



BarthHaas®



CULTIVATING THE FUTURE



FOCUS ON WHAT REALLY MATTERS



Sustainability Report 2020/21
BarthHaas Europe

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DEAR FRIENDS AND BUSINESS PARTNERS OF OUR COMPANY,

Since the publication of our last sustainability report five years ago, BarthHaas has undergone a fundamental change. With the change of our company name 225 years after the founding of the company from Joh. Barth & Sohn to BarthHaas, we wanted to demonstrate that we, as a traditional family-owned company, are also active as a group worldwide. With this sustainability report, we have the pleasure of informing you, as our most important partners, about both large and small steps with which our sustainability teams in Germany and the UK are preparing BarthHaas Europe for a sustainable, successful future with great verve and enthusiasm.

The most important milestone on this path, in addition to the complete rebuilding of our corporate headquarters in Nuremberg, the replacement of the extraction plant in England, and our large-scale company culture project, was the new construction of our hop extraction plant in St. Johann. This largest investment in the company's history laid the foundation for efficient and resource-saving processing and production of our hop products.

During the reporting period, we committed, both locally and internationally, to align our business practices and sustainability initiatives, and reporting our progress regularly. As part of our membership in the Bavarian Climate Pact, we have been reporting on our commitment to reducing our environmental impact since 2017. Since 2020, the BarthHaas Group of Companies – as a participant in the UN Global Compact – has committed to act responsibly in the global fight against inequality, climate change, and extreme poverty.

Based on a scientifically sound data collection of our greenhouse gas emissions, we have set a clear signal to position our goals with those of the Paris Climate Agreement and the UN Global Compact. A concrete sustainability target



Stephan Barth, Alex Barth & Regine Barth

has been set for BarthHaas Europe for the 2021/2022 fiscal year. We are committed to reducing our CO2 emissions by at least 30% by 2030. To achieve this goal, concrete interim targets have been set which must be implemented by all business units on a mandatory basis.

In order to lead our traditional family business into a secure and successful future, important measures have been taken. From 2022, there will be a supervisory board, in which, in addition to Stephan and Alexander Barth two external members of the Supervisory Board of entrepreneurial caliber will provide strategic support to the company. Stephan Barth will step down and hand over the management of the company. While the future successor for position is currently being sought, Ms. Regine Barth will continue the operative business as managing director.

As previously announced, the member companies of the BarthHaas Group will report for the first time in parallel on their activities in Europe, the USA, and Australia. In addition, the highlights will be summarized in a global BarthHaas Group report.

We thank you for your interest and look forward to a successful and sustainable cooperation.



WE FOCUS ON:

In order to make the things that are important to us visible we have underlaid them with our purple paper. For some, it's just purple paper – for us at BarthHaas it is much more: It's the foundation for the best taste and for inspiring results, emphasizing that we focus on the essentials:
Your best beer.



2.
**COMPANY
 PROFILE**
 SINCE 1794

Hops, innovation, and flavor are deeply rooted in our DNA. That is the reason we have been successfully shaping the hop market for more than 225 years. However, now is not time to be resting on our laurels, but rather to search enthusiastically for new possibilities and opportunities to innovate.





COMMITTED TO THE FUTURE

BarthHaas Germany is a modern family-owned company, which has been operating for over 225 years and employs over 100 people. BarthHaas UK in Paddock Wood is a daughter company with over 90 employees and specializes in advanced hop based bitter and aroma products. Also based in the UK are BarthHaas X, formerly SimplyHops, who take care of the European craft brewing customers.

No other company embodies hops and innovation like BarthHaas does. As visionaries, we generate and implement ideas that will shape the expertise of the future. Our story is one of passion and expert, providing a foundation that has allowed us to overcome challenges together with our stakeholders.

Over time we have developed from hop traders to service providers and experts in the world of hops. However, doing what we have always done is simply no longer enough to ensure our prosperity in the future. Climate change is a major threat to our success and therefore we are focusing our efforts on reducing our environmental impact now so future generations can have that same success. Our forward-thinking perspective pertains to agriculture, natural resource use, as well as to innovation in our products, and giving back to the communities that support us.

We want to integrate sustainability values along our entire value chain. To accomplish this, collaboration is vital with all of our customers, suppliers, and key stakeholders. We have worked side-by-side with our hop farming families for years to prepare for a future of uncertain climate conditions, as well as supporting varieties that ensure a stable supply to our customers. The prosperity of our company is secured through our ability to adapt and innovate in the market, and to our customer's needs. Our HOPS ACADEMY and Campus have allowed us to show our customers the full potential they can reach with our hops. With our BarthHaas Greenhouse creative think tank, our international team of hop experts are creating innovative new products so that our customers can create the best tasting beers.

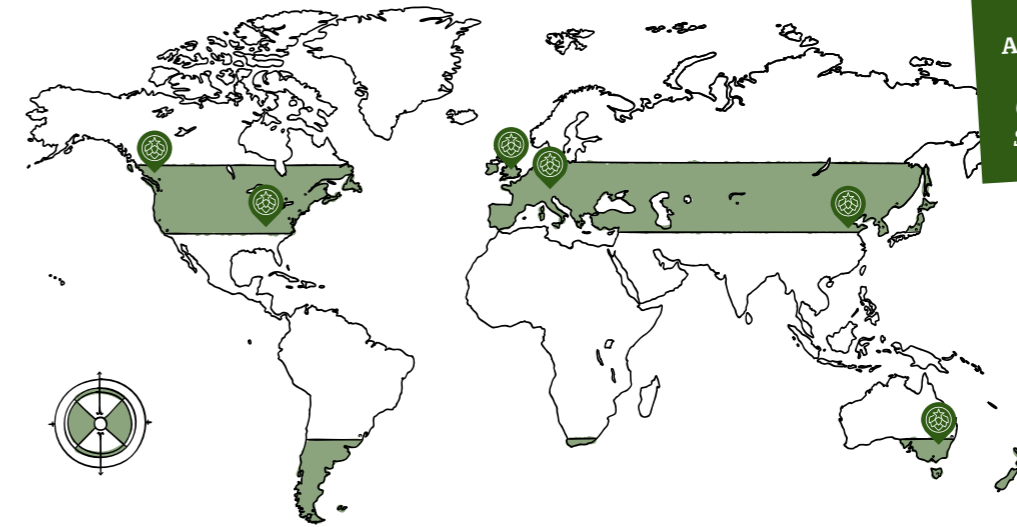
The health of our employees and surrounding communities is an essential aspect to our success, as we have so dramatically seen this past year. We realize our business activities should respect human values and support diversity and equality, which we have echoed by becoming a signatory of the UN Global Compact

We are confident that these initiatives will positively propel us in the right direction, to grow as a business and provide the highest quality, sustainably produced hop products for many generations to come!

IDENTITY

BarthHaas started from humble beginnings, and over 225 years later has grown to be the global leader in providing quality hops and hop products. As visionaries, instigators, and implementors of innovation, we have been shaping the market around this unique raw material for centuries.

We are passionate about our trade and the people that have made our company what it is today. This forms the foundation upon which we – together with you, our customers, growers, employees, and partners – can overcome any future challenges.



WANT TO LEARN MORE ABOUT THE MILESTONES IN OUR COMPANY'S HISTORY?
Click here to read about it in our last Sustainability Report from 2015/2016

www.barthhaas.com/sustainability_2015-2016



COMPANY MISSION

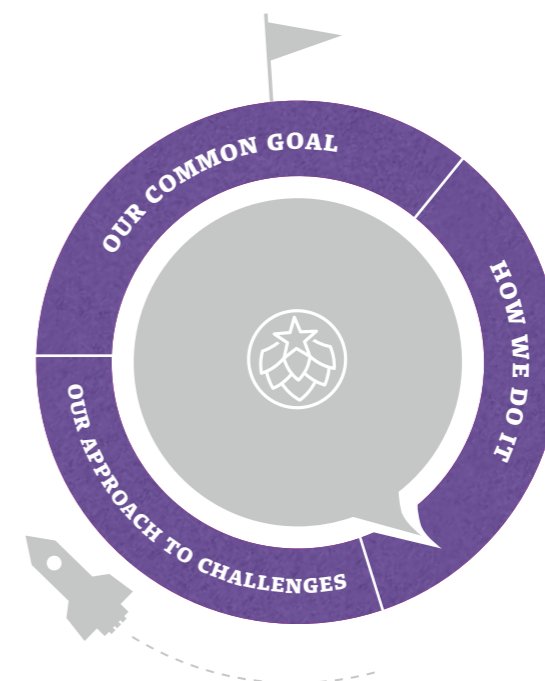
We are the experts of hops
for the best beer taste worldwide.

Shaping our change
in a solution-oriented way.

Our willingness
to act in a team-oriented manner

Using our knowledge
responsibly.

Living our values
in an appreciative manner



We combine advice that inspires with the most valued portfolio of hops for the success of our customers and our suppliers.





BARTHHAAS IS ACTIVE WORLDWIDE IN THE FIELDS OF:

Hops Cultivation
and Breeding

Hop
Processing

Marketing
of Hops and
Hop Products

Storage
and Transport
Logistics

Research and
Development
from A(lpha) to
Z(eta)

Informative
Seminars and
Lectures
from the
HOPS ACADEMY

PRODUCT PORTFOLIO

With the most extensive product portfolio in the industry and with highly efficient, quality-oriented processing facilities in all the main growing regions, BarthHaas is a reliable

partner for its customers and makes an important contribution to their security of supply and economic success.

CLASSIC PRODUCTS			AROMA & FLAVOR PRODUCTS			BITTERING PRODUCTS		BREWING AIDS
Raw Hops	Pellets	Extracts	Advanced Flavor	Hop Flavor Evolution	Hop Flavor Revolution	Classic Bittering	Advanced Bittering	HopAid®
Bales	Pellets Type 90	CO ₂ Hop Extract	Aromahop® OE	Inspiring Blends	INCOGNITO®	Isomerized Pellets	Isohop®	Antifoam
Vacuum Packs	Pellets Type 45	Oil reduced Extract	PHA® Classics	BBC Pure Hop Pellet®	SPECTRUM	Isomerized Kettle Extract (IKE)	Redihop®	
		Oil enriched Extract	PHA® Varietals	LUPOMAX®		FLEX®	Hexahop® 95	
			PHA® Topnotes				Hexahop Gold®	
			Natural Additions				Tetrahop Gold®	

STAKEHOLDER DIALOGUE

As a long-established market player, we need to stay close to the industry. We therefore maintain an ongoing and extensive dialogue with all of our stakeholders.

We integrate feedback from our numerous communication channels into our internal sustainability discussion in order to develop a relevant strategy. In particular, we support the technical-scientific dialogue in the hop world through a variety of publications in order for our stakeholders to stay up to date.

MEDIA AND EVENTS

- Hop Science Newsletter
- Hop Market Report
- BarthHaas Info
- Hop Update
- Grower Portal
- Customer Portal
- Hopinars
- BarthHaas Campus

FEEDBACK SYSTEMS

- Customer Satisfaction Survey
- Feedback for our events - online tools/paper form

SOCIAL MEDIA

Stay in touch and follow us on social media!



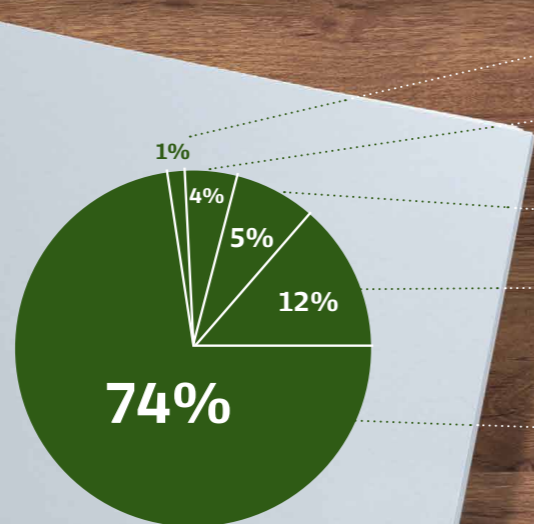
FINANCIAL OVERVIEW

Economic Performance

2014/2015



2019/2020



Public authorities, contributions, sponsoring, donations

Employees

Banks and other lenders of capital

other suppliers

Hop Growers



OUR STAKEHOLDERS

- Customers
- Banks (Lenders)
- Insurance Providers
- Management
- Owners
- Suppliers
- Local Service Providers
- Hop Growers
- Employees
- Hop Industry Institutions
- Future Generations

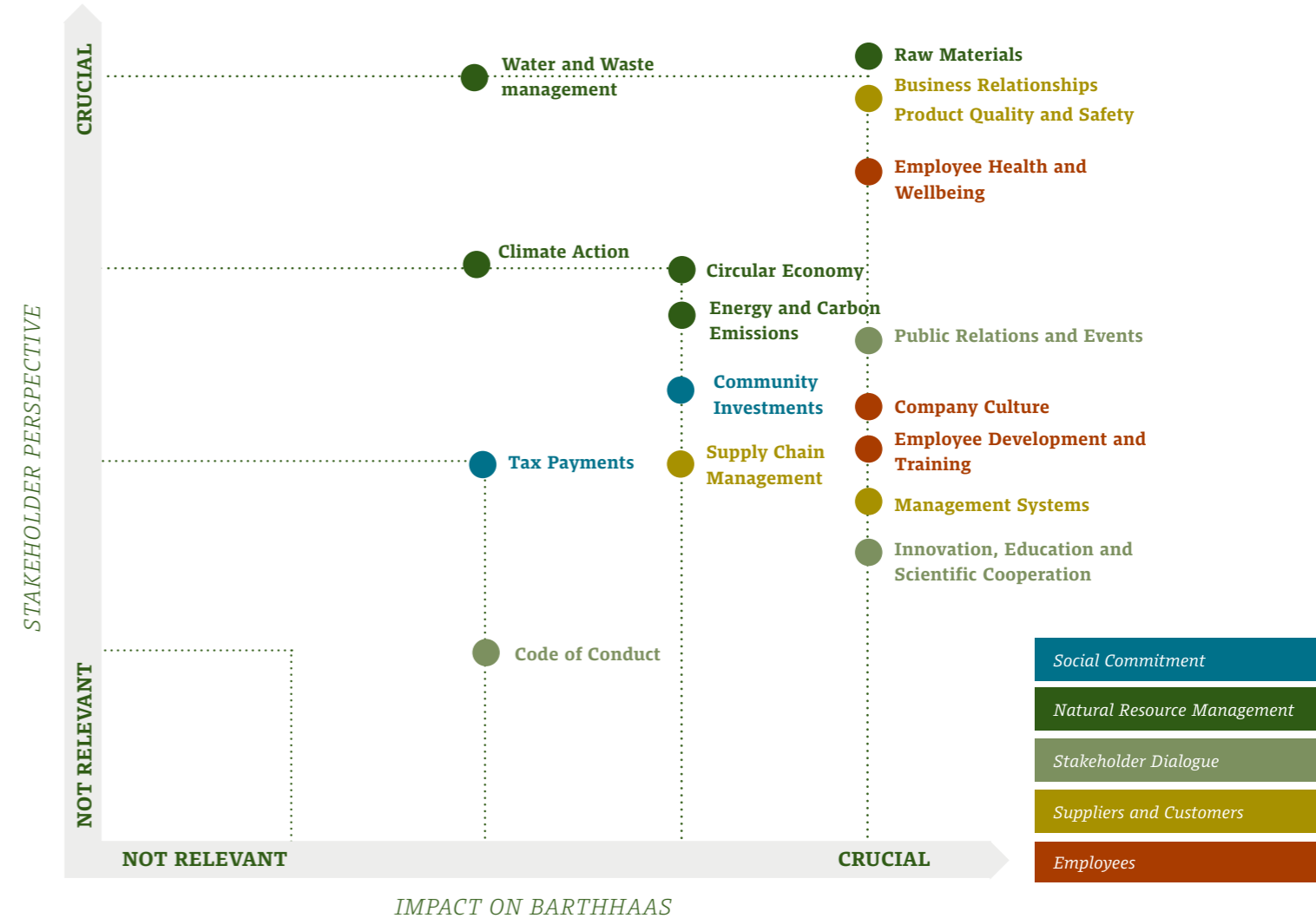


- Research Institutes
- The Arts
- Public & Media
- Citizens' Initiatives
- Municipal Administration
- The State

MATERIALITY MATRIX

Our stakeholders play a key role in the long-term economic success of our company. The most important stakeholders for us are our employees, our hop suppliers and our brewery customers. Associations, the authorities and the scientific community can also justifiably be considered our stakeholders. We have used these long-established relationships, characterized by exchange of experiences, to identify those sustainability areas that are material to our business and other activities.

