuijk

- Duynie Ingredients

## UK

### Castleford

- Duynie Feed UK

### Wrexham

- Novidon UK

## Belgium

### Veurne

- Novidon Belgium
- Duynie Feed Belgium

## France

### Bischoffsheim

- Duynie Feed France

## Germany

### Trittau

- Duynie Feed Germany

## Poland

### Wroclaw

- Duynie Feed Poland

## Russia

### Moscow

- Novidin Russia

## Czech Republic

### Hodonin

- Duynie Feed Czech Republic

## Slovakia

### Dunajská Streda

- Duynie Feed/Slovakia

## Hungary

### Budapest

- Duynie Feed Hungary

# A VIRTUOUS CIRCLE FOR AGRIFOOD

A circular agri-food system is essential to address the challenges of population growth and climate change. Duynie Group wants to play a central role in directing the transition to a robust and sustainable circular food system.

## NATURAL CAPITAL



4,5 million tonnes of plant-based co-products

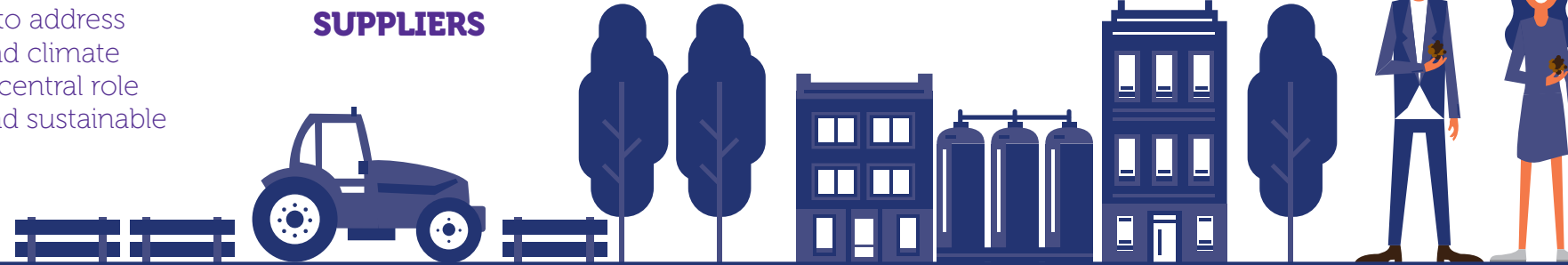


Europe's largest company active in the valorisation of plant-based co-products from the production of food, beverages and biofuel



- Increased availability of plant-based protein
- Preventing waste due to maximal use of crops
- Creating business and environmental value goes hand-in-hand

## SUPPLIERS



## PRODUCTION & INTELLECTUAL CAPITAL

## HUMAN CAPITAL



- European base, worldwide sales network
- Part of Royal Cosun
- 20% of EBIT invested in R&D
- Co-products Expertise & Research Centre: Laboratory, Pilot plant, Demo plant
- Digital applications



- Continuity production process of suppliers
- Maximising co-product profit for suppliers
- >200 applications



- Lower environmental impact (e.g. CO<sub>2</sub>, water, land use)
- Closing loops by maximal resource use
- Increasing availability of plant-based protein.



- 372 employees
- Core values: Passionate, Entrepreneurial, Innovative, Reliable



- Engaged employees
- Safety & vitality of employees



- Leadership and people development
- Contributing to a circular value chain through our employees



## DUYNIE GROUP



- >350 suppliers of co-products
- >8,000 farmers (customers)
- >400 customers in petfood, food and industrial sectors.
- We collaborate with >30 knowledge institutions and sector initiatives in 2020



- We co-invest in co-products related facilities at customer or supplier sites
- We share LCA reporting on main co-products with suppliers, customers and stakeholders



- We contribute to the sustainability ambitions of our suppliers and customers
- We contribute to the transition to a circular agrifood system

## PARTNERSHIPS & SOCIAL CAPITAL

## CUSTOMERS



Input



Output



Impact



# CREATING VALUE

Sustainability is an integral part of Duynie Group's business. We identify three areas where we create value: our people, our operations and our partners.



