



2023

Hops. People. Home.

Sustainability Report



Your German Hopportunity!



HVG - We are the growers!

Our more than 1,000 family-run farms in the three major German hop farming regions - Hallertau, Tettnang and Elbe-Saale - cultivate a globally unique and sophisticated agricultural product with care, effort and respect for the environment.

Our special role as the growers' marketing arm and as a producer organisation officially accredited by the EU means that we possess a thorough knowledge of all aspects of hops as a product.

We are a hop processor and international distribution service provider for our member farms as well as a reliable and competent partner for breweries all over the world. The first choice for German hops!

Hop farming unites our members across the generations. We live sustainability, as for us hops are more than just an agricultural product: To us, hops represent a sense of home.

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Genders in the text?

Our language always reveals something about how we see the world. We respect gender diversity and are committed to equality, however for reasons of appearance and reading flow we have decided against using gender symbols in the text.



In the cooperative, every member is both owner and user and has equal voting rights in accordance with the principle of democracy. This is the cooperative identity principle which, together with self-responsibility and self-administration, distinguishes this form of company from all others.

Preface

As a cooperative,
we operate sustainably
and responsibly, we
support our members
and are firmly anchored
in the region.

Cooperative has a future

_____ The year 2023 holds special significance for HVG: We are celebrating our 70th anniversary as a cooperative. "What's impossible for one person is achievable by many," this belief has guided our actions since 1953. It is the motto of Friedrich W. Raiffeisen (1818-1888), one of the fathers of the cooperative idea. The basic idea behind all cooperatives is the same: It is all about self-help and solidarity. In this edition of our sustainability report, you discover why the agricultural cooperative model is particularly suitable for overcoming the challenges in hop farming.

As an EU-recognised producer organisation and as a marketing arm for our members, we fulfil two essential tasks: Firstly, we press ahead with measures that serve to maintain and expand Germany's role as a leading hop farming nation and in so doing contribute to the security of supply for our customers. Close cooperation with all organisations in the Competence Centre for Hops and with all relevant players in the hops industry is essential for this purpose. Our second key task is the economically sustainable marketing of the production of our member companies directly to breweries worldwide.

Today, HVG is one of the main players in the international trade in German hops. Over the past 20 years, instruments such as the goods reimbursement scheme have channelled an additional € 30 million to the member farms of the HVG. When purchasing from the cooperative, our customers make



a significant contribution to the income of the grower families and therefore to the sustainable production of hops.

We were in the middle of the COVID-19 pandemic at the time of our last sustainability report. The duration and consequences were unforeseeable. Contact and travel restrictions required us to adapt our communications with our stakeholders and the way we work within the company. Overall, international beer sales proved to be more resilient than we had assumed at the start of the pandemic. We have emerged stronger from this crisis due to the outstanding commitment of our employees. Projects such as our grower portal, the registration of the first hop variety cultivated by HVG and the switch to green electricity at HVG and the St. Johann Hops processing plant - to name just a few examples - were successfully implemented despite the special circumstances. Read the following pages to find out what we have achieved so far and what objectives we have in mind in partnership with you.

Yours, Dr Johann Pichlmaier,
Chairman of the Board
of HVG e.G.

Dr Erich Lehmayr
Deputy Chairman HVG e.G.

Wolnzach, October 2023



» HVG is committed to sustainable concepts for hop farming in the future. «

The Minister President of Bavaria speaks at the Hop Tour.

70 years of HVG: The Minister President of Bavaria extends congratulations

Hops are a genuine hallmark of Bavaria! Hops stand for regionality, authenticity and quality of the highest order. There is strong demand throughout the world. Bavarian hop growers produce around a third of the world's hops. Global success requires the best possible marketing. The hop processing cooperative has been an indispensable force here since 1953. Thanks to their work, the high-quality hops from our family-run farms reach breweries near and far. HVG is committed to sustainable concepts for hop farming in the future.

The Free State stands firmly alongside the hop growers. We are actively committed to a sustainable and climate-resilient hop industry. The state government has committed itself to proactive water management with the Bavarian Farmers' Association in the Contract for the Future. We are expanding

practical advice for hop farms, strengthening and promoting water associations and helping to develop local irrigation concepts.

Additional potential is being exploited by improving the infrastructure and creating storage facilities to ensure the irrigation of hops in the future. This provides Hallertau hop growers with planning security and optimal future prospects.

Congratulations on your anniversary and all the very best!

Dr Markus Söder,
Minister President of Bavaria

We are the growers!

After a disastrous harvest 70 years ago, the HVG was founded as a local cooperative. Solidarity leads to success: Today, HVG is a global hops service provider that guarantees the supply of German hops of the highest quality and variety.



When the "Hopfenverwertungsgenossenschaft Hallertau e.G.m.b.H." was founded in Mainburg on 6 October 1953, this marketing association had already been preceded by several similar initiatives, all of which ultimately failed due to resistance from powerful hops merchants and a lack of solidarity among the members.