All available details of stakeholder dialogues have been analysed during the regular meetings of our sustainability team. As part of this process, we were able to assess the areas identified as material in terms of their relevance, from the point of view of the stakeholders and of BarthHaas. The following materiality matrix provides an overview of these areas. The topics for this report were selected on this basis:



PEOPLE

- Employee Health and Wellbeing
- Community investments

PLANET

- Energy and Carbon Emissions
- Water and Waste Management

PROSPERITY

- Business Relationships
- Supply Chain Management
- Product Quality and Safety



3.
**SUSTAINABILITY
STRATEGY
AND MANAGEMENT**



PLAN & MONITOR

As a family-run company in the 7th & 8th generations, we naturally have our astute business policies and integrated approach to managing topics around sustainability throughout the entire company, integrated into department.





MESSAGE FROM HEAD OF SUSTAINABILITY

A company that has been successfully managed by the same family of entrepreneurs since 1794 must have always worked sustainably and done many things right.

To ensure that this remains the case in the future, the BarthHaas sustainability team has been working intensively for 10 years on future topics in the field of resource-saving business practices, considering our effect on the environment and society. The first three sustainability reports have provided a good basis for structures and strategies in all divisions of BarthHaas Germany. In the present report, we have succeeded in presenting, among other important things, the

first detailed inventory of all emissions caused by our business activities in Germany and the United Kingdom. This provides the basis for an ambitious reduction target of 30% of the greenhouse gases we generate by 2030. Together with our teams at BarthHaas Germany and BarthHaas UK, I am looking forward to taking the next steps on our exciting journey to support the sustainable development goals as part of our participation in the UN Global Compact network.

On a very personal note, I am looking forward to starting in the fall with the first e-vehicle in the company's history, and I am convinced that many more will follow!

Dr. Reinhold Kugel

The Sustainability Team is responsible for the efficient implementation of our sustainability strategy in all parts of the company.

MANAGEMENT

The management of BarthHaas carries the overall responsibility for the sustainability policy and directs the business policy to the requirements of sustainable and socially responsible business practices.

SUSTAINABILITY OFFICER IN "THE MANAGEMENT BOARD" (S-L)

The sustainability officer leads the sustainability team and is responsible for initiating, implementing and monitoring sustainability goals and projects.

SUSTAINABILITY OFFICER (S-B)

For each operational area, there is a sustainability officer (S-B) on the team who is responsible for implementing the projects and measures in the respective area.

SUSTAINABILITY TEAM

The sustainability team as the central decision-making body steers the global implementation of the BarthHaas sustainability strategy and coordinates the activities in the operating divisions and the sustainability teams of the BarthHaas Group companies in the USA and Australia.

SUSTAINABILITY MANAGEMENT BARTHHAAS UK

The sustainability management at BarthHaas UK follows the same principles as at BarthHaas Germany. The responsibility for the sustainability strategy lies with the Operations Director. The sustainability team under the leadership of the Health, Safety and Environment Officer is composed of representatives from all areas of the company.

OUR TEAM
Hand in hand for sustainability



DR. REINHOLD KUGEL
Sustainability/Product Safety/QM



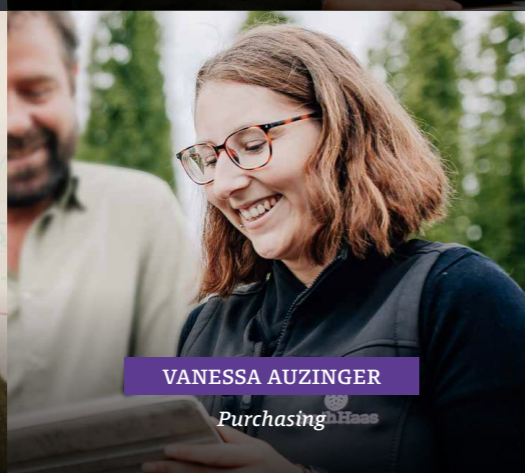
PETER HINTERMEIER
Management Board/Purchasing



DR. ELISABETH WIESEN
Brewing Solutions/QM/Sustainability



CARRIE LOGAN
Sustainability



VANESSA AUZINGER
Purchasing



ADOLFO SCHOTT-STEINBERG
Sales



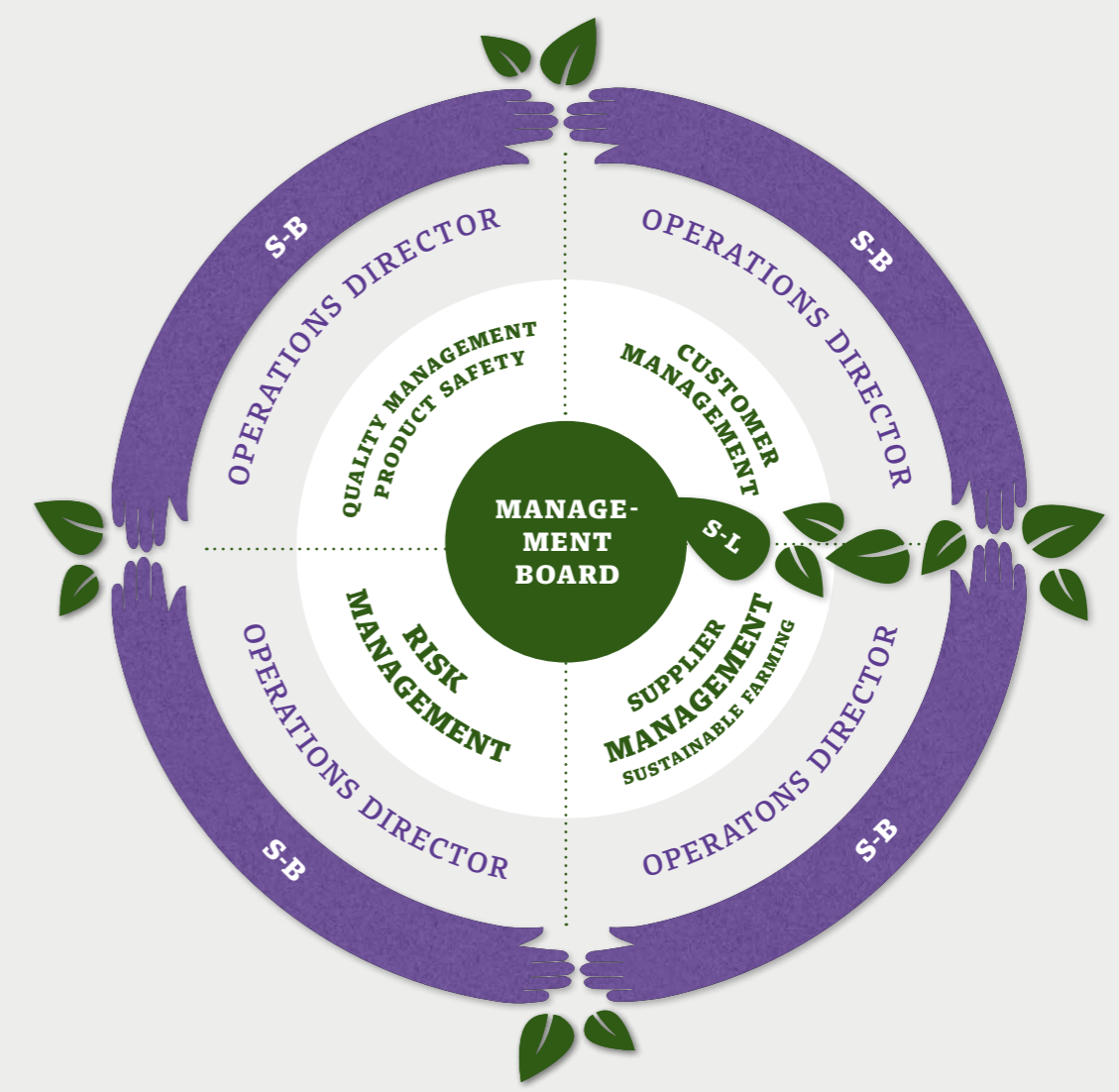
KAY ANDREASEN
Controlling/HR



DOMINIC HOFMANN
Supply Chain Management



JENS NIEHAUS
Customer Support





STRATEGY

For us, sustainability means realizing our economic goals under conditions of environmental and social compatibility. We are convinced that sustainable management leads to a long-term increase in the value of our company. Instead of growth at any price, we strive for sustainable, qualitative growth – also for future generations.

We want to offer „added value“ to our stakeholders. In doing so, we focus on quality, innovation and consulting while providing the best price-performance ratio for both our customers and our suppliers. We are also aware of our role as part of a community and support their concerns where we can. We take environmental aspects into account in all areas and our primary goal is to reduce our ecological footprint wherever possible in everything we do.

As the world’s leading hop provider, we see our task from a sustainability perspective as taking responsibility along the entire value chain: from the cultivation of the hops, through their further processing and storage, to their worldwide distribution to our customers.

The continuous improvement of our processes and structures while reducing resource consumption and environmental impact is the central motivation of our sustainability efforts. Since its existence, BarthHaas has repeatedly succeeded in making recognized contributions to the further development of both the hop and brewing industries through product and process improvements along the entire value chain.

Our Strategy is based on long-standing sustainability principles – taking care of people, our planet, and our ability to stay prosperous in the future.

PEOPLE

Our business could not exist without our employees and the society we operate in. Therefore, fair treatment of our team, promotion of good health and wellness, as well as supporting our local communities are all key components of our sustainability strategy.



PLANET

We only have one planet, with limited resources. Given our products come directly from the land we live on, we strive to reduce our impact on the planet and use our natural resources responsibly.



PROSPERITY

To be sustainable we must be profitable. We have survived over 225 years in the hop trading business and want to maintain this momentum through risk management and proper governance.



UN GLOBAL COMPACT

The BarthHaas Group became a proud signatory to the UN Global Compact in 2020. As a signatory we pledge to act responsibly as a company in the global fight against inequality, climate change, and extreme poverty. Many of these issues take global solidarity to overcome, and with our contribution to the UNGC we commit to operating in as sustainable a way as possible for the greater good. The following Sustainable Development Goals have been addressed through our recent practices included in this report.

POTENTIAL RISKS & RELATED ACTIVITIES



COVID-19 MITIGATION ACTIVITIES

The early exchange with our colleagues in the companies of the BarthHaas Group worldwide enabled us to identify the risks comparatively early, and to announce the first preventative actions to be taken here in Europe in March 2020 already.

barthhaas.com/covid-19-dashboard



Protecting employees & their families

Maintaining our supply performance capability

PRACTICING SELF CARE!

BarthHaas UK

BarthHaas UK executed its Business Pandemic Preparedness and Response Plan to protect the health of employees and all other persons whilst maintaining business operations and minimizing adverse effects on other entities in our supply chains. We acted in accordance with the guidance issued by UK Government and local authorities, introduced flexible policies, worksites and workhours to reduce

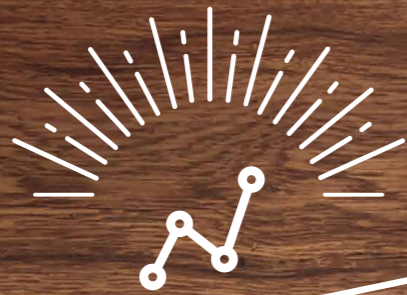
risks and accommodate employees' needs, provided instruction, information, protective equipment, sanitizers and disinfectants, and communicated frequently with employees and other stakeholders on our arrangements. Editions of our "Connect" newsletter were regularly published to maintain contact with all employees and support their wellbeing.

DATA PROTECTION AND IT SECURITY

All areas of our company are dependent on functioning IT systems and correct data. The protection of this information and data against loss and unauthorized access is therefore not only the task of IT, but of each individual employee of BarthHaas.

We comply with the legal requirements of German and UK data protection law and are audited annually in Germany by an external data protection officer. In addition, all necessary protection measures are implemented promptly and new employees are trained on these initiatives through online training. Mobile working, especially this year, has become a matter of great importance for us; rules of conduct for mobile working have been agreed upon.

In addition to our internal data, one of our main concerns is the security of the data entrusted to us by our hop suppliers and customers.



4.

PROSPERITY OF OUR VALUE CHAIN



PROSPERITY & SUSTAINABILITY



For several years the immense influence of climate change has been observable in hop cultivation worldwide. Increased disease and pest pressure, declining yields, and alpha supplies are the results. In addition, there is increased public interest in growers' management systems and rising political pressure regulating crop protection and fertilization. Since raw material procurement worldwide depends on hop growers' security of supply, BarthHaas is preparing for the effects of climate change and overall resilience in hop cultivation.