## Our partners

we process our suppliers' co-products into value-added products and applications, to be used by customers in agriculture, petfood, food, energy and industrial sectors. This helps our suppliers and customers in realising their sustainability ambitions whilst optimising their financial performance and it supports the transition to a more circular agri-food system.

## Our people

engaged employees with a drive for sustainable impact are our key asset. We offer them ample opportunities to improve their skills and enjoy working with us.

## Our operations

next to the impact on our suppliers and customers we realise by directing the transition to a circular agrifood system, we are also keen on optimising our own internal processes. We continuously focus on reducing our environmental footprint by optimising the efficiency of our operations use and logistics.



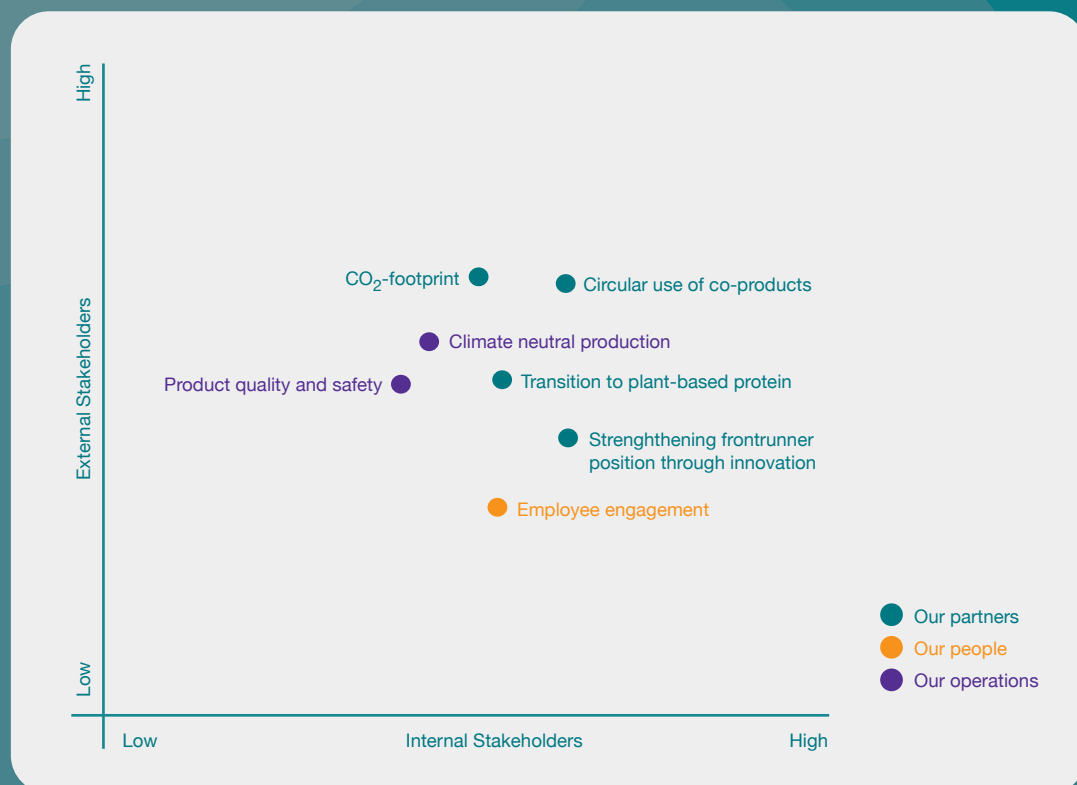


# OUR SUSTAINABILITY FOCUS AREAS

Closing loops in a circular agri-food system means processing our suppliers' co-products into valuable products for our customers, with a reduced environmental impact for all as the bottom line. Our engaged people and efficient operations are focused on creating circular value.