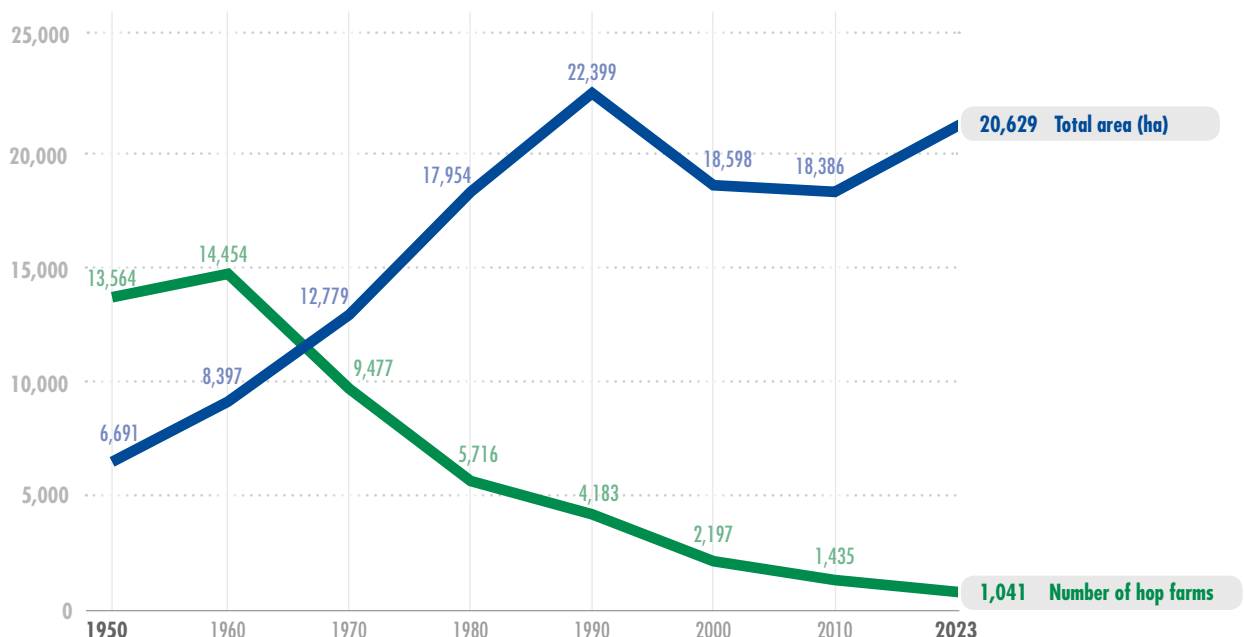
However, the experience of the catastrophic hops year in 1953 welded them together: "The cooperative aims to strengthen the economically weak through its business institutions" and "contribute to the promotion of hops sales", as stated in the founding charter.

Member Nr. 1 was the then Bavarian Minister of State for Agriculture, Food and Forestry, Dr Alois Schlögl. HVG's close ties with politics remain in place and continue to accompany the development from a "commission agent" between hops producers and the hops trade to a globally active hops service provider. The HVG quickly overcomes the initial scepticism of many hops growers towards their "community of solidarity" and already has 4,366 members in the year after its foundation - in other words, more than every second hops grower in Hallertau!

Not until 1960 does HVG make decisive progress, when it begins to abandon the commission business in favour of contract farming. This soon reflects in sharp increases in hops volumes, which HVG increasingly markets directly to breweries.

The acquisition of the Hopstabil company, which produces hops powder in Wolnzach, in 1968 marked the first time that the cooperative also became a supplier of a processed hops product. The expansion phase into a globally active hops trading company is followed in 1982 by the pioneering investment in the hops processing company HVG Barth, Raiser & Co.

Structural change in German hops farming



Past and future

Eleonore Höfter is 91 years old, and on her birthday she talks about her long life in hop farming. Her late husband Leo was a founding member of the HVG. Her daughter Gudrun has been an honorary member of the Management Board of HVG e.G. since 2014.



above-average amount of hops, around 20 hectares. The year 1957 was a turning point when we brought our first hop-picking machine from England and many other innovations followed, such as one of the first Wolf harvesting machines built in Germany in 1964, which made our harvesting work even easier. Only 9 people now work at harvest time on our farm, which now covers 50 hectares. Communication was immensely important to keep the business up and running. We already had the telephone. Nevertheless, the personal discussions and meetings were important. Family celebrations, social

" I was born in the Bavarian Forest, my father was a teacher. My uncle and aunt had a brewery and farm in Ergoldsbach and as they had no children, I was later to take over the business. I came to Neuhausen as a trainee in 1951. This apprenticeship gave us the tools to master the many challenges of life on a farm, from cooking and baking to caring for the garden and animals and managing the household economically. My mother-in-law was an excellent instructor.

This is also where I met Leo Höfter, and I married him in 1956. My new home was now Neuhausen. I became part of a large family with a brewery, pub, brickworks and farm. Mechanisation was still in its infancy and there were a lot of people as well as a tremendous amount to do on our farm. In the beginning, we had up to 300 people on the farm during the harvest, and they needed food and a place to sleep. The end of the harvest was announced with a festive entry of the rippers, followed by heartfelt words of gratitude from us as farm owners. I think back fondly on that time. Our family was involved in the founding of the HVG in 1953. Our membership number was 3 right up until the 90s! At that time, we had an

evenings, games of Schafkopf, hunting events, meetings, technical discussions with brewers and colleagues, the connection to fellow students, science and research as well as politics.

Women always had an enormous workload. Not only in the private household and child rearing, but also in catering for the numerous assistants, bookkeeping, administration and often also in plant protection. They are still nowadays the mainstays of the company. I was glad that I could fall back on excellent training as a master of rural housekeeping. Farming life seems not to have a favourable reputation among many women unfortunately. Wrongly so. Living in and with nature, the numerous networks and festivals as well as the cultivation of tradition are very, very fulfilling. I am proud to be part of this wonderful hop family that connects so many people across generations.

What is my recommendation to the younger generation along the way? There will be good times and hard times. You need to persevere in hard times, be creative and with God's help everything will turn out well again."



Thousands of harvest workers used to come to the Hallertau for the "Hopfenzupf". There were up to 300 of them on the Höfter family's hop farm, for whom sleeping accommodation and catering needed to be provided. The advent of harvesting machines in the mid-60s led to a rapid decline in the number of harvest workers. Most manual labour in hop farming today is required in spring, when the wires need to be attached and the young shoots guided.



HVG and EU

50 years ago, the cooperative was recognised at European level as a grower association

The European Economic Community (EEC) was founded in 1957 through the Treaty of Rome by Germany, France, Italy, Belgium, the Netherlands and Luxembourg. A common agricultural policy is in the interests of the founding countries in the context of economic convergence. The first common marketing guidelines for cereals were issued in 1962. The market organisation is based on three basic principles: Unity of the market, community preference and financial solidarity. Marketing guidelines for 22 other crops gradually followed, including hops in 1971.

Why a common agricultural policy?

Article 39 of the 1957 Treaty establishing the European Economic Community set the following objectives for the agricultural sector:

(1) The objective of the common agricultural policy is,

- a) to increase agricultural productivity by promoting technical progress, rationalising agricultural production and making the best possible use of production factors, especially labour;
- b) to ensure an adequate standard of living for the agricultural population, in particular by increasing the per capita income of people working in agriculture;
- c) stabilise the markets;
- d) ensure supply;
- e) to ensure that consumers are supplied at reasonable prices.