We believe hop cultivation should be done with foresight. This allows problems to be identified and avoided at an early stage. Soil health and fertility are increased and maintained through appropriate management measures, while balanced soil nutrition reduces the amount of fertilizer needed and increases plant health. Regular and mandatory crop monitoring allows for alternative disease and pest control.

The hop cultivation of the future will have marketable varieties with high heat and drought tolerance. They will also be highly resistant to diseases and pests. The concept of quality will inevitably change as external appearances steadily lose importance, plus the environmental impact of products will be considered more when determining quality standards.

From this perspective, German hop cultivation will be presented with additional opportunities we will want to take advantage of. With a new quality concept, we will be able to market our hops as environmentally friendly and (almost) as residue free as possible.



OUR SUPPLY CHAIN

From garden to glass



1. GROWERS

Our growers supply BarthHaas with the best hops so you can make the best beers.

2. PURCHASING

Our purchasers are there to support growers with industry knowledge and advice.

3. PROCESSING

Cold storage, rapid processing, modern equipment and well-founded expertise guarantee the best quality.

4. SALES

With drive, diligence, flexibility and good communication our BarthHaas salesmen stand by our customers.

5. CUSTOMERS

To be the value proposition leader in the industry, we offer our customers the best price/performance ratio. This is about much more than just delivering first-class hops.

6. THINK TANK

With our competent consultancy in the BarthHaas Campus, our Concept Brewery, and the HOPS ACADEMY, we offer our customers a large platform to realize their ideas and stay up to date on all things hops.

PURCHASING PHILOSOPHY

Trustful cooperation in the long term

Our purchasing philosophy is based on building trust, partnerships, and a long-term approach to working with our growers. We consciously invest in building a strong relationship with our key suppliers. We aspire to be a long-term partner for them rather than a short-term buyer. After all, only long-term cooperation allows us to set common goals for both sides and to achieve them together. This is not only about individual advantages for both parties, but primarily about sustainability and the joint further development of the industry.

Organic Hops

As a permanent and specialty crop, hops are extremely difficult to produce in organic management. Nevertheless, there are ten hop growers in Germany who have taken on this challenge and are successfully producing organic hops.

We partnered with Naturland in 2020 and were able to meet the demanding standards for Naturland certification right from the start. As a result, we will now also be marketing organic hops under the Naturland label from 2021!



BarthHaas Grower Learning System

Our learning system for growers is a management concept that emphasizes how our hop growers are vital for the performance and innovation capability of the entire supply chain. The aim of this concept is to create an even closer bond with our growers, to further develop their potential and competence, and also to attract new growers to our company. Other objectives include a better exchange of information on technical issues and more efficient processes to increase our ability to ebb and flow with the market. The goal is for our growers to be moving in a positive direction through our learning system to eventually achieve the level 'Top Supplier'. The BarthHaas grower learning system thus refers to the systematic development, maintenance and controlling of our business relationships.

Following the systematic categorization and assessment of the suppliers, measures for the development of the growers in terms of sustainability are jointly defined and discussed. The hop growers recognize the added value of sustainable growth, both financially and for the long-term health of their farm.



Supplier Development & Retention

In order to live up to our principle of better information exchange and more efficient processes, our purchasing employees undergo continuous training. Advising hop growers encompasses many sub-categories in which all our purchasers have sound technical knowledge.

However, it is also important to us that our suppliers continue their own training on relevant topics relating to hop cultivation. Our **HOPS ACADEMY** is a valuable training tool for this purpose, and has been well received to date.





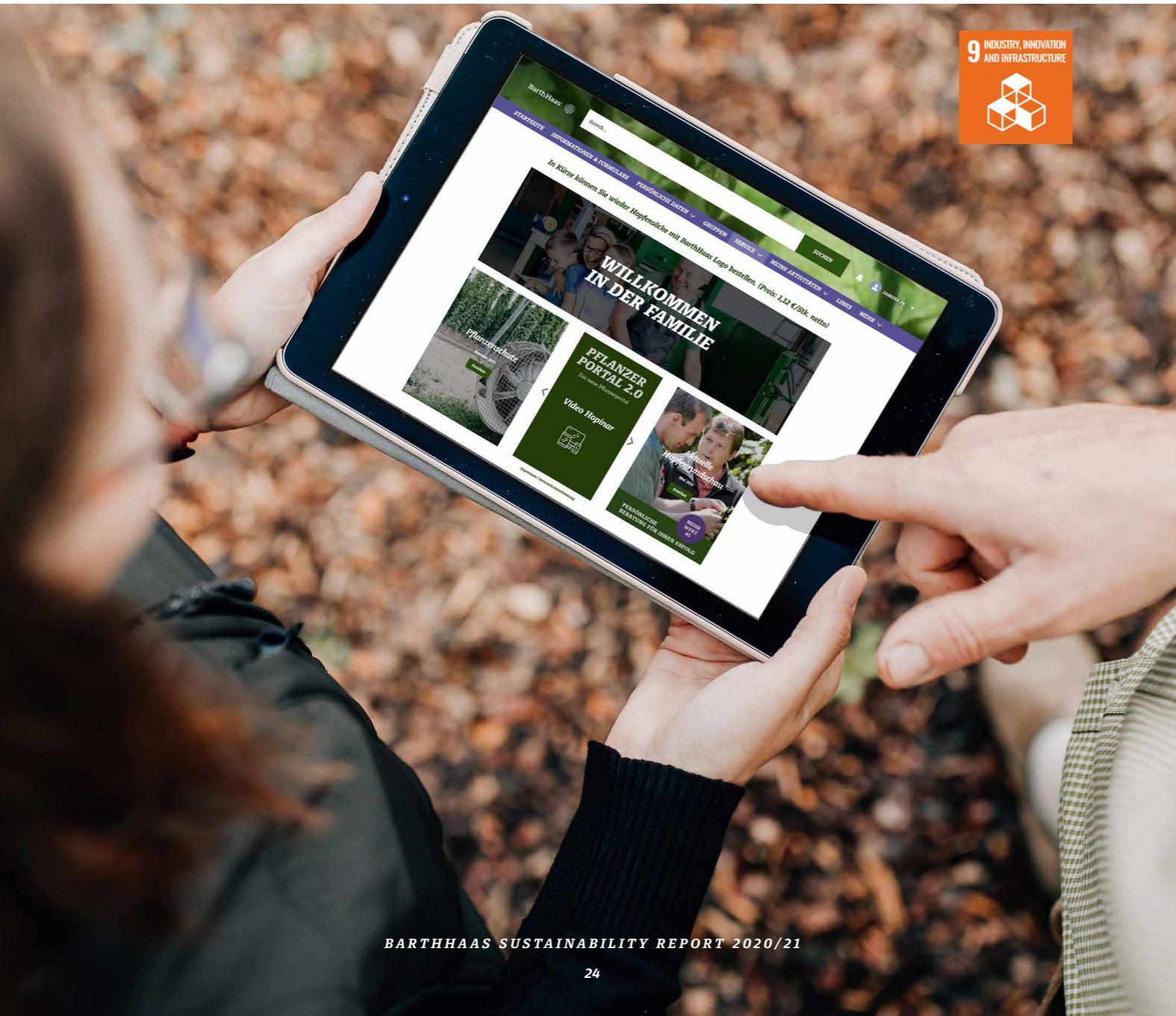
Grower Portal 2.0 and GrowerApp

Our new BarthHaas Grower Portal has taken a huge step forward in its development and has been redesigned from the ground up.

The advantages of the new grower portal at a glance:

- ✔ Improved digital collaboration
- ✔ Simplified workflows and processes
- ✔ Close collaboration with the BarthHaas team
- ✔ Access to the most important information and data at all times

The new BarthHaas grower portal can be accessed at pflanzportal.barthhaas.de and will be continuously expanded and improved moving into the future. The grower portal is not only available as a web application for PC, but also as a smartphone app. For Android and iOS devices, the „PflanzerApp“ is available for free download in the respective app stores. The app includes the same functions as the grower’s portal on a desktop, which means that everyone always has their profile and the most important information and contacts relating to the hop business in their pocket, whether in the hop fields or in the comfort of their home office.



Adaptation of Hop Production to Climate Change

Hops have a very high water-demand, especially in the summer months. As precipitation intensity increasingly varies over time, irrigation of the cultivated area would be a future solution. However, this is not a long-term fix and will not cover 100% of the crop areas. We are involved in developing both a water-use concept and soil rejuvenation project involving perennial seed mixtures and greening between the hop rows. Both projects are currently at the trial phase. The goal of our new water use concept is to utilize local precipitation by retaining and storing water in the field and, in addition, collecting surface runoff in basins and returning it to the hop yards via targeted irrigation. This would also result in indirect flood protection for lower lying communities. The water could be used directly at the point of precipitation and would not need to return to the growing area via detours (discharge via rivers, evaporation and renewed precipitation).

Last but not least, the project could have a great impact on soil conservation and the preservation of the cultivated landscape, leading to a more positive perception of hop cultivation among the population. For more efficient water use, regardless of where the water comes from (irrigation or precipitation), it is important to improve and stabilize the soil structure. This is achieved primarily through perennial crops and reduced tillage. We have created a special seeding mixture for the greening between the hop rows. The plants in the greening are given sufficient time to root the soil deeply and thus increase soil fertility.



Soil analysis and evaluation of the soil improvement and regeneration over many years of intercropping trials. The trials were conducted by the purchasing team with support from an external consultant.



BIO-twine

In the 2020 cultivation year, we subjected the BIO-twine cord to an extensive field test. BIO-twine is a biodegradable string that degrades without residue under industrial composting conditions (65°C for 8 weeks).

BIO-twine can certainly be an alternative to conventional plastic cord in hops; in German hop cultivation, however, mainly wire is used, which cannot be replaced 1:1 and without compromise by biotwine. In the future it would be conceivable to manufacture the attachment of the "cord wires" from this new type of material.

The Hop Crew

When the first COVID-19 lockdowns took place in spring it made it nearly impossible for seasonal workers to enter Germany and work on the hop farms. This was a huge setback for farmers and caused a lot of concern about the survival of their farms.

Through the Hop Crew initiative, we were able to support around 30 growers and their families in the Hallertau and Tettngang areas. This was made possible by almost the 400 volunteers who registered for the hop crew. Among them were numerous students and people from various professions, such as florists, professional musicians, and teachers. Other strongly represented groups were employees from the hospitality and brewing industry, who we work very closely with BarthHaas. The Radeberger Group sent a particularly large number of supporters, allowing their trainees to better understand hop growing.

Members of the hop crew came from all different walks of life to work together on the farms. We appreciate their hard work and believe it will certainly lead to further appreciation of every beer in the future! Our hop growers are also very happy with the support from the community.



GOALS

for the next years.

- Continue our trials with growers in the areas of regenerative agriculture and soil health
- Improve the methodology for measuring and collecting data related to sustainability in hop growing
- Develop new and innovative ideas for sustainable supplier loyalty
- Actively support the further development of the "Sustainability in German Hop Growing" system

PRODUCTS & CUSTOMERS

CUSTOMER SUPPORT SYSTEM



INNOVATION

- SPECTRUM
- LUPOMAX®
- Beer with Sorghum
- Cassava Beer
- The Greenhouse



EDUCATION

- Common Aroma Descriptions
- New HOPS ACADEMY Courses
- BarthHaas Campus



PARTNERSHIPS

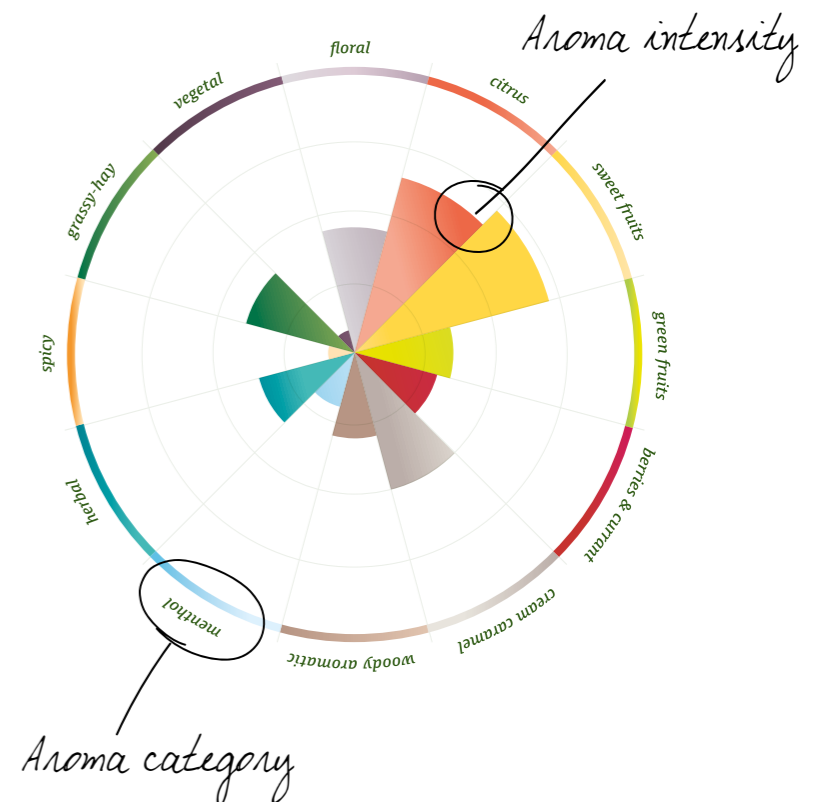
- ASBC
- Brewers Exchange
- Universities and Institutes
- Brauerbund

EDUCATION

Flavor description for all hop varieties

Since 2011 we have been working on a flavor description "directory" for all hop varieties to give brewers an all-encompassing beer sensory tool. Over the years we have made a lot of progress and over 125 varieties have been described in detail in the "Hop Aroma Compendium" (3 volumes). The Hop Harvest Guide is published annually to show the changes in the hop aroma from year to year. The aroma scheme has been agreed and implemented with our colleagues from the USA, Australia, and China to establish a scheme that is as globally valid and as comprehensible as possible. In addition, we offer Hop Aroma Workshops within our HOPS ACADEMY and training to ensure everyone can access this tool and educate themselves for improved brewing!

www.barthhaas.com/hop-navigator





HOPS ACADEMY Courses

2011 was not only the genesis of our Hop Flavor Directory but also the beginning of the HOPS ACADEMY. The founding of the **BARTH-HAAS HOPS ACADEMY** was aimed at creating a better understanding of the complexity of hops and their full potential. Detailed knowledge of the hop itself enables brewers to optimize process efficiency and develop unique quality beers.