To identify the main topics for stakeholders and assess our most impactful topics, Duynie Group did a materiality analysis in 2020. All topics in the top right of the matrix below are material and high priority. These are the focus areas which underpin our sustainability approach.

## Material topics



# OUR GOALS TOWARDS 2025

Based on this materiality analysis we revised our sustainability approach and identify three pillars: partners (suppliers and customers), people and operations. For each pillar's material topics we defined goals for 2025 and their connection to the United Nation's Sustainable Development Goals. This is outlined in the overview below.

## Our Partners

Material Topic	2025 Goal	2020 Status	SDG
<b>Circular use of co-products</b>	Building circular value chains by preventing waste for 6.5 million tonnes in 2025 by upcycling plant-based co-products.	On track: 4.5 million tons plant-based co-products have been upcycled	
<b>CO<sub>2</sub> footprint</b>	Taking action to lower the carbon footprint of our suppliers and customers by maximising the use of co-products using a fact-based approach.	On track: working with customers and suppliers to improve carbon footprint insights and calculations. More than ten applications based on co-products are currently covered with an LCA.	
<b>Strengthening frontrunner position through innovation</b>	Contributing to plant-based innovation by investing in innovation leading to at least two plant-based solutions that in 2025 are successfully brought to the market.	On track: one plant-based solution has been brought to the market by Duynie Ingredients.	
<b>Transition to plant-based protein</b>			

## Our people

Material Topic	2025 Goal	2020 Status	SDG
<b>Employee engagement</b>	Offering employees a safe workplace and ample opportunities to improve their skills while enjoying working with us.	On track: Duynie Academy, proactive safety culture.	

## Our Operations

Material Topic	2025 Goal	2020 Status	SDG
<b>Product quality and safety</b>	Continuously improving our quality system to meet current and future needs of suppliers, customers, and other value chain partners.	On track: Multiple international certifications (GMP+, FS, VLOG, QS, FEMAS, UFAS, ISO 900, FSSC 22000)	
<b>Climate-neutral production</b>	We are taking action to reduce our environmental impact by optimizing our logistics and implementing our Energy Roadmap as part of the Cosun SCORE program.	On track: Roadmap implemented according to plan Climate Neutral production realised in Cuijk.	



## Our partners

As an enabler for closing loops Duynie Group closely collaborates with its partners. Primarily these are suppliers of plant-based co-products coming from food, beverage and biofuel production processes. Via our broad sales network and innovative production processes, we valorise these residual flows. As such we create products that are used by our other partners: our customers in agriculture, petfood, food and industrial sectors.



**Mike Norfolk**  
Supply chain  
general manager  
Muntons



**Lee Kirk**  
Procurement  
manager at  
Duynie Group

Case Muntons

# OLD FRIENDS FIND NEW OPPORTUNITIES

The cooperation between Duynie Group and Muntons, a UK-based manufacturer and distributor of malt-based foods and ingredients, has a long history. It started over two decades ago, when the concept of co-products as a source of value was unknown. Now both partners enjoy finding opportunities to create value from co-products for feed and potentially in the future food as well.

When asked about the main change in the 20 years Muntons has been working with Duynie Group, Muntons' general manager procurement Mike Norfolk refers to a mind shift. "It's about understanding the value of co-products and promoting it as a source of value instead of looking at it as waste you need to get rid off", he says. "Muntons went to great lengths for this attitude change", responds Lee Kirk, procurement manager at Duynie Group. "We supported this for instance by taking people from Muntons to the farms, explaining them the process of valorising co-products."

### Solving a logistical nightmare

"Also the quarterly meetings our teams in sales, procurement and quality management have with Duynie Group, increase awareness on the importance of co-products", says Mike Norfolk. "Treat it the right way, transport it and process it to create sustainable value: this perception has been a massive step forward." This change happened at the background of strong growth. Mike Norfolk: "In two decades we increased from a volume of 3,000 tonnes to 22,000 tonnes. From ad hoc shipping of co-products, Duynie Group now helps us solving the logistical nightmare of two to three loads a day!"