The year 1973 had a decisive impact on the development of HVG. The cooperative is recognised as a grower association within the meaning of the EEC market organisation. In addition to marketing production, the HVG is now also responsible for managing the aid granted to hop growers and implementing measures to strengthen hop farming.

Position of hops in German agriculture as a whole

Utilised agricultural
area in ha 2022

16,594,000

Germany

20,604

Hops (0.124%)

Agricultural
farms 2022

258,740

Germany

1,053

Hop farms

Agricultural holdings in
Germany, 2022
Size (Ø)

64.13 ha

Germany

19.57 ha

Hops

cooperatives in
Germany 2023

ca. 7,000

23.4 mil

Members

900 k

Employees

726

Producer organisations

EU farm subsidies
2022

ca. €7,000 mil

Germany

€2.18 mil

**Hops subsidy
(0.031%)**

Agricultural exports
from Germany 2021

€76,825 mil

Germany

€355 mil

Hops (0.46%)

Organic farms
in Deutschland 2021

36,307

Germany

12

Hops

Irrigated land
in Germany 2021 (ha)

ca. 510 k

Germany (3 %)

ca. 4 k

Hops (0.78%)



At the turn of the millennium, the Elbe-Saale (2000), Jura (2001) and Tettang (2001) regional hop cooperatives decided to merge with the HVG Hallertau in order to be able to market hops directly from almost all German farming regions. In keeping with the slogan: HVG – Your German Hopportunity!

Upcoming changes

As from 2023, Regulation 2021/2115 will bring about a number of changes to the Common Agricultural Policy. For the first time, all EU Member States must develop a National Strategic Plan for Pillar 1 and Pillar 2 of the CAP for the new CAP funding period 2023 - 2027 (www.bmel.de/gap-strategieplan).

The CAP Strategic Plan in Germany offers interventions for the fruit and vegetable, wine, beekeeping and hops sectors. The existing level of support will remain in place because, to quote the BMEL, it serves to "...secure the competitive position of German hop farming on the world market (more than a third of global production) and to produce hops even more sustainably and as climate-neutrally as possible in the future." The producer group is called a producer organisation in the new system (in accordance with Regulation EU 1299/2007, Regulation EU 1308/2013).

The German CAP Strategic Plan provides that EU funds may be used to support measures from five categories (so-called interventions):

- Advising hop growers on sustainability,
- Research and development,
- Measures for climate protection and adaptation to climate change,
- Sales promotion, communications and marketing,
- Organic or integrated production.

Certification

In 1538, the town of Spalt was awarded the world's first hop seal by the prince-bishop of Eichstätt in order to be able to fully document the origin of the hops. An all-German Hop Provenance Act was passed in 1929. Since then, hop certification has guaranteed the traceability of breweries' hop products back to the exact field in which they were grown. The German certification process served as a template for the EU guidelines. This hop certification system is now also in the process of being adapted to the new EU plans. These are currently under discussion in Brussels, however, this tool, which creates trust and transparency among breweries and customers, will continue to exist in a slightly modified form.

A photograph taken from inside a dark barn, looking out through a large open doorway. A green tractor with a trailer is parked on a concrete surface just outside the barn. In the background, there is a field of tall, green hop plants under a blue sky with some clouds. The right side of the image is framed by a vertical wooden plank with a visible grain.

We are HVG

» In my view, it is good that the HVG exists. Growers work here for growers in a fair deal. It is not just the bonus payments that are rewarding, I appreciate the support and helpful ideas, such as on the subject of irrigation and the hop press. And also the Polish course, which enables me to communicate better with the seasonal workers. It is good to know that the HVG is always quick and easy for me to reach. «

Josef "Joe" Siegmund (29) grows various hop varieties on his 33-hectare farm in Starzhausen (Pfaffenhofen district), including Hallertauer Mittelfrüher, Perle, Polaris, Herkules and Amira.



Mia san
Holleda



Growing regions

Germany is the land of hops. For hundreds of years. Good soils, sustainable cultivation, efficient logistics and supporting hop research guarantee that it stays that way.

Top 15: Varieties/areas under cultivation in Germany

Varieties	Areas 2022
Herkules	7,497 ha
Perle	3,235 ha
Hallertauer Tradition	2,702 ha
Hallertauer Magnum	1,770 ha
Hersbrucker Spät	784 ha
Tettnanger	645 ha
Hallertauer Mittelfrüher	614 ha
Polaris	560 ha
Spalter Select	527 ha
Saphir	329 ha
Northern Brewer	192 ha
Mandarina Bavaria	187 ha
Saazer	155 ha
Hallertauer Taurus	147 ha
Opal	137 ha

Growing regions in Germany (HVG members)



Hallertau growing region

The Hallertau in Bavaria is the largest growing region in Germany and also the largest contiguous area in the world: 841 farms grew hops on 17,128 hectares in 2023. 29,152 tonnes of hops were harvested in the Hallertau growing region in 2022 - this corresponds to almost 85 per cent of the nationwide harvest. Hop farming has been rooted in the region for generations and its origins trace back to the 8th century. Today, specialised hop farms produce over 45 hop varieties, from high alpha hops to fine aroma hops. Around 66% of the harvest is produced sustainably and certified by 52% of the farms. Modern processing facilities with sufficient cooling capacity are used to carefully store the quality products and refine them into a wide range of hop products. The Hallertau hop location is, not least, characterised by the world-leading hop research conducted by the Bavarian State Institute for Agriculture and the Society for Hop Research at the Hop Research Institute in Hüll near Wolnzach. Advanced production methods and new breeding varieties are continually being developed there in line with the requirements of integrated crop production and the international brewing industry.





Elbe-Saale growing region

At 1,562 hectares, Elbe-Saale is the second largest and most northerly growing region in Germany. It extends over three federal states: Saxony-Anhalt, Saxony and Thuringia.

The hop acreage is farmed by 30 widely separated hop farms with an average farm size of 52 ha. The large hop fields provide a good prerequisite for the production of uniform hop batches. Centre stage is taken by the cultivation of bitter varieties. The main variety is the Hallertauer Magnum, a robust high alpha variety. Aroma hops and flavour hops are also becoming increasingly important. Ca. 40 hundredweight of hops per hectare are harvested every year. Around 91% of the approximately 2,900 tonnes harvested are produced sustainably and certified by 93% of the farms.