We have established seven different modules over the years. The content of the modules covers everything related to hops: planting, cultivation and harvesting, processing, use in the brewery, breeding, analytics, commercial aspects, and the topic of sustainability. The most important module, Sensory, included many different course formats:

Hop Flavourist Course, Flavour Impact, or Hop Boniteur, where the central theme is our tasting language „HOP-SESSED“. In addition to the one-on-one training, we have

offered webinars since 2019, a 5-part series on Dry Hopping, a series on Kettle Hopping and Whirlpool Hopping. Since the beginning of the COVID-19 pandemic, we have offered more comprehensive digital course. Whether it's courses on recipes, guided tastings, sensory, harvest, market situation – our digital campus offers a comprehensive continuing education portfolio for brewers, beer sommeliers & hoplovers worldwide.

In the 10 years since our HOPS ACADEMY was founded, we have already educated and trained over 6,000 customers in the field of hops! Additionally, since the COVID-19 pandemic started last year, almost 3,500 participants have taken part in our various digital course formats. With our global company network, we can offer our courses worldwide with over 20 BarthHaas internal specialists.



From left: Sylvia Kopp (HOPS ACADEMY Trainer), Dr. Christina Schönberger (Head of HOPS ACADEMY) and Susanne Hortolani (Eventmanagement BarthHaas Campus)

BarthHaas Campus

In 2019 our BarthHaas campus opened its doors in Nuremberg. The BarthHaas Campus offers our stakeholders a broad-based innovation center as a playground for brewing.

- Professional tasting rooms with integrated tasting software (Compusense)
- Seminar area
- Taproom

- Concept brewery equipped with all the refinements. From open fermentation with 4 fermentation tanks, to 12 ZKTs
- Hop Rocket (Kaspar Schulz) with integrated hop dosing system
- Barrel and bottle filling
- Beer analytics



PARTNERSHIPS

ASBC Research Council

The ASBC Research Council promotes and funds research topics in brewing science. The council is made up of representatives from 11 companies. From an average 40 appli-

cants a year, outstanding projects are chosen and receive a grant ranging between 5,000 and 30,000 USD. **BarthHaas contributes annually with a grant of 5,000 USD.**

SEDEX/EcoVadis

BarthHaas became a member of SEDEx and EcoVadis to give its customers maximum transparency in matters of corporate social responsibility and to improve the manage-

ment of our supply chain. The rating agency EcoVadis rated BarthHaas' sustainability performance as "silver" in 2020.

Brewers' Exchange

To promote collaboration between John I. Haas in the U.S. and our brewers in Europe, we started an exchange program for our brewers in 2019. Our head of Concept Brewery, Marius Hartmann, headed to the research brew-

ery of the Innovation Center in Yakima for 1 month, while two brewers from JIH came over to our facilities in Nuremberg and Wolnzach for 10 days the previous year.



Exchange BarthHaas Europe with JIH (Marius Hartmann and Virgil McDonald brewing together a green hop beer)

BarthHaas UK - Beer is here

BarthHaas X has partnered with malt suppliers, brewers and beer retailers and created a website (www.beerishere.org) to support independent beer through COVID-19 "lock-downs". There are hundreds of small independent suppliers of beer that face a challenge with bars, pubs and independent retailers closed.

This is a free service set up to support them through these difficult times. It has helped small craft brewers through these difficult times and we are happy to have been a part of it.

Many retailers have set up take-out and delivery services so consumers can still enjoy their beer.








INNOVATION

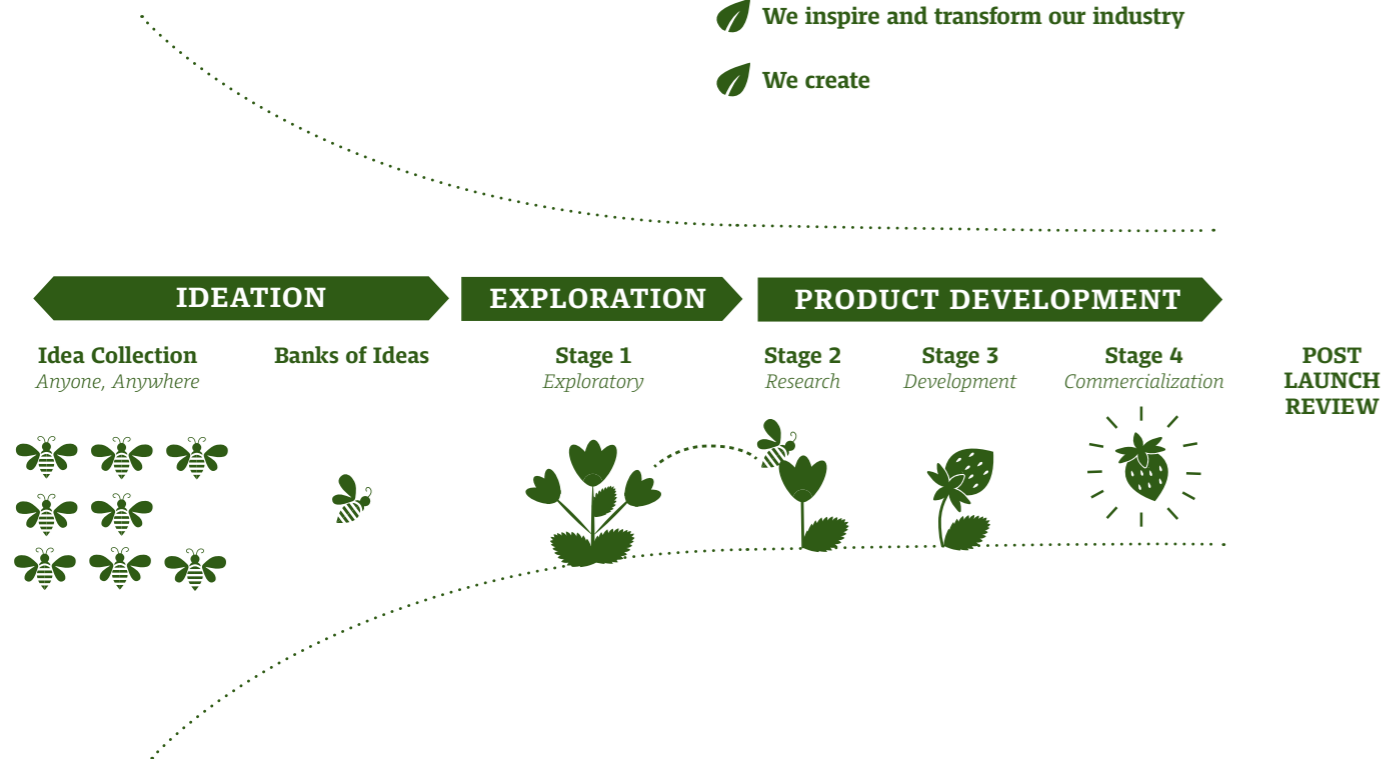
The Greenhouse

Innovation as a driver for sustainability

The core mission of the Greenhouse is to accelerate innovation by coordinating our resources on a global level. The Greenhouse is a joint venture between us, BarthHaas in Europe, and John I. Haas in the USA. Greenhouse members meet on a regular basis to discuss topics around innovation and product development. This includes how we can create products and processes that incorporate our sustainability principles.

This is reflected in the Greenhouse Mission:

-  **We boldly embrace all ideas and opportunities**
-  **We facilitate innovation through efficient collaboration**
-  **We drive rapid development of profitable products and processes**
-  **We serve global, culturally diverse and vibrant communities**
-  **We inspire and transform our industry**
-  **We create**



Cassava & Sorghum Beers

In 2017, BarthHaas presented a novel cassava beer at Drinktec, developed together with Novozymes. Cassava is very common in Africa and South America, among other places, and has a wide variety of applications. We were thrilled with the way the beer was received and dared to experiment again for BRAU 2018 – this time with sorghum.

Sustainability was a major driver inspiring these projects. We were looking for innovative solutions to address the issue of shipping beer and raw materials over long distances, which can be environmentally damaging.

We believe there is an opportunity to brew with materials offered locally and, if you have the necessary process knowledge and brewing expertise, you can brew a regional, sustainable, and above all good beer with modified raw materials.







QUALITY MANAGEMENT & PRODUCT SAFETY




SAFETY FIRST – THAT’S OUR GUARANTEE




We at BarthHaas like you brewers to concentrate on what you do best – creating first-class beers. To achieve this aim, our approach to quality assurance is uniquely comprehensive. We work with our growers to ensure that the hops and hop products you receive from us are of the highest quality. From the plant to the finished hop product we can guarantee complete traceability and quality. In order to improve our products and services in the long term, our processes are regularly reviewed.

For over 25 years our quality management system has been ISO 9001 certified. In addition, our processing plants are certified according to ISO 22001 and ISO 14001. All the hops we purchase are combined into blending samples according to precisely defined parameters and 100% analyzed for possible pesticide residues. Only after we receive the analysis results, are the hops then released for processing or marketing.



-  Early Warning System
-  Plant Protection Calendar
-  Pesticide Record
-  Complete Traceability

-  HACCP Concept
-  ISO 9001 and 22000 Standards
-  Certificates

-  Residue Analyses
-  Comprehensive Screening
-  100% Test Guarantee




5.
**ENVIRONMENTAL
RESOURCE
MANAGEMENT**



CARE & PROTECT

Concerns over climate change and the overall health of our natural environment have reached a tipping point. We depend heavily on natural resources to grow our hops and create our hop products and believe we have a responsibility to use these resources as efficiently and respectfully as possible

For us to set resource management goals, we first had to gather a reliable inventory of energy and material use data. Hence, this year we put a large emphasis on tracking our emissions from fossil fuel processes and calculating our carbon footprint, while at the same time also assessing other important environmental indicators, like waste and water usage. In addition to increasing our awareness of resource and energy use, we have also had some **large energy saving projects and investments** come to fruition in 2020 which will decrease our environmental footprint long-term and set us on the path to achieving our goals.





UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

In line with the 17 goals of Agenda 2030, we have defined our strategy for protecting our natural resources.

<p>CLIMATE PROTECTION</p> <p>We are determined to lower our carbon footprint and invest in projects that reflect this commitment. We have also joined the Climate Pact in Bavaria, where we pledge to improve our impact on the environment through improved GHG emission reporting and controlling</p>	<p>SUPPLY CHAIN</p> <p>We have begun to evaluate our Scope 3 emissions this year and in the coming years will continue to work with our suppliers to create an all-around more efficient, responsible, and fair supply chain.</p>	<p>HEALTHY SOIL</p> <p>We rely on the land to produce our hops and create our hop products. We work with farmers to regenerate soil health and prepare for future obstacles.</p>
<p>13 CLIMATE ACTION</p> 	<p>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</p> 	<p>15 LIFE ON LAND</p> 



We are always eager to support our growers in understanding the environmental effects of agriculture and how we can work together to farm for a sustainable, fruitful future.








MEASURE & COMPARE GHG EMISSIONS

We adopted the Greenhouse Gas Protocol (GHG) methodology for collecting and reporting our emissions, which is the current global standard for emissions accounting and reporting. The GHG process highlights transparency, accuracy, and consistency throughout the reporting of Scope 1, Scope 2, and Scope 3 emissions.




SCOPE 1

-  Stationary combustion from processing facilities
-  Office heating and cooling
-  Process emissions
-  Mobile emissions
-  Fugitive emissions






SCOPE 2

-  Purchased electricity for our production sites and offices



SCOPE 3

-  Purchased goods and services
-  Employee commuting
-  Business travel

KPIs AND INDICATORS

Our primary key performance indicator (KPI) for BarthHaas Germany is the total metric tonnes (Mt) CO₂ equivalent (CO₂e-emissions) per Mt of raw hops.

Emission data collection was conducted in cooperation with our production sites, energy suppliers, growers and other members along our supply chain. Data collection is a continuous process that is time and resource intensive.

After we had our raw data, we calculated emissions for all production sites in Germany and the UK, as well as aligning our inventory management systems across all group companies. Emission factors for fossil fuels were taken from regional government websites, as well as from the GHG Protocol website itself.

For BarthHaas UK and BarthHaas X, we use this measurement as well. However, we are currently establishing tracking systems that will allow us to determine energy intensity and emissions per product. In the future, we will focus on the reduction of total emissions, non-dependent on total production.

Additionally, we are encouraging our growers to track and reflect on their natural resource and energy usage. The Hopfenring and LfL have published a calculation tool which allows growers to see emissions and energy consumption averages from other farmers in the Hallertau. We have used this to estimate the emissions of hops purchased from our growers.



GREENHOUSE GAS EMISSIONS

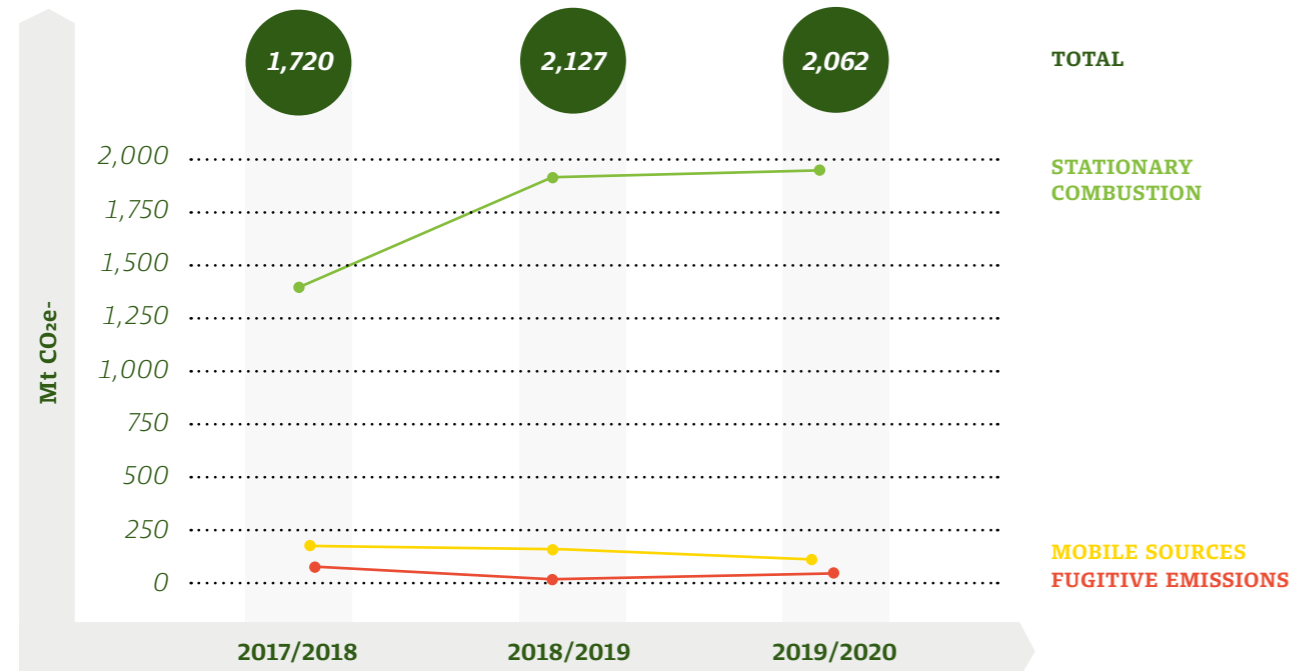
SCOPE 1 AND 2

SCOPE 1 EMISSIONS are greenhouse gas emissions that come directly from creating our hop products. This includes stationary combustion and mobile combustion sources, in addition to fugitive emissions from refrigerants and purchased gases.