### Calling Duynie Group

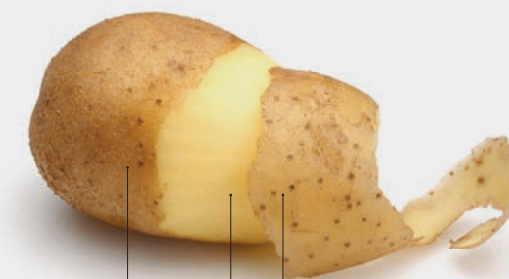
Swift removal of co-products from the Muntons premises is key for the continuity of operations. "Clearing the factory to keep it running is important", says Lee. "To us there are no limits of what we can do." "True!", says Mike Norfolk. "I recall two recent incidents where due to sudden overabundance of co-products we called Duynie Group and they immediately solved our problem. That's logistic flexibility, just like the silo sensors of Duynie Group that we installed to control stocks of malt grains. Beyond logistics, much added value of working with Duynie Group also relates to their innovative co-product processing."

### Creating circular value

Malt residual pellets, barley screenings, white and black malt grains and occasionally barley dust and out of date finished products are Muntons' co-products Duynie Group processes. "All co-products go into feed, except the black malt grains whose sour taste animals don't like. These are digested to create green energy", explains Lee. "In the future we will investigate protein extraction for use in petfood and human food like meat alternatives. When our R&D succeeds, this also increases the value we provide to suppliers like Muntons. That said, we don't of course let down our farmers who can remain confident of the availability of enough co-products for animal feed. The manure will also be used on the farms that supply Muntons, so we remain focused on creating circular value."

## STEAM PEELINGS AS PIG FEED

1,000 tonnes of potato steam peelings can be added to the daily menu of 7,000 pigs, replacing compound feed. The annual sustainability gains are:



3,000 m<sup>3</sup> less  
water used

111 tonnes CO<sub>2</sub>  
emissions avoided

20 hectares of land  
stays available for  
food production





Case Pulp4Paper/Crown van Gelder

## SUSTAINABLE PAPER BASED ON BEET PULP

Pressed sugar beet pulp is a co-product full of nutrients and fibres that is used for feed and biogas production. In our continuous search for value, we found a sustainable solution involving beet pulp for the paper industry. The very promising results makes us confident that this co-product will have an additional value beyond feed. It benefits both the paper industry and the suppliers of beet pulp.

The solution seems easy: replace 20% of virgin wood fiber by beet pulp. In practise however, there are some challenges acknowledges Jan Rops, product manager at the Netherlands-based paper mill Crown van Gelder, and Karina Marsilje, market development manager at Duynie Group. “Wood fibre produces strong trees, but sugar beet grows in the soil and its fibre has the function to retain water”, says Jan Rops. “For a dry product like paper that’s something to consider.” “The paper industry needs a constant flow of pulp all year long, but the sugar beet season only lasts three months”, adds Karina.

### A constant flow of pulp

Combining its expertise in logistics and in storage of co-products, Duynie Group solved this problem by organising a year round availability of pulp. “We designed large trench silo’s containing enough material for a constant flow”, Karina says. “They are located on the premises of Crown van Gelder and if needed we can also store beet pulp. In logistics and operations we are flexible.” Up to now this is not needed, says Jan Rops: “We have enough for producing batches of Crown Native, as we call our new sugar beet paper. In the autumn of 2021 we test a new milling unit and by the end of 2021 we will have continuous production.”

### Eco look

Duynie Group’s business unit Novidon is active in selling sidestream starches to the paper industry and also provided knowledge on processing pulp fibers to produce sustainable paper. At Crown van Gelder this is put into practice. Jan Rops states three main specifications of Crown Native: “Firstly, the pulp provides fibre that adds strength to the paper. Secondly, it is no recycled paper so it can be used for packing food without the need for an extra barrier layer, and thirdly the beet peel which is partly still in the press pulp gives the paper a speckled eco look. This is a great stepping stone for telling the sustainability story of this paper.”