Yields were stabilised by extending irrigation to 75 per cent of the land with funding from the HVG. Since 1994, the Thuringian State Institute for Agriculture (TLL) has conducted the "Neutral Quality Assessment" for all farms in the growing region. There is close cooperation with the LfL in Wolnzach. The focus is on the development of high-yielding high alpha varieties.



Tettang growing region

Tettang, the southernmost German growing region, is defined by its aroma hops. 125 farms produce between 2,250 and 2,750 tonnes per year on around 1,516 hectares, usually combined with fruit growing in all its diversity in the climatically favourable Lake Constance region.

The highly refined Tettlinger aroma variety, the core competence of the Tettang hop growers, occupies around 43 per cent of the acreage. The Hüller cultivation range is supplemented by new "flavour hops". 30 different varieties are under cultivation. The Perle, Herkules, Spalter Select and Hall varieties are also on the rise. Tradition. Around 76% of the approximately 2,600 tonnes harvested are produced sustainably and certified by 61% of the farms.

The introduction of the "Neutral Quality Assessment (NQF)" and Integrated Production (IP) in 1993 represented a quantum leap in sustainable production and quality. A quality assurance system under the Baden-Württemberg Quality Mark (QZBW) label, the introduction of plant protection monitoring in 2011 and the implementation of a sustainability concept from 2014 guarantee quality and safety for national and international brewery customers. In 2010, it was registered as a protected geographical indication (PGI) with the EU in Brussels.



Hops expertise

20 years ago: HVG moves into the "Competence Centre for Hops" and completes the centre of hop expertise.

In summer 2003, the HVG moves into its new administrative headquarters in the Competence Centre for Hops in Wolnzach, where the Hop Ring, the Bavarian State Institute for Agriculture (LfL), the Hallertau Hop Growers' Association and the German Hop Growers' Association form a centre of hop expertise that is unique in the world. These are all organisations and institutions with which the HVG has been working closely for years - in the interests of the German hop industry.

The takeover of Hans Schmid Hopfenhandel GmbH the following year enabled the HVG to further expand its market position. In the following years - especially after the drought summers of 2003 and 2006 - the HVG focused on measures to strengthen the competitiveness of German hop production, such as the acquisition of the rights to the new hop variety Herkules (2006), the launch of an irrigation programme that enables growers to secure supplies even in very dry years (2008), and the promotion of environmental protection measures such as reducing energy consumption in hop drying (2010) and through financial support for the "Biodiversity in hop farming" project (2022).

Cooperation with research institutes such as the LfL enables the HVG to support a large number of hop research and cultivation projects. In addition, we continue to run Jakob Schauer's project and, after his death, have incorporated his private hop cultivation and propagation into the cooperative for the benefit of all growers. The HVG is also making an innovative and pragmatic contribution to the much-cited "energy revolution": The HVG holds a 10 per cent stake in the biomethane facility near Wolnzach, which went into operation in 2012 and primarily supplies biogas for around 5,000 households.

The economic success of HVG's traditional hop trading business also makes a significant contribution to strengthening hop farming in Germany, as members participate directly in the profits of their cooperative through the payment of dividends and reimbursement of goods. Its core team of 34 employees distribute hops to over 90 countries from four locations.

The HVG always remains true to its guiding principles: We champion German hops and their growers. And we communicate to brewers all over the world that we grow the perfect flavour answer in Germany for the type of beer they desire." In keeping with the slogan: "HVG – Your German Hopportunity". For more than 70 years now.



The HVG's proximity to the most important German hop institutions means that it always has competent experts at its side: for hop sampling or laboratory analyses, publications, brewing trials and the tasting of specially brewed beers.



Our mission statement

What we stand for, what we believe in and what we aim to achieve together.

Vision

We want to be your first choice for German hops!

Mission

As the largest grower association of German hop growers, we have been practising the cooperative principle "Together we are strong" since our foundation in 1953. Our core mission is to market our growers' hops directly to the worldwide brewing industry. We refine hops into high-quality hop products and distribute these products through innovative services. We are at the heart of a close-knit network of institutions and service providers in the hop farming sector.

We actively promote sustainability and the future viability of hop production in Germany through a wide range of research projects and trend-setting investments. We are a reliable and fair partner to all of them and have outstanding expertise thanks to our unique proximity to German hop farming and international breweries. We always ensure that our business practices are sound and sustainable, that our partnerships are based on cooperation and that the flow of information is transparent.

Slogan

Your German Hopportunity!



Corporate structure

The purpose of the cooperative is to promote the acquisition and the economy of its members through joint business operations. The cooperative is a producer organisation in the hop sector within the framework of the Common Market Organisation for Agricultural Products (CMO).

Employees
34 permanently employed
25 seasonal workers

Board of Management
2 full-time employees
2 volunteers

Supervisory Board
15 members +
Chairman of the
Supervisory Board

Annual General Meeting: 1,015 members, 4 farming regions
Shares € 260/ha

Supervisory Board

Chairman: Adolf Schapfl · **Deputy Chairman:** Alois Widmann

Members of the Board: Stefan Arnegger, Christian Berthold, Sebastian Burger, Robert Drexler, Albert Eisenmann, Reiner Joachim, Simon Locher, Georg Lutz, Georg Nutz, Bartholomäus Obster, Karl Pichlmeyer, Anton Schlagbauer, Martin Schlittenbauer, Dirk Schumacher



Our Facilities

Almost 200 employees at the St. Johann site are involved in processing up to 34,000 tonnes of hops into pellets and extract. The HVG is the only company in the Hallertau region that still produces traditional raw hop bales at the Leaf Hops Centre Mainburg.

Our forty per cent equity stake in Hopfenveredlung St. Johann enables HVG member farms to participate in the added value. In 2022, we started operation of a CO₂ extraction facility at the world's largest hop processing facility, in the municipality of Train in the heart of the Hallertau region. The HVG e.G. and BarthHaas, the two shareholders, have invested around € 65 million in the planning and construction of the facility.