SCOPE 2 EMISSIONS are indirect emissions that come from generation of electricity we use in our offices and facilities.

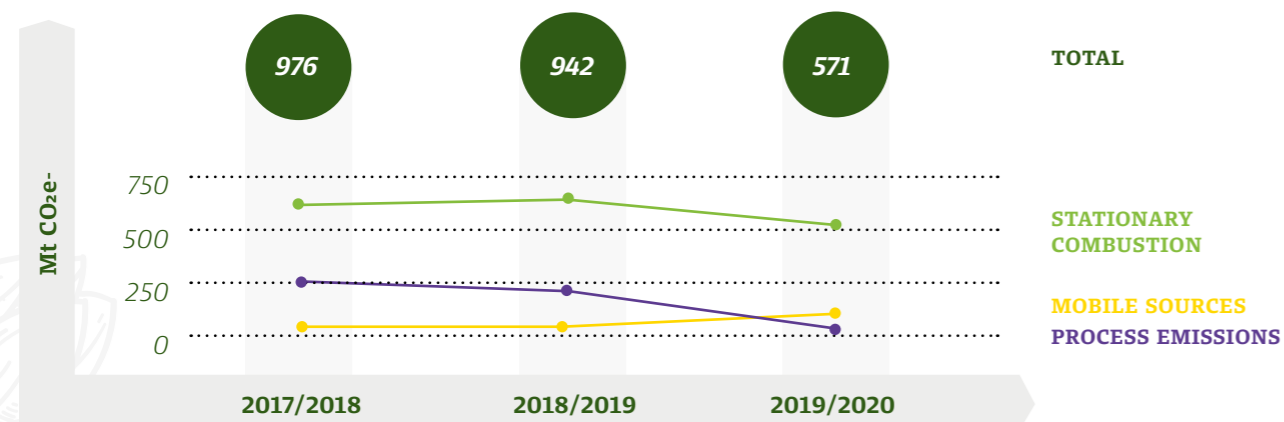
We have calculated the emissions from both our BarthHaas Germany processing plants and those in the UK. The emissions results are reported separately below:

BarthHaas Germany Scope 1 Emissions



The increase in total scope 1 emissions is due to the increase in the amount of hops processed between 2018-2020. The movement and renovation of the extraction plant also led to an above average use of energy resources.

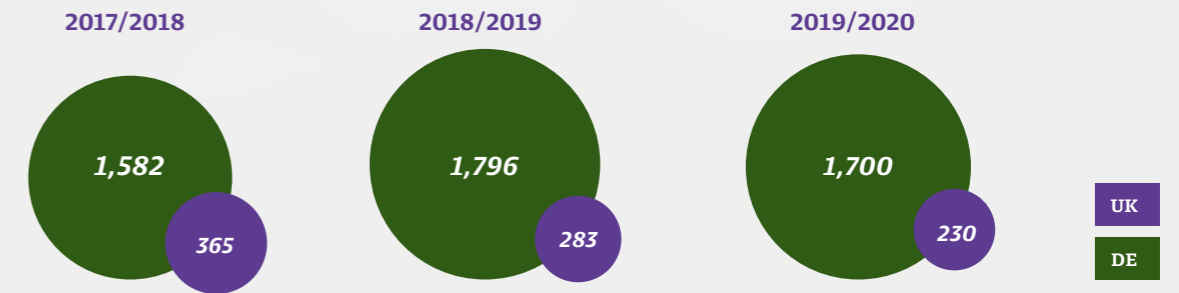
BarthHaas UK Scope 1 Emissions



The sizeable decrease in emissions is due to a) the decrease in the electricity emission factor for the UK in the past three years and b) the halt of Tetrahop production.

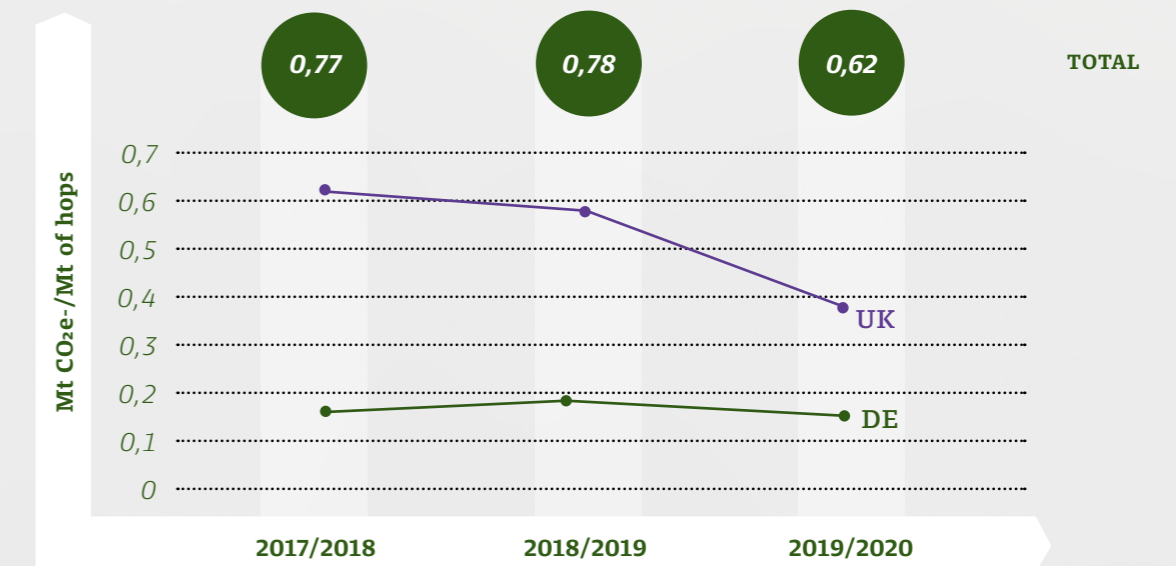
BarthHaas UK and BarthHaas Germany Scope 2 Emissions

Purchased Electricity



Scope 1 and Scope 2 GHG Emission Intensity

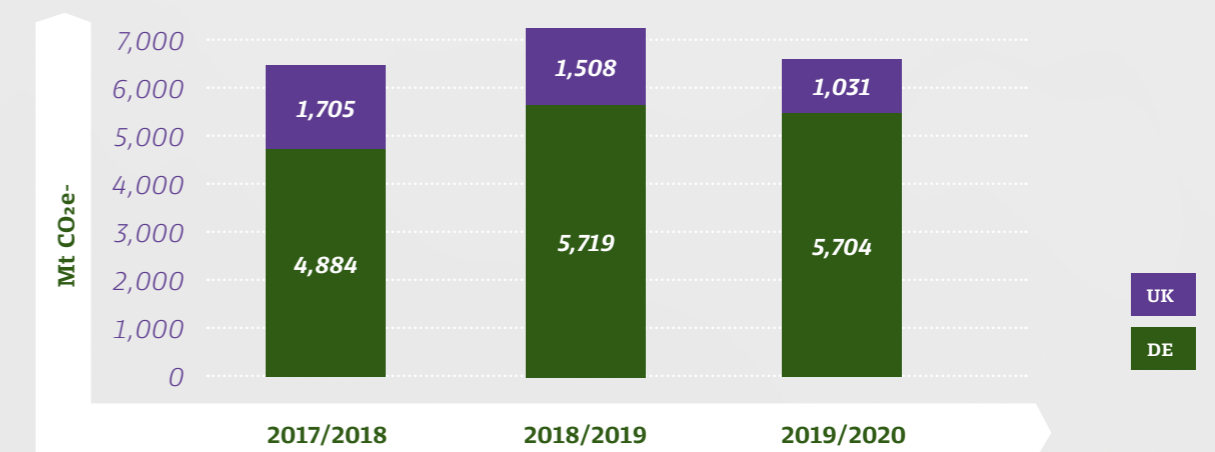
Mt CO₂e- per ton raw hops processed



The sizeable decrease in emissions is due to a) the decrease in the electricity emissions overtime and b) the halt of Tetrahop production.

Combined BarthHaas UK and BarthHaas Germany Emissions

Total Scope 1 & 2 GHG Emissions 2017-2020



SCOPE 3

SCOPE 3 INDIRECT EMISSIONS include all other emissions along the value chain, from the production of raw materials to emissions from use of final product and related wastes after use. Scope 3 emissions usually account for the majority of a company's total emissions. Collecting all emissions along the value chain is very time intensive and requires collaboration amongst suppliers and customers.

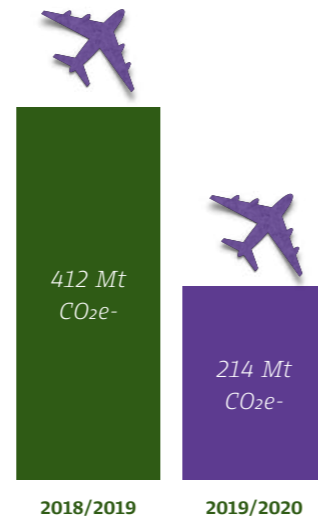
We have collected data on employee commuting, business travel, purchased goods & services, and fuel related activities.

We have put great efforts this year into gathering emissions data from our suppliers in the UK and Germany. While we are on our way to creating a comprehensive database of our suppliers, the journey is not yet complete.

In 2021 we plan to not only complete our scope 3 emissions inventory, but also engage with our suppliers to encourage responsible production and business practices. We believe it is our responsibility to hold one another accountable in order to encourage systematic change for the betterment of our planet and our communities.

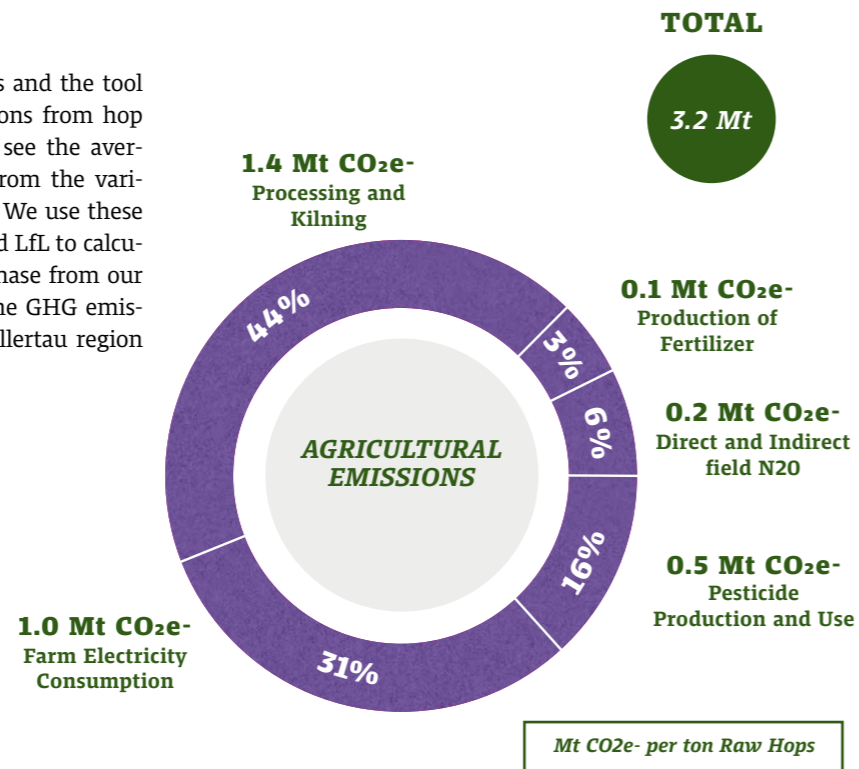
Emissions from Business Travel

One of the most obvious consequences from the COVID-19 pandemic was the immediate stop put to business travel, especially flying. After researching our emissions from flying, we found a very large, over **40%, DECREASE IN EMISSIONS FROM REDUCED BUSINESS TRAVEL.**



Emissions from Hop Cultivation

We have worked with our hop farmers and the tool from LfL in Germany to calculate emissions from hop cultivation. Farmers can use this tool to see the average greenhouse gas emissions emitted from the various processes involved in hop cultivation. We use these industry averages from the Hopfenring and LfL to calculate the carbon footprint of hops we purchase from our growers. This gives a rough estimate of the GHG emissions produced per Mt of hops in the Hallertau region of Germany.



(Source: <https://www.stmelf.boayem.de/idb/hopfen.html>)



ENERGY EFFICIENCY PROJECTS

In both Germany and in the UK we have been working on some big projects that aim to increase energy efficiencies and decrease our emissions and our impact on the environment.

The following projects have recently been completed and we should be able to see the effects on energy usage in the coming years.

1 LITER OF BEER = 0.25 kg CO₂e-

In order to put our energy savings into perspective for you, we have used liters of beers as a comparison measure!

(Source: Cimini, A. and M. Moresi. 2016. Carbon footprint of a pale lager packed in different formats: assessment and sensitivity analysis based on transparent data. Journal of Cleaner Production 112: 4196-4213)

Savings on Storage

In the past years we have been searching for ways to optimize storage of our rectangular bales. After discussions with our manufacturers many agreed that we could increase the size of the bales up to 70 kg. It quickly became clear that an increase in the weight of the individual bales was a simple but effective method of increasing savings on transport and storage space.

This year we investigated possibilities to decrease the amount of cooled storage space necessary for our pressed hop bales after harvest. We discovered that we could increase the amount of hops pressed into each bale by an average of 3.5%. This meant savings in transport emissions, cold storage costs, bale bags, and energy.