### Reduced environmental footprint

A story which – as Karina points out – is funded on thorough research. “We did a life cycle assessment (LCA) of this paper made by replacing 20% of wood pulp by press

pulp and it turns out that this leads to a 16% lower environmental footprint”, she says. “This consists of 6% lower CO2 emissions, 18% less agriculture land needed, 10% less water used.” “Sugar beet grows much faster than trees and the pulp is produced nearby our location”, explains Jan Rops. “This 16% is a huge achievement. If we would fully switch to recycled paper, our footprint would go down by 33%. But that is no option as this paper may contain ink residue and therefore can’t be used for food packaging. By using 20% press pulp, we realise almost half of this footprint reduction.”

## STEAM PEELINGS AS CATTLE FEED

1,000 tonnes of potato steam peelings can be added to the daily menu of 300 cows, replacing compound feed. The annual sustainability gains are:



95 tonnes  
CO<sub>2</sub>-emissions  
avoided

17 hectares of land  
stays available for  
food production

1,000 m<sup>3</sup> less  
water used

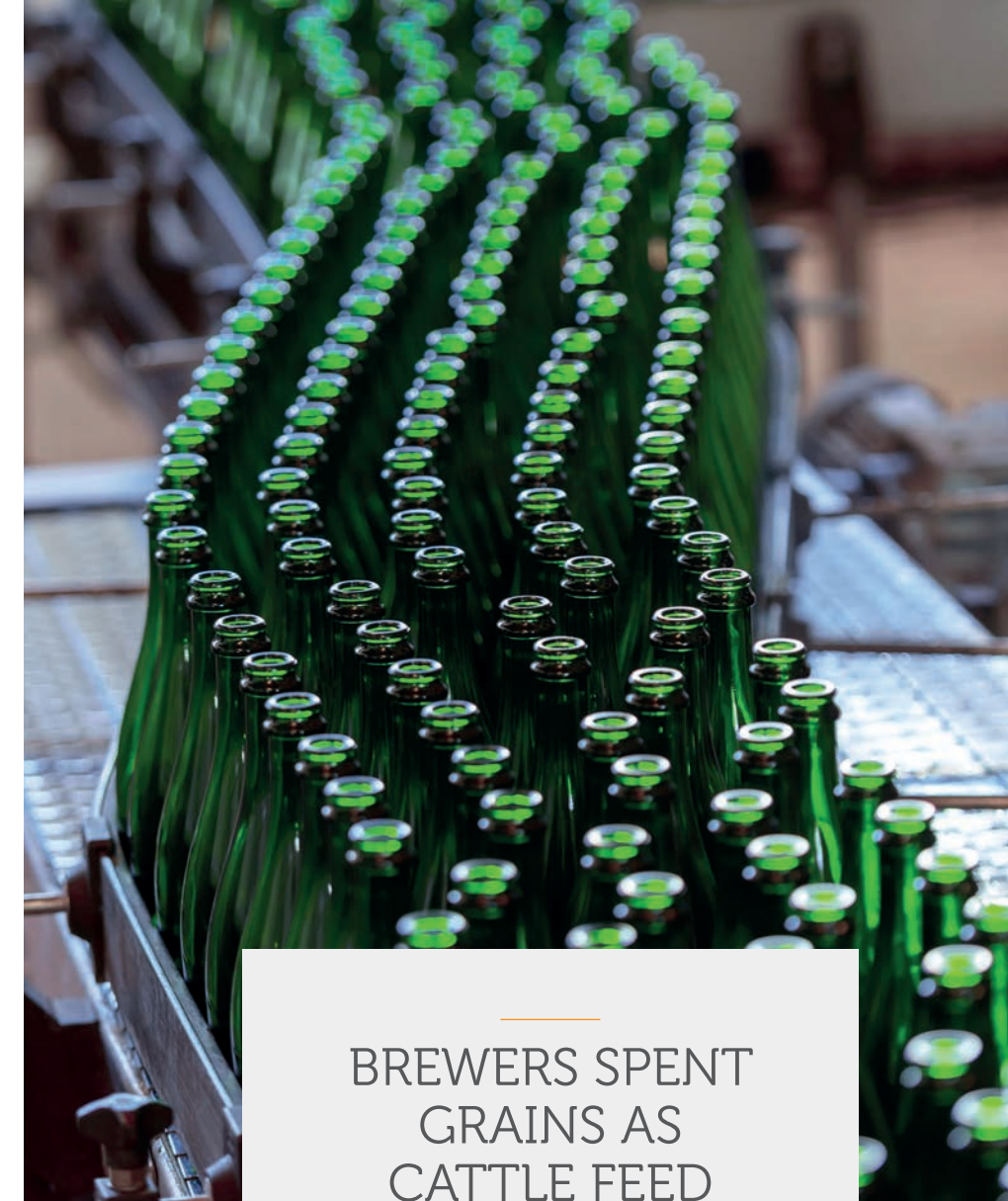


**Jan Rops**  
Product manager  
paper mill Crown  
van Gelder



**Karina  
Marsilje**  
Market development  
manager Duynie Group





**Robbert van Breda**  
Chief new business officer at Duynie Group

Case brewers spent grain

## INNOVATION BREWS BENEFITS

The co-product of brewing beer – brewers spent grain - is rich in fibre, protein and several other interesting components. The last decades it has mainly been used for animal feed and to limited extent as biomass for renewable energy. A lot of potential from this co-product is still unlocked.

Closely collaborating with Wageningen University & Research (WUR) and a leading brewer, Duynie Group is working on innovation projects to extract protein and fibre from brewers spent grain. Brewers worldwide produce some 30 million tonnes of brewers spent grains annually. In Europe this amounts to 8 million tonnes. Isolating the protein from this co-product is challenging, as only a minor part of the protein is soluble in water. Researchers from Food and Biobased Research at WUR and innovation