This globally unique processing compound in St. Johann processes over a quarter of the world's hop harvest into pellets and concentrated hop extract every year. In addition to pelleting and extraction, the eleven hectare site also houses cold storage facilities for up to 11,000 tonnes of raw hops and 23,500 pallets of finished product, as well as a modern laboratory and its own research brewery.

Quality is written large in St. Johann. The facility is certified in accordance with ISO 9001:2015 and 22000:2018, among others, and is also qualified to process hops from organic cultivation. Sustainability aspects are at the centre of the new extraction facility processes. The biogenic carbonic acid used in the extraction process only releases as much CO₂ as was previously removed from the atmosphere by the facilities for bioethanol production through photosynthesis. The facility's own cogeneration unit supplies the extraction process with heat and electricity in an energy-efficient manner.

The electricity required in addition to the facility's internal generation is covered 100 per cent by green electricity from Germany. This reduced the CO₂ footprint by around 2,000 tonnes of CO₂ compared to 2021, which corresponds to a saving of almost half.



In future, photovoltaic systems combined with hydrogen are to supply the company's own cogeneration units. In addition, the plan is to utilise around 8,000 tonnes of hop spent grains for energy by 2026 with the objective of becoming energy self-sufficient and further reducing our CO₂ footprint.

The Leaf Hops Centre in Mainburg

The HVG Leaf Hops Centre has been in existence since 1958. The Hallertau's only and last facility for cleaning and post-drying hops with hydraulic presses for packaging in 30 to 100-kilogram hop bales extends over 8 floors and 17,000 square metres of office and storage space. In addition, a hop press enables the vacuuming of natural hops in handy 5-kilogram vacuum packs. It is possible to store a total of 2,000 tonnes of hops in Mainburg, 500 tonnes of which are under refrigerated conditions.



We are continuously investing in Mainburg to keep the historic building from 1958 up to date as a food processing company. The HVG Leaf Hops Centre in Mainburg is equipped with a modern laboratory where the incoming quality control for our more than 3,000 hop batches is undertaken. A major investment in the reporting period was the refurbishment and remodelling of the laboratory's ventilation system. The task was to ensure that operation with organic solvents complied with the latest guidelines for fire and explosion protection. At the same time, the strict energy standards were to be satisfied with the installation of a heat pump. We incurred costs totalling € 237,000 for these measures. We invested a further € 100,000 in a new small facility for grinding and pelletising small hop batches. In addition, new tasting and visitor rooms were created at the Leaf Hops Centre in Mainburg, and the recreation rooms and kitchen for our employees were modernised.

As the only hop-processing company in the Hallertau, we are still in a position to produce traditional, heavily pressed raw hop bales (ballots) at the Leaf Hops Centre in Mainburg.

Mainburg also switched to green electricity during the reporting period, saving almost 80 tonnes of CO₂ emissions.



Our Products

We offer a variety of hop products for a wide range of uses in the brewery. All these products share our commitment to traceability and quality.

Naturally preserved hop products: All our efforts in this product category are focussed on ensuring that the natural value-giving properties of cone hops remain unchanged in terms of storage and dosage.

VACUPACK: Our storable hop cones. Pressed hop cones in VacuPacks have been used in breweries for many decades, primarily for adding doses of hops in the brewhouse, either in the brew kettle or in the whirlpool.

PELLETS TYPE 90: Ground and pressed hop powder. By gently grinding the whole hops and then pressing them into pellets, our TYPE 90 pellets retain their full, naturally fresh aroma for several years when stored in cold conditions below 5 degrees Celsius. They are filled under inert gas and in a special oxygen diffusion-tight film.

PELLETS TYPE 45: Ground and pressed hop powder. Sieving out parts of the cone leaves enriches the valuable ingredients of the raw hops by a factor of 2-3. The amount of hops used is reduced by around half, which also halves the packaging material as well as the transport and storage costs.