INCREASE IN BALE WEIGHT = STORAGE SPACE SAVING

14.28 km

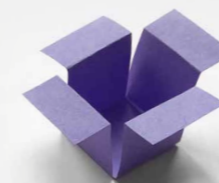


Ø DISTANCE GERMAN GROWERS TO ST. JOHANN PROCESSING PLANT

175 bales



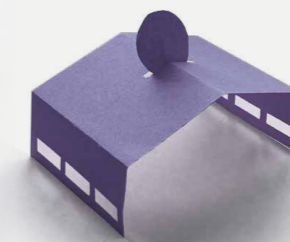
Ø TRUCK LOAD



PACKAGING COSTS
8,650 €
11 Mt CO₂e-



TRANSPORT COSTS
18,536 €
1 Mt CO₂e-



STORAGE COSTS
30,893 €
3 Mt CO₂e-

TOTAL
58,079 €
15 Mt CO₂e-



Pelletization Plant St. Johann

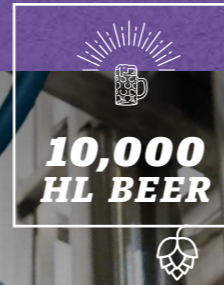
In 2015 we invested in a new hammer mill at our Wolnzach hop pelletization plant. The hammer mill crushes the dried hops to prepare them for pelletization. Usually the hops must be cooled before being crushed, which is energy intensive and costly. The new hammer mill is able to crush the hops without extreme cooling, reducing emissions by **205 Mt OF CO2 PER YEAR AND SAVING OVER 1,000 EUROS PER DAY IN ENERGY COSTS DURING THE SEASON.**



Hop Oil Extraction Plant

In 2019, BarthHaas UK made a major investment in a hop oil extraction plant to replace inefficient, and increasingly unsafe, 40-year old equipment. The principle of the extraction process, using carbon dioxide as the solvent, remains the same, but **THE NEW PLANT RECYCLES 90% OF THE CARBON DIOXIDE** it uses and is more controllable so that the process yields an oil rich extract which is more useful for further processing.

This eliminates some downstream processes that were needed to "clean-up" extract from the old plant.



- Saving 250 Mt CO₂e- per year
- Reducing risks of asphyxiation and fires
- Decreasing dust, noise exposure, and risk of falls from tall heights
- Improved ventilation
- Reducing energy needs for downstream processes

Automated warehouse lighting UK

In the UK we have replaced over 90% of our lighting throughout the site with LED fittings. This has halved the electricity used for lighting - **A SAVING OF 83,2 MWH PER YEAR.** The CO₂ equivalent of this saving is 18,7 Mt.

We are now working to further reduce the energy used for lighting by installing passive infra-red detector switching with timers where possible. We estimate that a further 15 MWh per year of electricity will be saved by these improvements.



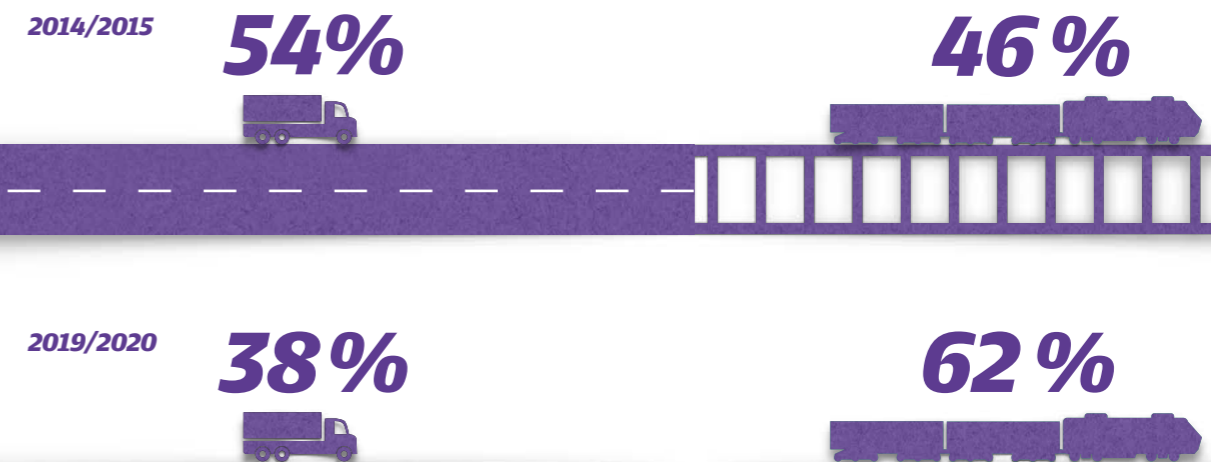
From Roads to Rail

In the interests of reducing CO₂ emissions, we are stepping up our efforts to bring as many containers as possible to the harbors **BY RAIL INSTEAD OF BY TRUCK.** Our success in these efforts is not entirely up to us and depends on factors that we cannot influence, primarily the time of shipment. Still, we have managed to reduce the share of truck transports from 64% in FY 2012/13 to 47% in 2015/16.

There was an increase again to 62% in the two following years.

In the last two FYs, however, our efforts were rewarded - in FY 2019/20, we delivered only 38% of containers to the ports by truck and 62% were transported by rail!

Percentage of shipping containers transported either by train or semi-truck:

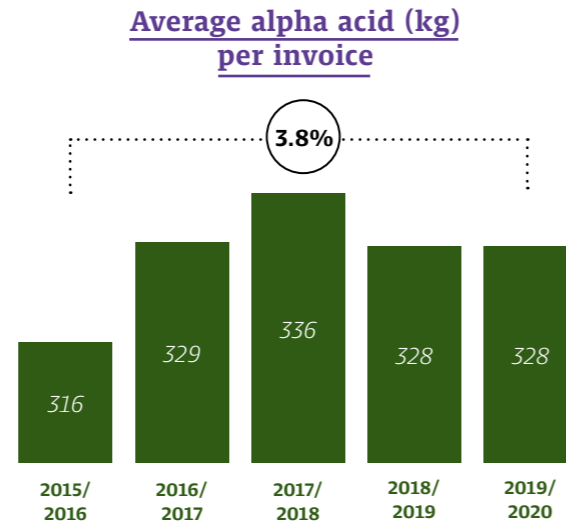




Just-in-Time Deliveries

Our aim is to reduce the number of partial call-offs by our customers as much as possible. Small, repeated, just-in-time deliveries are particularly harmful in terms of greenhouse gas emissions. To discourage this, we charge a fee for small call-offs from large orders.

The success of these efforts can be measured in "kg alpha acids per shipment" (i.e. kg alpha acids per invoice). This number has increased by almost 4 % over the past 5 fiscal years (2015/16 to 2019/20).



Updated Building Technology

This past year we made major updates to our central office building in Nuremberg. The renovations aimed to improve the overall energy efficiency of the building through improved climate control and lighting, while also improving the building aesthetics and working atmosphere. Through our renovations we both reduced our energy consumption (and costs)!

In our renovated building you can find:

- ✔ Complete retrofitting of the building with LED technology and motion detectors; almost 1.000 LED ceiling spots in the office area
- ✔ Roof solar panel installation with over 21 kWp capacity
- ✔ Automatic control of roller shutters to reduce heat and cold ingress
- ✔ LED daylight lamps with motion detectors
- ✔ Sound insulation hoods on the roof to reduce noise for the neighborhood
- ✔ Achievement of the Silver Standard of the German Sustainable Building Council (DGNB). The assessment has already been carried out; the issuance of the standard is still pending.



Energy analysis BarthHaas UK

A large proportion of the electricity for BarthHaas UK is consumed by the production plants. This includes the pelleting plant, the vaccum packer, stirrers, pumps, ventilation and air compressors. It is currently unclear how much electricity each plant consumes and whether energy is wasted by running ancillary equipment during production downtime. Therefore, BarthHaas has instigated a project to analyse the energy consumption of each plant.

Using these results, we want to:

- ✔ Identify possible energy savings
- ✔ Allocate more accurate production costs to products
- ✔ Align energy consumption with availability and reduce costs
- ✔ Support the design and construction of new production plants

WASTE AND WASTEWATER

CHEMICAL WASTE & WASTEWATER TREATMENT

In order to no longer be dependent on waste companies for chemical waste and reduce our costs, we have implemented systems to treat and dispose of these materials ourselves.

To improve the situation and reduce our costs, we have introduced systems to notify the creation of chemical wastes internally, characterise and label wastes accurately and consistently, and allocate storage locations. Where possible, wastes have been consolidated in order to present a smaller number of larger containers for disposal. In turn, these changes have led to better organisation of waste services, reducing the emissions from collection journeys, our overall costs of disposal and the risks of regulatory non-compliance.

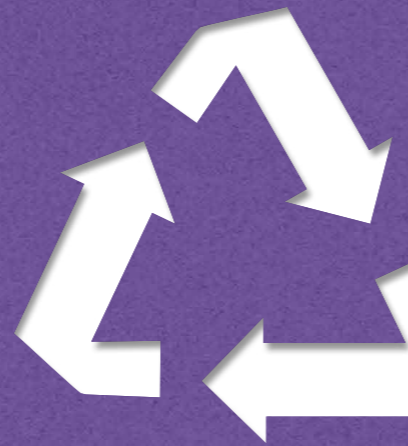
Acid Neutralisation Plant

BarthHaas UK operates manufacturing processes that generate acidic aqueous waste streams. The processes use sulphuric acid which dictates the use of glass or glass-lined vessels and pipework, and an acid neutralisation plant is used to treat the waste before it is discharged as trade effluent under a consent from a local water authority. We know that the processes can use phosphoric acid, and this gives the potential for the acid waste streams to be recycled as a source of phosphorus for fertiliser manufacture. The advantages are:

The advantages are:







- ✔ Reduced burden on the water authority's effluent treatment facilities - volumes of effluent will be lower (up to 500 metric tonnes per year) and effluent components that could be harmful to the aquatic environment (such as suspended organic solids) will be eliminated.
- ✔ Reduced resources required to neutralise waste streams prior to discharge - the requirement for sodium hydroxide (caustic) will be eliminated (up to 132 metric tonnes of caustic solution per year).
- ✔ Elimination of the neutralisation plant - avoiding on-going repair and replacement of equipment, and to operate without a neutralisation plant at a new "Centre of Excellence" facility.
- ✔ Ability to utilise less expensive and more easily maintained stainless steel vessels and pipework.

WASTE REDUCTION & CIRCULAR ECONOMY



BARTHHAAS UK WASTE DISPOSAL OPTIMIZATION

We have investigated the basic recycling of wastes, and have implemented the following cost-effective improvements:

-  Cardboard and paper is baled for recycling at a local corrugated board mill.
-  Spent and waste hops are consigned to a commercial composting facility.
-  Soft plastics (for example, stretch-wrap, clingfilm and woven polypropylene used to wrap hop bales) have been baled (separately) with a view to recycling.
-  Empty used intermediate bulk containers (IBCs) are consigned for recycling and BarthHaas UK paid for each IBC supplied in good condition
-  Local companies take excess pallets to reuse.
-  BarthHaas UK continue to segregate metal waste (for recycling) and wood waste (for recovery).

In the first quarter of 2021, BarthHaas UK installed a waste compactor for non-recyclable materials, including soft plastics. The weight and volume of a load for disposal will be increased over time, resulting fewer waste collection pick-ups.

The use of a compactor will also increase the efficiency of waste handling and reduce the risks of manual handling and other current inefficiencies.

PAPER CONSUMPTION

Since the beginning of 2019, we have taken measures to drastically reduce paper consumption.

We began with small measures and saw quickly how these small measures added up. Almost 100% of our reminders to customers and suppliers, as well as invoices are now sent by e-mail. In addition, we facilitate our tastings in the brewery digitally using Compusense, leading to savings of about 13,000 sheets of paper between the beginning of 2019 and the end of 2020.

RIGK – Circular Economy and Waste Avoidance

The packaging of our products are able to be recycled by RIGK. RIGK is a service provider from industry for industry and commerce, founded by well-known plastic and packaging manufacturers. 90% of all plastics that RIGK acquires are recycled into valuable materials.

<https://www.rigk.de>



THINK BEFORE YOU PRINT



DOUBLE SIDED PRINTING



REUSE!







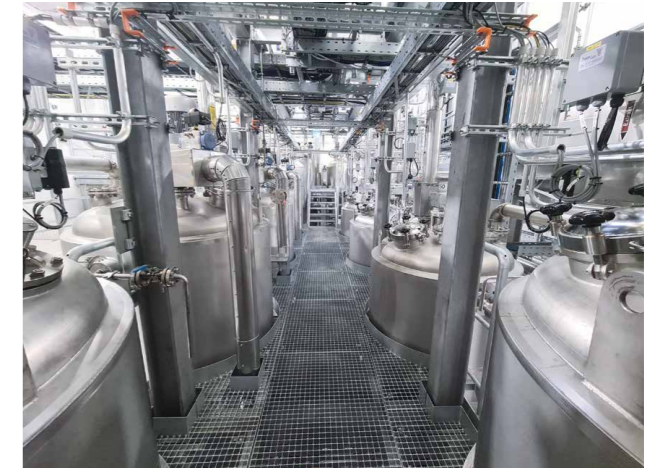
ELECTRONIC SIGNATURES



EXTRACTION PLANT RELOCATION AND RENOVATIONS

This year, a new extraction plant three years in the making was finally put into action. The extraction plant was built next to the pelletization plant, moved from its original location in St. Johann. Benefits of this new extraction plant include:

-  Elimination of transport emissions (with a total of approx. 16,950 km), saving over 9.4 tons of CO₂
-  Installation of a combined heat and power plant for optimized energy supply for pelleting and extraction plants
-  Heat recovery from the deep-freeze systems for raw hop drying and building heating
-  Increase in energy efficiency through state-of-the-art extraction technology







The finished extract can be stored in more than 20 tanks of differing sizes





Exterior view of our new extraction plant

ENERGY & CARBON

Reduce Scope 1 and 2 Emissions by at least 30% by 2030

-  Installation of a hop bine incineration plant to supply energy to our processing plants
-  Replace 100% of refrigerants with more environmentally friendly (GWP 0) alternatives by 2025
-  Transition to low-carbon purchased electricity sources
-  Conversion of the BarthHaas Germany company car fleet to non-fossil fuel alternatives

WATER & WASTE

-  Reduce overall water consumption by at least 20% and recycle 40% more wastewater
-  Operate without a neutralisation plant to treat acidic waste prior to discharge

6.
**PEOPLE
AND SOCIETY**

TEAM & CULTURE

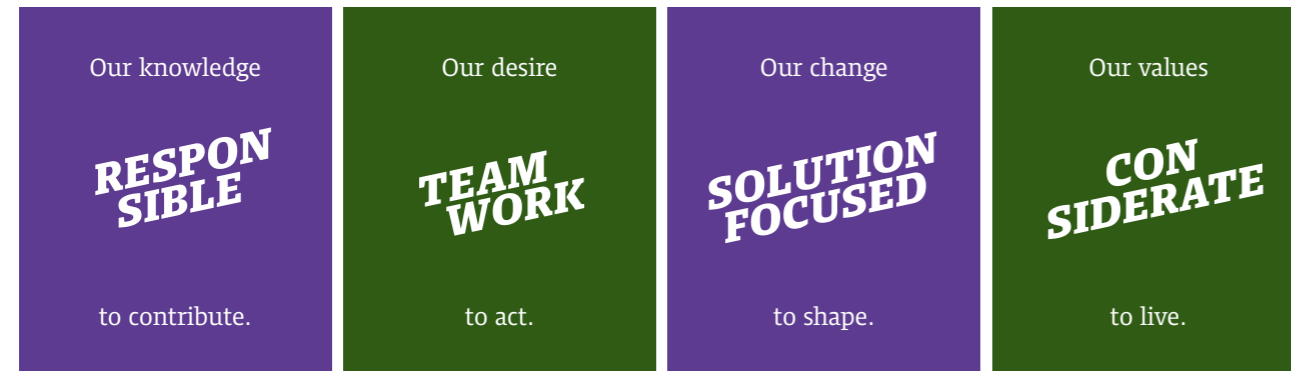
What is a company without its people? We know that our employees are the heart and soul of our business, and keeping a healthy and happy company culture and working environment is vital to our success. Our guiding values steer us in the right direction so we can create a strong team culture and better define our expectations of teamwork and collaboration. We celebrate having an international team that represents the best of the best in the hop industry! We could not be prouder of our employees and strive to provide them with a safe, fair and fun working environment.