specialists of Duynie Group are developing new methods to concentrate the proteins from the brewers spent grains. Besides using it as a component for feed, the fibre can also be used as source for food, technical applications and the production of bio-energy via fermentation or combustion.

### From the laboratory to the brewery

In close collaboration with its partners Duynie Group takes the process of isolating fibre and protein from

the laboratory to the brewery. The plan is to install separation units directly connected to breweries all over the world to separate the spent grains into valuable ingredients. “In fact we turn a brewery into a bio-refinery”, says Robbert van Breda, chief new business officer at Duynie Group. “At a local brewery of a leading European brewer we are bringing this innovation to life. A great example of upcycling brewers spent grain in added-value components.”

### Stable and profitable

Upcycling brewers spent grain in added-value components creates new value for suppliers and customers and also improves the carbon footprint. By doing this, Duynie Group and its partners demonstrate efficient use of resources and the viability of the circular economy. “Turning a great idea into a profitable business implies stable production at the right cost”, Robbert says. “If we can upscale this in the future and use this protein for many valuable applications in feed, food and petfood, this brings huge benefits for the brewing industry, our customers and the environment.”

## BREWERS SPENT GRAINS AS CATTLE FEED

Brewing 50,000 hectolitres of beer leads to 1,000 tonnes of spent grains which can be added to the daily menu of 400 cows, replacing compound feed. The annual sustainability gains are:



36 hectares of land stays available for food production

231 tonnes CO<sub>2</sub>-emissions avoided





## Our people

Motivated and engaged employees are key to achieving our ambitions in creating value by closing loops in the agri-food system. In 2020 Duynie Group employed 390 people (372 FTE), up 16% compared to 2019 when 335 people (323 FTE) worked for us. This increase reflects both our organic growth and our growth by acquisition.

In 2020 the crisis due to covid-19 confirmed the need to keep the food value chain going. This brought our employees even closer together, sharing our core values which are passionate, entrepreneurial, innovative and reliable.