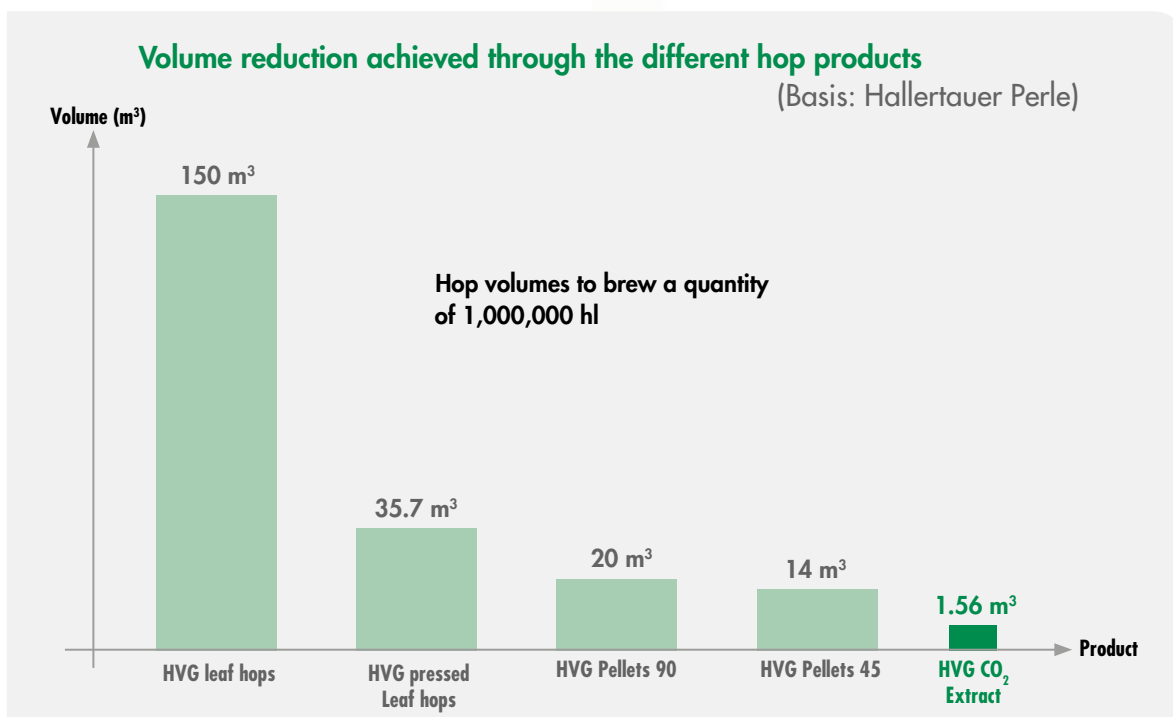
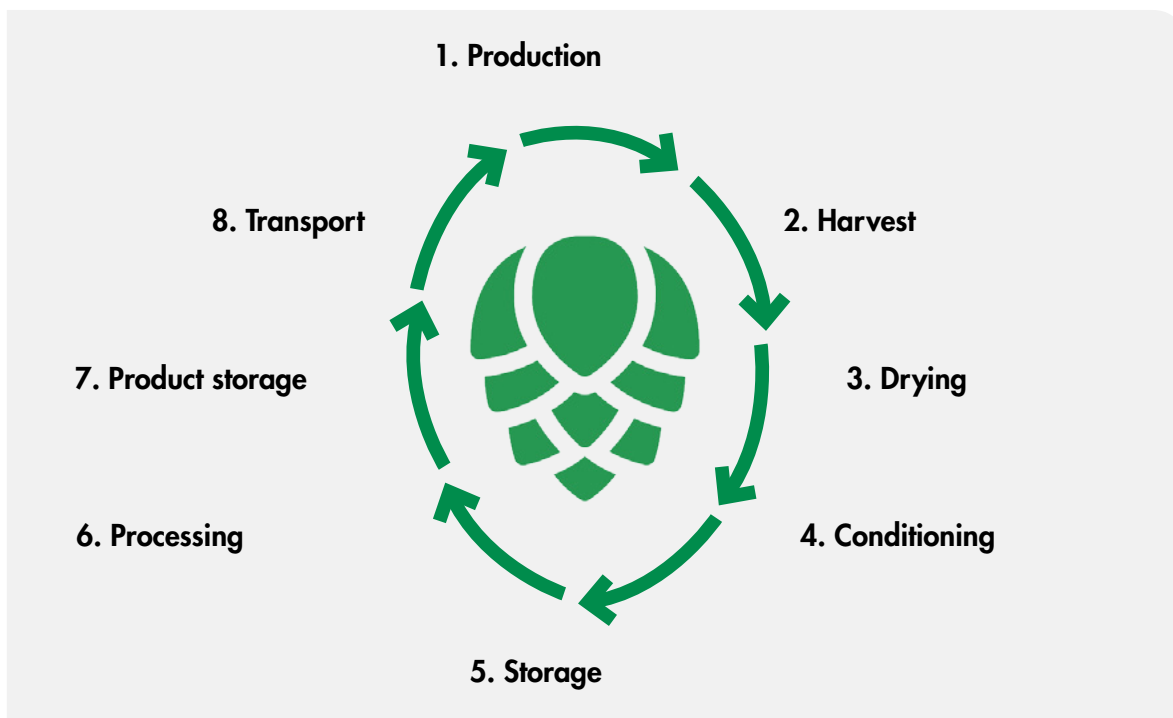
HVG LUPULATOR™: This product has just one objective: to enhance aromas. The guiding principle behind enrichment with the LUPULATOR™ is quality over quantity. Our team of experts selects the top grades of a variety of the vintage from countless batches to deliver exactly what creative brewers need: concentrated aroma that is typical of the variety.

CO₂ EXTRACT: The best of hops in concentrated form. Modern technology is used to extract the soft resins and oils from the hops using supercritical CO₂ from the ground cone at pressures of up to 500 bar. Separation of the leaf material reduces the packaging volume of the original cone hops to between 5 and 10 per cent, depending on the variety.

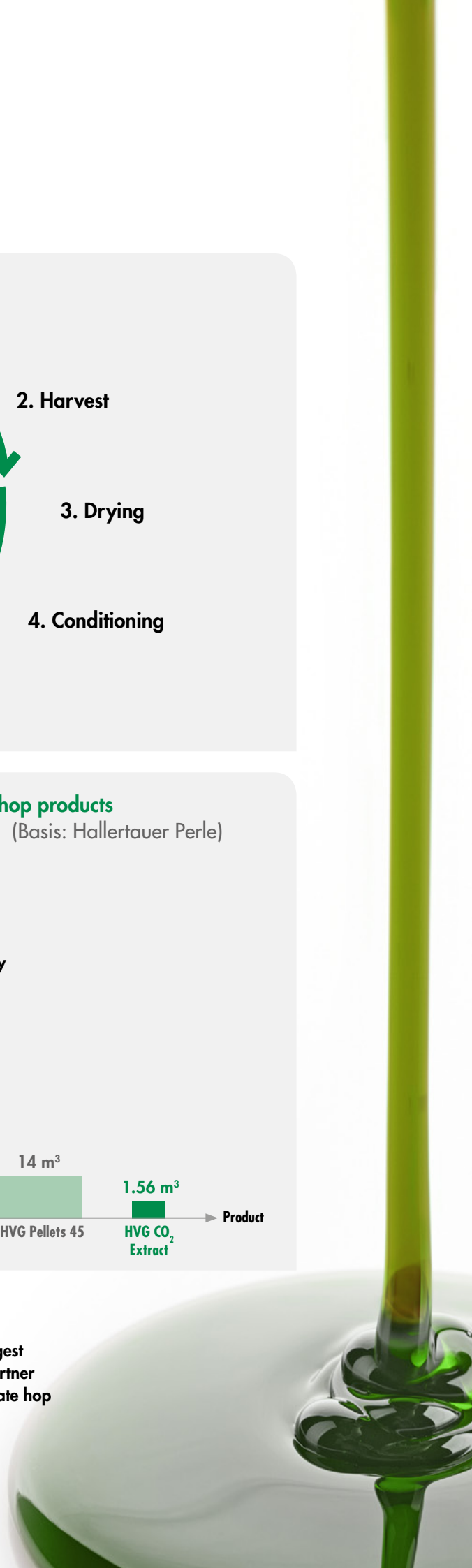
Pre-isomerised hop products: These products focus on the transformation of alpha acid. What otherwise happens in the brewhouse in the brewery is produced in advance in the product by mixing with alkaline salts such as magnesium oxide under the influence of heat. Both pellets and CO₂ extract can be modified in this form.