CONCEPT AND OVERVIEW

Our values are **responsibility, teamwork, consideration, and to be solution-focused**. They represent how we choose to live our team culture. These values are important for what we do and how we do it, as well as defining our expectations for each other as colleagues.

We love what we do, and are recognized around the world for our hops and hop products. Together with our customers, we use our knowledge and inspiration to set standards in the beverage industry.



EMPLOYEES

HEALTH MANAGEMENT AT OUR NUREMBERG OFFICE

- The Nuremberg head quarter building was designed as a barrier-free building with elevator, access ramp and barrier-free access via the underground parking garage.
- Carpet throughout the building with soundproof backing and acoustic elements to reduce sound levels and background noise
- Ventilation system with fresh air supply and CO₂ control
- Work islands with soundproofing
- Air conditioning and humidification system for a balanced indoor climate
- Relax chairs and quiet rooms
- Height-adjustable desks with LED daylight lamps
- Hopfit - health program
- Generational Ambassadors



TOP EMPLOYER

BarthHaas was nominated and honored as a 'Best Medium-Sized Employer'

4,000 companies were in the running for the award and we are very happy and grateful that our employees appreciate us as an employer.

However, no reason to rest on our laurels - we are constantly working to create a motivating and friendly environment and attract the best talent.

(Source: <https://www.focus-magazin.de/focus-business/arbeitsgebermittelstand.pdf>)

BARTHHAAS UK MENTAL HEALTH AND AWARENESS

We recognize that the mental wellbeing of employees is just as important as their physical wellbeing, but that problems are very often hidden. Over the years, there has been stigma associated with poor mental health which has discouraged sufferers from talking about their problems. As these attitudes have begun to change, especially amongst our younger work colleagues, we have increased awareness and created opportunities for employees to talk about mental health. The significant changes to our everyday lives that we have had to make to protect ourselves and others from COVID-19 infection has increased anxiety and mental stress for many, further increasing the importance of the support we provide.

- "Connect" is a monthly company magazine addressing mental health issues and building mental health resilience.
- We have 2 employees trained in 'mental health first-aid'. They can competently assist colleagues who are in a state of poor mental health, or experiencing a mental health crisis.
- Departmental managers have attended mental health awareness training and are better equipped to identify and manage employees with mental health problems.
- Monthly "Wellness Wednesday" virtual sessions have given employees an opportunity to learn more about specific mental illnesses and ask questions of our mental health first aiders.
- The company has partnered with benefits providers to give employees access to independent sources of information and free-of-charge, confidential help-lines.



SAFETY

BARTHHAAS UK SAFETY CULTURE AND BEHAVIOR

Here at BarthHaas UK we maintain a health and safety management system that ensures legal compliance and continual improvement in the provision of safe and healthy working conditions for all employees. We need both safe conditions and safe acts to continually reduce workplace injuries and ill health. We have made significant investments in recent years to provide safe working conditions and identified the need to focus on safe behaviours if we want to further improve our trailing indicators. We aspire to have a safety culture where all parties play their part in a team effort, with employees taking responsibility for their health and safety (and that of others).



- ✔ A health and safety climate survey identified areas for improvement that were developed and implemented by a "Time for Safety" team of employee and management representatives.
- ✔ Actions arising from incident investigations, risk assessments, near-misses, audits, inspections, concern reports or employee ideas are recorded in a single continual improvement tracking system. Feedback on general performance is provided to all employees, and specific actions are discussed with employees concerned.
- ✔ Employees have been given responsibility for inspections of their own work areas and for "cross-inspections" of other work areas.
- ✔ Elimination of unsafe behaviours. Employees are encouraged to discuss health and safety issues through an observation and feedback programme called 'Key Safe Behaviours'.

COMPANY PENSION SCHEME

We at BarthHaas offer our employees the possibility to take out a **DIRECT INSURANCE** as a form of company pension scheme through the company. Our employees receive a discount when signing up through the company. Additionally, we cover **15% OF THE TOTAL COSTS**.

We partner with classic insurance companies, but also with GrüneRente and Mehrwert, who focus on more environmentally conscious, sustainable investments. While each subsidiary has different strategies and practices, all of them align with our company values, sustainability standard and philosophy.

WORK-LIFE BALANCE

In the course of their professional lives, many employees need more time for their private lives, e.g. when their children are young or their parents need care.

At some point they may need to take time off or retire early, while maintaining financial stability. As a replacement for the former partial retirement, we have created the option of working-time accounts.

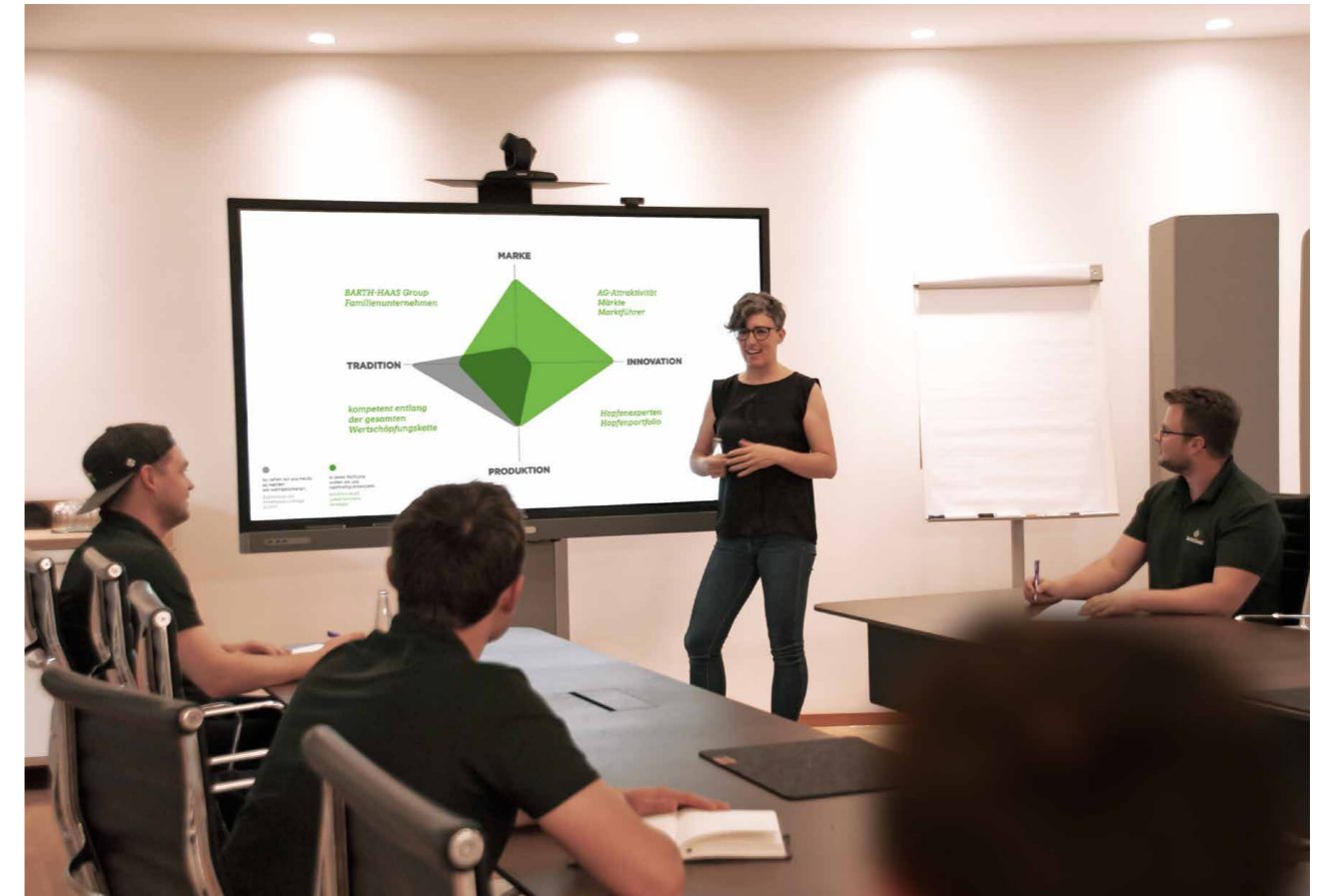
With the working-time accounts, overtime or unused vacation days can be rolled over indefinitely and salary sacrifices can be converted to be used as free time, taken when it suits best. The employment relationship continues and the employee continues to be covered by social insurance. We offer our employees this instrument with the greatest possible flexibility starting in August.

COMPANY CULTURE

COMPANY CULTURE PROJECT

In 2018, BarthHaas launched a new company culture project for our shareholders, managers and all employees. The aim of the project was to ensure that our mission and vision are firmly anchored in our people's minds and put into practice. We wanted to instill a culture that would allow us to be able to achieve our strategic goals together.

Thus, the project can be seen as a building block for the sustainable development of BarthHaas. The culture project was successfully completed at the beginning of 2020 and included as a fixed component in our training concept for new employees



COLLABORATIONS AND EMPLOYEE PROJECTS AT BARTHHAAS UK

We have three programs that feature monthly presentations during lunchtime:

- ✔ Lunch and Learn
- ✔ Wellness Wednesday
- ✔ Finance Friday

The former two are usually prepared and presented by an employee (or employees) and the latter by a guest (e.g. a representative from the pension administrator). The sessions are open to all employees on a voluntary basis, and typically 20 -25 attend. The sessions are recorded so those that couldn't attend can catch-up on-line. With effect from January 2021 BarthHaas UK has implemented a Continuous Professional Development (CPD) programme whereby employees can earn points for attendance at some of the events, and the points count towards a personal target, so this should encourage even larger audiences.



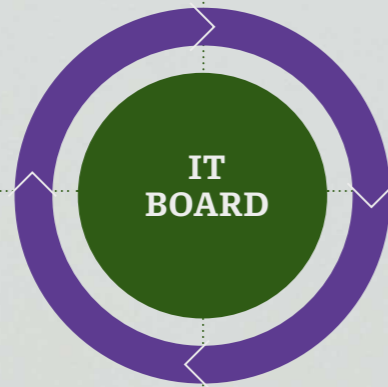
IT-BOARD

As the digitalization of processes increases, so does our dependence on software solutions. In order to break away from the isolated view of individual tools and focus on the company as a whole, as well as cross-departmental process optimization, the IT Board was created. Key users from all departments are working together to meet the changing requirements of our customers and suppliers.

CRM & SRM
Grower Portal
Customer Portal
BarthHaas Mobile App
Digital Signatures
Process Digitalization

CLOUD SOLUTIONS
Salesforce
Pardot
Service Cloud
ConSense QMS Software

**SAP SUCCESSFACTORS
AS HRZSTÜCK**
Learning Platform
Employee Self Services
Pay Stubs
Time Management



MICROSOFT 365
Collaboration
Communication
Mobile First



REMOTE WORK





Our employees don't always operate on the same schedule and need flexible working hours, especially with the new challenges that COVID-19 has brought. Our increased focus on digitalization has made working remotely less of a hassle. We do our best to assist employees with extra IT support and home office setups when needed.



INVESTING IN EDUCATION

At BarthHaas, we offer traineeships in three different professions (IT specialist for system integration, brewer / maltster and foreign trade management). Why? In order to be able to act sustainably and secure talent for the future. However, we don't just look at making the company sustainable, but also each individual workplace and we have made this an integral part of our training.

For the first time in 2019, we offered an apprenticeship position for a brewer / maltster. During this apprenticeship we addressed the topic of sustainability in the company and workplace through the following:

-  Provide information on possible environmental pollution caused by noise, dust, gases, vapors, residues and waste water, their causes, and how to prevent and reduce this
-  Observe industry-related regulations of environmental protection law
-  Assess potential for environmentally friendly use of materials, in particular by reusing and correctly disposing of raw materials and supplies
-  Use energy in an environmentally friendly and cost-saving manner



IDEAS FOR BARTHHAAS

In 2013 we established an internal message board where employees could suggest new ideas, be it new product ideas, social activities, or how we can create a more enjoyable (and sustainable) working environment. The ideas would then be presented and discussed in the monthly sustainability team meetings and passed on to the relevant department for approval. Through 'Ideas for BarthHaas' we wanted to give our employees a stronger voice, as well as realize the full potential of our employees and start conversations around topics that our employees may be passionate about.