## Our People

# A NEW FAMILY IN FRANCE

Last year Duynie Group gained a foothold in France by acquiring a local feed company based in the Alsace region in the Northeast. This region hosts many livestock farmers and is therefore a promising market.

The managing director of the acquired company - Olivier Guisnet - now leads Duynie Feed France. "We have joined an innovative family of businesses with who we share the entrepreneurial value as we are also specialised in maximising the value from co-products", he says. "This allows us to benefit from the European organisation of Duynie Group, sharing insights and opportunities, especially in France and in bordering regions in Germany and Belgium. For this we already organised several meetings with the sales teams in these countries."

### Integration during the pandemic

After the announcement of the acquisition in April 2020, the company was renamed as Duynie Feed France in October 2020. Integration into the Duynie Group happened against the backdrop of the pandemic. "This was surely challenging", Olivier says. "Our contact with our new family members was mostly online, which is not easy due to the difference in language. Due to covid-19 Dutch IT-managers had difficulties travelling to France, but now we are fully aligned with the Duynie Group domain and ready for the future. We share all values of Duynie Group. At Duynie Feed France we are passionate about growing our sustainable business by being a reliable partner for our suppliers and customers."

### New options for French farmers

Olivier recognises the innovative value of Duynie Group. He expects a lot of moist compound feed from co-products, which is an innovation in France. "It is unknown over here and will help our suppliers and customers reducing their environmental footprint. We can also expand the range of co-products we process. Besides brewers spent grains we can considerably increase the volume of potato steam peels, now we are part of Duynie Group." Olivier also refers to tools developed by Duynie Group that now become available to French farmers. "Special apps allowing these farmers to order products and find and share relevant information", he says. "As a new family member we know that we can offer many interesting new options to our suppliers and customers."



**Olivier Guisnet**  
Managing director  
Duynie Feed France



## Our operations

Next to the impact on our suppliers and customers we realise by directing the transition to a circular agrifood system, we are also keen on optimising our own internal processes. We continuously focus on reducing our environmental footprint by optimising the efficiency of our operations use and logistics.

## Our Operations

# PREDICTING THE UNPREDICTABLE

How to drive efficiency when the availability of co-products is essentially uncertain? Every day Cornel van Gelderen, manager logistics of Duynie Group, faces the challenge of predicting the unpredictable. Cornel's team uses state-of-the-art planning software, which optimises the sustainable logistics performance.

"Sustainable logistics is all about transporting cargo from A to B with optimised levels of speed, cost and emissions", Cornel says. In his view the sustainable business case is clear: less fuel, reduced cost and lower emissions. Duynie Group invested in an actionable digital infrastructure as the backbone of its sustainable logistics. "Our logistics is very dynamic and difficult to predict", Cornel says. "That's why we implemented in 2020 an Advanced Planning System (APS) which connects artificial intelligence to logistic planning by humans."

### Trust

APS runs on algorithms which predict both the demand for products and the availability of co-products. Its intelligent system optimises the flow between Duynie Group and its customers and suppliers. Cornel acknowledges that the human factor of trust is key in the process of combining artificial and human intelligence in logistic forecasting and planning. "Our planners need to learn to rely on new technology. That's why we initially introduced APS in one of our companies last year. When proven impactful we will roll it out to all our 13 companies across Europe in the years to come."

### Intermodal transport

APS runs on data and Duynie Group intends to also use the data from silo sensors it installs at its suppliers and customers. This yields a huge potential to further increase efficiency and service levels, and optimise logistics via predicting supply and demand. "This is anonymised data that we use confidentially", Cornel assures. "And there is more we do to reduce our logistic footprint. We develop a long-term strategy to use more sustainable and renewable sources of energy and fuel, and where possible we opt for transport via railroads or waterways instead of road transport. Intermodal transport which combines road transport with these other options may lead to somewhat longer lead times, but these are offset by the sustainability gains and increased efficiency as a result of better forecasting."



**Cornel van Gelderen**

Manager logistics  
of Duynie Group





  
A ROYAL COSUN COMPANY

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