Cold Storage Service: The cold storage of raw hops and hop products at around 5 °C is an important element of quality assurance. Our HVG Cold Storage Service offers you the opportunity to make your hop logistics more flexible and take advantage of market opportunities via extended and protective storage.





Did you know that our products are produced in the largest hop processing facility in the world? The HVG is a co-partner of Hopfenveredlung St. Johann GmbH, the most up-to-date hop processing facility in the world.



Sustainability

As a cooperative, we have by definition, a long-term vision. We are committed to making hop farming fit for the future in the interests of our member farms.

Our primary task as a cooperative is to market the production of our member farms cost-effectively. Our success serves to maintain production and invest in pioneering projects. We process hops and operate worldwide as a hop trading company. We are an EU-recognised producer organisation and as such committed to securing hop farming in Germany in the long term. The support of federal and state organisations and institutions is intended to ensure that Germany remains a world leader in hop farming in the future. Our excellent and long-standing cooperation with the Society for Hop Research, the Bavarian State Institute for Agriculture and the Hop Ring contributes significantly to the international success of German hops.



Business

The cooperative's long-term business policy proved to be exceptionally resilient with its solid reserves and equity. The digitalisation of our member farms is a prerequisite for modern and competitive hop production and by establishing the HVG online grower portal, we aim to communicate and collaborate even more closely with them in future. New concepts for irrigation need to be promoted to safeguard production. We therefore support the establishment of an irrigation association for the Hallertau as a water and soil association. We were able to pay out over € 30 million from profits generated via pools and reimbursement of goods to our members between 2002 and 2022. Independent marketing of hops by the cooperative strengthens the farms and renders them fit for the future.



Environment

As a producer association, we have always had the ambition of expanding our environmental and nature conservation activities beyond what is required by law. One example of this is our investment in the construction of the world's first biogas facility fuelled by shredded vines. Our aim is for all the hops that we trade to be certified as sustainable by 2025. The determination and reduction of our carbon footprint is a social task in which the cooperative and its members wish to make an active contribution. The "Green Hops" project is investigating all options for CO₂-neutral hop production.

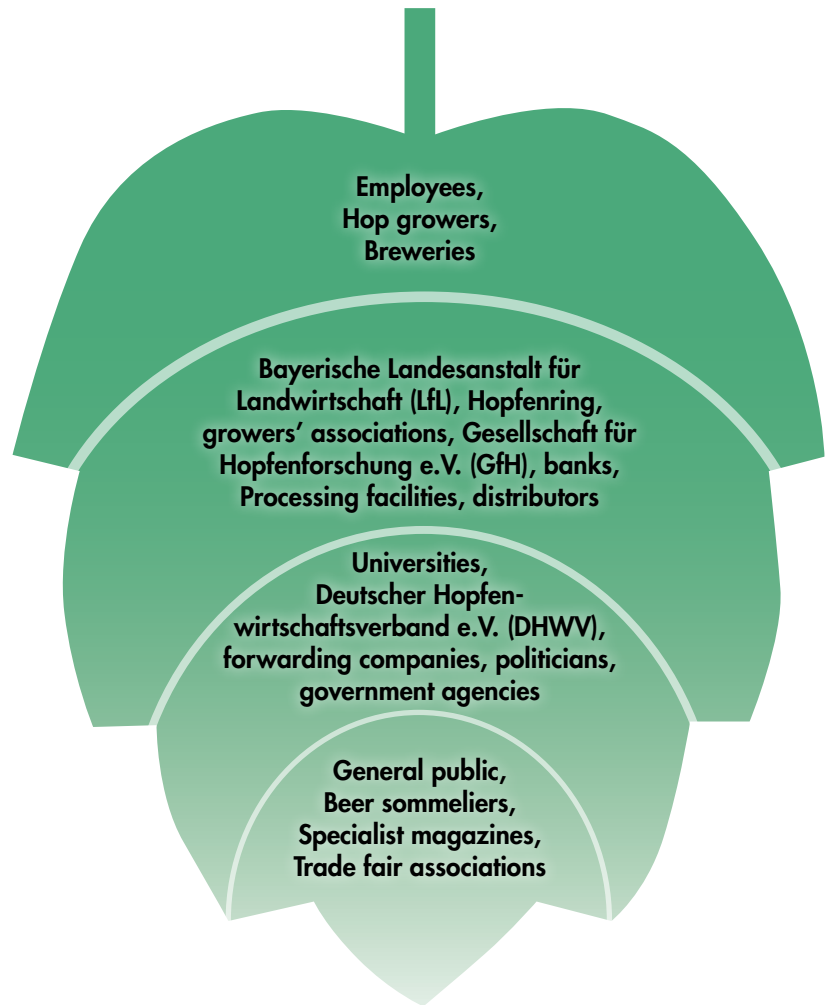


Social

It goes without saying that we interact with everyone in accordance with the principles of the UN Universal Declaration of Human Rights. We aim to support families involved in hop production to an even greater extent in the future and involve them in decision-making. With this in mind, we offer specific training for our members. We would be delighted if the next generation of growers also decides to get involved in the HVG. We aim to offer our employees a secure and interesting job and support them with training, meal vouchers and a range of retirement schemes, among other measures.

Who are our stakeholders?

We are part of a network of member farms, employees, customers, suppliers, scientists, associations, civil society, service providers, banks, media and politicians. Many of these influence our work - or are influenced by us. We therefore identify all key stakeholder groups with a connection to the HVG. The analysis helps to position us as a company in achieving global sustainability objectives and to determine the areas which merit coverage in our reporting.



Cooperation with research

The Hüll Hop Research Centre deals with all questions relating to hops with internationally recognised expertise. Our excellent and long-standing cooperation with the Society for Hop Research, the Bavarian State Institute for Agriculture and the Hop Ring contributes significantly to the international success of German hops. In addition, the HVG will continue to run the cultivation project set up by Jakob Schauer (hop grower and breeder in Grafendorf in der Hallertau) after his death. New, more resistant varieties are needed in the face of climate change.