**2020/2021
121 IDEAS,
WITH 5
BIG PROJECTS
AND 68
COMING TO LIFE**

2016 - 2021 // 121 Entries total, 68 completed, 25 in process, 13 deferred, 25 discarded

SUSTAINABILITY NEWSLETTER

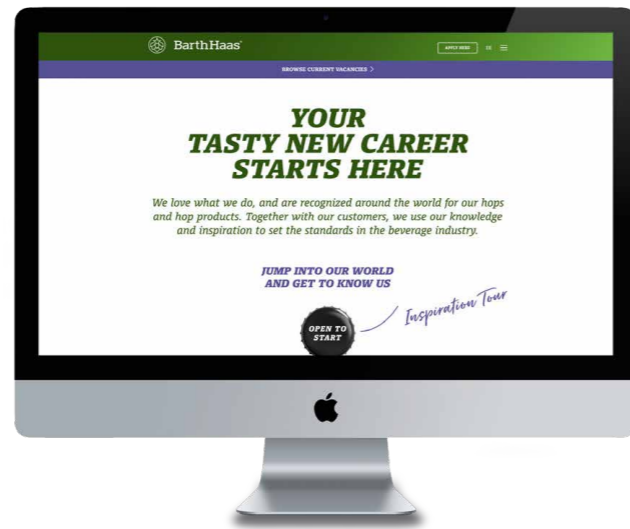
Just this past year we started a monthly 'Sustainability Newsletter' to inform our BarthHaas colleagues about the activities of our sustainability team. In addition, we include cool stories from around the world regarding new developments around green technologies or climate change, plus

a section giving tips on how to live a more conscious, eco-friendly lifestyle. In a time where we avoid turning on the news, we hope with the newsletter we can motivate and inspire people reporting positive changes and stories happening around us.

EMPLOYER BRANDING

NEW CAREER WEBSITE

In March 2021, the time had finally come to present the new career website. A real milestone! The goal was to create something very special where all potential applicants and visitors can almost feel and touch the unique working atmosphere and culture of BarthHaas Germany. In addition, we wanted to renew the inspiration of our current team. In addition to our great working environment, you can get to know our values, career opportunities, and very personal insights into the lives of our employees. Take a look for yourself!



www.karriere.barthhaas.com



PUBLIC TRANSPORT DISCOUNT

Since May 2017 we have offered employees a company subscription with the local public transport (VGN) to encourage use of public transport. Through the company, employees can receive up to 25% discount on the yearly ticket subscription.



SOCIAL INDICATORS

IN THE REPORTING PERIOD ABOUT



64%
of BarthHaas employees had full-time contracts

36%
had part-time or seasonal employment contracts

THE FLUCTUATION RATE OF EMPLOYEES WAS



0.9%
Voluntary

2.6%
Dismissal

15.2%
Limited contract

PERIODS OF ABSENCE OF EMPLOYEES



67.2%
Vacation

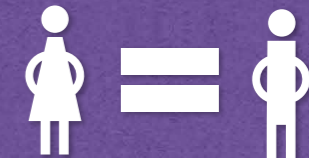


23.3%
Maternity leave and personal development



9.5%
Illness

AT BARTHHAAS **NO DISTINCTION** IS MADE ON THE BASIS OF GENDER IN SALARY MATTERS.



MORE THAN **HALF** OF OUR EMPLOYEES ARE FEMALE.

16%
under 30

46%
between 30 and 50 years old

38%
over 50



6
OUT OF
133



employees have taken parental leave. 4 of these 6 were women.

SINCE OUR **DIGITALIZATION PROJECT** BEGAN IN OCTOBER 2020, OVER

931 h

HAVE BEEN DEDICATED TO TRAINING.

2020 IN TOTAL

1,321 h

HOURS OF TRAINING AND EDUCATION FOR EMPLOYEES.



COMMUNITY ENGAGEMENT

ENVIRONMENT AND CLIMATE PACT BAVARIA

The 'Umwelt und Klimapakt Bayern' is a cooperation between government and businesses to promote the environmentally friendly initiatives to address the imminent threats brought on by climate change. Each year we commit to completing a project which demonstrates our commitment to reducing our environmental impact. This year we presented our long-standing project of moving our extraction plant closer to our pelletization plant, which cuts down our transportation emissions and combines resources from both plants.



BarthHaas Grants

For us, supporting research means shaping the future. That is why BarthHaas awards scholarships to young researchers who are engaged in innovative hop research. Hop research has made significant progress in recent years, but by no means all possible uses for hops are yet known. BarthHaas therefore wants to promote new research approaches that deal with hops and their possible applications by offering these scholarships. We award 10,000 Euros each for two scientific papers. The decision is made by a jury consisting of the shareholders of BarthHaas and the members of the Scientific Advisory Board (Head of R&D BarthHaas Germany / BarthHaas UK / John I. Haas).



Stephan J. Barth at the award ceremony for the BarthHaas Grants

20
Winners have been awarded on a variety of topics since 2016.

Doemens new building project

We supported Doemens' new building project with a financial donation of 100,000 Euros (platinum donor) as well as with Stephan Barth acting as 2nd chairman in the association „Freundes- und Förderkreis Doemens 2020“. The association was founded primarily to generate donations for the new construction project „Doemens 2020“.



DONATIONS

Kindergarten Adventureland in Mainburg and School Sports Programs

Special Exhibition 'Licht und Leinwand' (Germanisches National Museum in Nuremberg)

German Sustainability Action Days:
Donation to SNEEP (Nuremberg Student Network for Ethics in Economics and Practice)

Local culture and sport associations

Donations and Sponsoring for the Fiscal Years
2016 - 2020
366,423 €



from left: Markus Schoebel, Dr. Jörg Puma, Stefan Soiné, Georg Stahleider, Andreas Hofbauer, Stephan Barth, Dr. Wolfgang Stempf and Dr. Werner Gloßner

"Doemens is known for training particularly hands-on brewmasters who are highly competent."
STEPHAN I. BARTH



SUPPORTING CULTURAL EVENTS IN THE HALLERTAU REGION

We believe an important responsibility of a regionally active company is to support the preservation and cultivation of local customs and traditions. Therefore, we proudly sponsor local events, like the Dellnhauser Volksmusikfest, the Hallertauer Bierfestival and, of course, the elections of the Hallertau and Tettwang Hop Queens.

We also aim to use our knowledge responsibly by supporting the Mainburg city guides and hop ambassadors with a seminar including all of the important facts about hops, information brochures and hop samples.



© Heike Fleischmann / MMES GbR

RUN OR DYE

Run or Dye is a colour-filled day where the main event is a 5 km fun run for charity. A team from BarthHaas UK entered and raised £1500 for the Great Ormond Street Hospital Children's Charity with support from other work colleagues.

Every year, the Company makes charitable donations of money raised from the sale of raffle tickets where the prizes are gifts given to employees by suppliers (and some grateful customers) throughout the year. BarthHaas UK also sponsors a local junior soccer club.



Team BarthHaas UK, Run or Dye 2019



Nürnberg Braugemeinschaft: "Zusammen Halbe"

EMPLOYEE ENGAGEMENT

"Zusammen Halbe": In 2021, we joined eight Nuremberg breweries to brew a beer together. The Nuremberger Brewers' Coalition came together to brew this beer as a sign of solidarity during the COVID-19 pandemic.



'When we heard about the initiative of the Nuremberg Brewers to form a community, we as the local hop specialists were immediately interested in supporting it. The trial batch was brewed in our BarthHaas concept brewery and then brewed at full-scale at the Schanzenbräu brewery. We used the new hop varieties Ariana and Callista, while also bringing our expertise in hop aromas and flavor to the table.'

THOMAS RAISER
MEMBER OF THE EXECUTIVE BOARD



KTEP

For more than 25 years the Kressbronn-Toril Education Program (KTEP) has been supporting people in need in the small town of Toril in the Philippines. Over 500 young people have already been able to complete a college education.

These sponsorships and other sustainable projects such as the cultivation of organically grown vegetables and the construction of wells have been supported by many BarthHaas colleagues for many years.

www.ktep.de



A particularly special birthday present from the BarthHaas Brewing Solutions Team





ABOUT THIS REPORT

REPORTING FRAMEWORK

This is the fourth Sustainability Report from BarthHaas and concerns the fiscal years from 1 August 2017 to 31 July 2021. The Sustainability Report was produced in accordance with the "Core" option of the Global Reporting Initiative Version 4.0.

The report is published as a stand-alone publication. The main content can, however, be found in the "Sustainability" section of our website.

www.barthhaas.com



GLOBAL REPORTING INITIATIVE (GRI) CONTENT INDEX

Following tables show where information corresponding to reporting elements and disclosures in the GRI Sustainability Reporting Standards can be found in our report.

They contain the disclosures taken from the GRI Universal and Top Specific Standards which BarthHaas consider relevant.

SOURCES

UK Greenhouse Gas Emission Factors:

www.gov.uk



Agricultural Emissions:

www.lfl.bayern.de



Greenhouse Gas Emission Factors:

www.epa.gov



www.bafa.de



DISCLOSURE No.	DISCLOSURE TITLE	PAGE	COMMENTS
102-1	Name of the organization	1	
102-2	Activities, brands, products, and services	6-9	
102-3	Location of headquarters	6	
102-4	Location of operations	5	
102-5	Ownership and legal form		
102-6	Markets served	6	
102-7	Scale of the organization	6-9, 55	
102-8	Information on employees and other workers	55	
102-9	Supply chain	20-21	
102-10	Significant changes to the organization and its supply chain	40,45, 52	
102-11	Precautionary Principle or approach	6, 17	
102-12	External initiatives	16, 56	SAI, Sedex, EcoVadis
102-13	Membership of associations	16, 29, 56	
102-14	Statement from senior decision-maker	2,3	
102-15	Key impacts, risks, and opportunities	17	
102-16	Values, principles, standards, and norms of behavior	7	
102-17	Mechanisms for advice and concerns about ethics	7	
102-18	Governance structure	15	
102-19	Delegating authority	15	
102-20	Executive-level responsibility for economic, environmental, and social topics	15	
102-21	Consulting stakeholders on economic, environmental, and social topics	10	
102-22	Composition of the highest governance body and its committees	15	
102-23	Chair of the highest governance body	15	
102-25	Conflicts of interest	see comments	in the BarthHaas Code of Conduct
102-26	Role of highest governance body in setting purpose, values, and strategy	3, 15, 16	
102-27	Collective knowledge of highest governance body	15, 52	
102-29	Identifying and managing economic, environmental, and social impacts	16	
102-30	Effectiveness of risk management processes	17	
102-31	Review of economic, environmental, and social topics	16-18	
102-32	Highest governance body's role in sustainability reporting	14	
102-33	Communicating critical concerns	11	
102-34	Nature and total number of critical concerns	11	



DISCLOSURE No.	DISCLOSURE TITLE	PAGE	COMMENTS
102-35	Remuneration policies	48, 50	
102-40	List of stakeholder groups	11	
102-42	Identifying and selecting stakeholders	11	
102-43	Approach to stakeholder engagement	9	
102-44	Key topics and concerns raised	11	
102-45	Entities included in the consolidated financial statements	8	
102-46	Defining report content and topic Boundaries	2	
102-47	List of material topics	11	
102-49	Changes in reporting	35-38	GHG Emissions reported in detail for the first time
102-50	Reporting period	60	
102-51	Date of most recent previous report	see comment	August 2016
102-52	Reporting cycle	see comment	August 2017-August 2020
102-53	Contact point for questions regarding the report	65	
102-54	Claims of reporting in accordance with the GRI Standards	60	
102-55	GRI content index	60	
102-56	External assurance	see comment	none
MANAGEMENT APPROACH			
103-1	Explanation of the material topic and its Boundary	15	
103-2	The management approach and its components	15	
ECONOMIC PERFORMANCE			
103-1	Explanation of the material topic and its Boundary	15	
103-2	The management approach and its components	15	
201-3	Defined benefit plan obligations and other retirement plans	50	

DISCLOSURE No.	DISCLOSURE TITLE	PAGE	COMMENTS
MARKET PRESENCE			
202-2	Proportion of senior management hired from the local community	see comment	All management from BH DE and BH UK have been hired from the local community
INDIRECT ECONOMIC IMPACTS			
203-1	Infrastructure investments and services supported	25, 57	
203-2	Significant indirect economic impacts	56, 57	
PROCUREMENT PRACTICES			
204-1	Proportion of spending on local suppliers	8	detailed data not available
ANTI-CORRUPTION			
205-2	Communication and training about anti-corruption policies and procedures	see comments	Policy regarding anti-corruption can be found in the Barthaas Code of Conduct
205-3	Confirmed incidents of corruption and actions taken	see comments	none
MATERIALS			
301-2	Recycled input materials used	40, 44	
ENERGY			
302-1	Energy consumption within the organization	36-37	
302-2	Energy consumption outside of the organization	38	
302-3	Energy intensity	37	
302-4	Reduction of energy consumption	37-45	
302-5	Reductions in energy requirements of products and services	37-45	
BIODIVERSITY			
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	see comments	no sites
304-2	Significant impacts of activities, products, and services on biodiversity	25	
304-3	Habitats protected or restored	25	
403-3	Workers with high incidence or high risk of diseases related to their occupation	see comments	
403-4	Health and safety topics covered in formal agreements with trade unions		



DISCLOSURE No.	DISCLOSURE TITLE	PAGE	COMMENTS
EMISSIONS			
305-1	Direct (Scope 1) GHG emissions	36	
305-2	Energy indirect (Scope 2) GHG emissions	37	
305-3	Other indirect (Scope 3) GHG emissions	38	
305-4	GHG emissions intensity	37	
305-5	Reduction of GHG emissions	36-45	
305-6	Emissions of ozone-depleting substances (ODS)	38, 40	
305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	see comments	included in greenhouse gas emissions calculations
EMPLOYMENT			
401-1	New employee hires and employee turnover	55	
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	see comments	No distinction between full-time and part-time employees
401-3	Parental leave	55	
OCCUPATIONAL HEALTH AND SAFETY			
403-1	Workers representation in formal joint management-worker health and safety committees	see comments	Yes, workers are represented in these meetings for BH UK
404-3	Percentage of employees receiving regular performance and career development reviews	see comments	none
403-4	Health and safety topics covered in formal agreements with trade unions		BHUK is not unionised
TRAINING AND EDUCATION			
404-1	Average hours of training per year per employee	55	
404-2	Programs for upgrading employee skills and transition assistance programs	52-54	
404-3	Percentage of employees receiving regular performance and career development reviews	see comments	all employees eligible for yearly performance review
DIVERSITY AND EQUAL OPPORTUNITY			
405-1	Diversity of governance bodies and employees	55	

DISCLOSURE No.	DISCLOSURE TITLE	PAGE	COMMENTS
LOCAL COMMUNITIES			
413-1	Operations with local community engagement, impact assessments, and development programs	56-59	
CUSTOMER HEALTH AND SAFETY			
416-1	Assessment of the health and safety impacts of product and service categories	31	
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	31	See HACCP Report attachment



Imprint

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PRESS ENQUIRIES

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LAYOUT

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IMAGES

Nici Haslberger, Hofer Fotografie
Heike Fleischmann, MMES GbR



*A passion
for hops*

WHAT MATTERS
TO YOU?



BarthHaas®

www.barthhaas.com