Hop varieties from the cultivation work at the Hop Research Institute of the Bavarian State Research Centre for Agriculture in Hüll show improved characteristics for hop growers and brewers. The Herkules variety, for example, achieves ten times the brewing value of the old varieties. New breeding varieties also allow crop protection products and fertilisers to be dispensed with without compromising yield, especially under the influence of the changing climate.

Risk Analysis

Risk analysis enables us to continuously identify potential harmful effects and work to minimise hazards.

As a legal entity, we are obliged to introduce a risk management system (RMS) following the introduction of the German Corporate Sector Supervision and Transparency Act (KonTraG). The aim of the RMS is to recognise events that could adversely affect the company's assets, earnings and financial position at an early stage and to initiate timely measures to safeguard the company. Risks are identified, quantified and assessed. The monitoring frequency and the strategies for possible entry are determined as a result. Of course, every risk also offers an opportunity if recognised in good time.

External risk factors include the weather, natural events, developments in the brewery and hop market, political conditions and technological changes. The aspects that generally apply to every company, such as management form, structure, tools and organisation, as well as capital structure, liquidity and IT-related risks, including online fraud and crime, are those that should be addressed within the company. Industry-specific risks arising from our export-orientated business with agricultural products, such as currency fluctuations, embargoes, inventories and operation of processing facilities, as well as insurable risks such as fire, natural hazards, product liability and travel insurance for field staff need to be taken into consideration. As an agricultural product, hops are also exposed to considerable production risk due to the weather, which also affects us in the second stage of the value chain.

We endeavour to deal consciously with these risks. When making important decisions, we ensure that we consider opportunities and risks equally and weigh them up carefully. The HVG has not set itself the objective of minimising or even eliminating all risks. This is neither sensible nor desirable due to the HVG business model and corporate strategy. Existential risks are nevertheless minimised as far as possible.



Probability of occurrence

probable				Weather-related Crop failures/ climate change	
are possible		Production progress/ product substitution	Change in demand- side/legal restrictions	Market-related risks regarding procurement, inventories and sales	
are somewhat possible		Market access barriers/Personnel questions & skilled labour shortage/ product quality/ Balance sheet topics	Unsuitable structures or processes/ contracts not honoured	Company management issues	
improbable	Insurable risks	Payment default risk	EDP and digitisation related risks	Failure of the processing systems	
	insignificant	moderate	major	critical	existential

Potential hazard



Storm damage



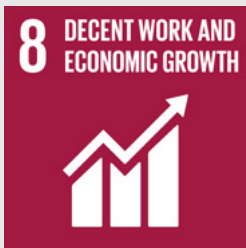
Flooding

Our responsibility

We understand sustainable management to mean that every company needs to be aware of its own economic, ecological and social effects. We adhere to the international standards for responsible corporate conduct and report transparently on our measures.

_____ Based on the recommendations of the OECD/FAO standards for corporate conduct along agricultural supply chains, we at the HVG have committed ourselves to the following standards with our employees. Here are excerpts of the main topics from the agreements reached in 2022. Please contact us for the complete list. These guiding principles are our contribution to achieving the United Nations' Sustainable Development Goals (abbreviated to "SDGs") from the UN Agenda 2030.

HVG standards for responsible corporate conduct



Objective 8: Promote lasting, inclusive and sustainable economic growth, full and productive employment and decent work for all.



Objective 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all people and build effective, accountable and inclusive institutions at all levels.

1. with regard to human rights

- We will respect internationally recognised human rights, the international human rights obligations entered into by the countries in which we operate as well as relevant national laws and regulations.
- We will respect human rights, i.e. avoid violating the human rights of others and counter negative impacts on human rights in which we are involved.
- We will ensure in the context of our own activities that the human rights of all are respected, without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status.
- We will avoid causing or contributing to negative impacts on human rights in the context of our own activities and address these impacts when they occur.
- We will endeavour to find ways to prevent or mitigate adverse human rights impacts that are directly linked to our business, products or services as a result of a business relationship, even if we have not contributed to those impacts.
- We will fulfil our human rights due diligence depending on the scope, nature and context of our business activities and the extent of the risks of negative impacts on human rights.

2. with regard to governance issues

- We will prevent and refrain from corruption and fraudulent practices of any kind.
- We will comply with the letter and spirit of the tax laws and regulations of the countries in which we do business.
- We will not enter into or implement any anti-competitive agreements between competitors and will cooperate with the investigating competition authorities.
- We will ensure that public political processes are not hindered by unfair conduct or undue influence.
- We will ensure that the potential impact of corporate procurement and purchasing decisions on other companies is carefully considered.
- We will respect the holders of legitimate rights of ownership, possession or use and

their rights to natural resources, including public, private, communal, collective, indigenous and customary rights, on which our business activities potentially have an impact.

3. with regard to environmental protection and the sustainable use of natural resources.

- We will introduce and maintain an environmental and social management system, where appropriate in cooperation with the relevant government bodies and third parties, which is tailored to the nature and scope of our business activities as well as the extent of the potential environmental and social risks and impacts.
- We will contribute to the development and dissemination of appropriate technologies, especially environmentally friendly technologies and technologies that create direct and indirect jobs.



Objective 2: End hunger, achieve food security and better nutrition and promote sustainable agriculture.



Objective 12: Ensure sustainable consumption and production patterns.



Objective 13: Take immediate action to combat climate change and its effects.



Objective 1: End poverty in all its forms, everywhere.



Objective 3: Ensure a healthy life for all people of all ages and promote their well-being.



Objective 15: Protecting and restoring terrestrial ecosystems, promoting their sustainable use, managing forests sustainably, combating desertification, ending and reversing land degradation and putting an end to the loss of biodiversity.

• We will continuously improve our environmental performance through:

- a) Preventing, minimising and eliminating negative impacts on air, land, soil, water, forests and biodiversity as well as reducing greenhouse gas emissions;
- b) Avoiding or reducing hazardous and non-hazardous waste, substituting or reducing the use of toxic substances and improving the productive utilisation of waste or ensuring safe waste disposal;
- c) Safeguarding sustainable use of natural resources and increasing efficiency of resource utilisation and energy efficiency;
- d) Reducing losses and waste and promoting recycling;
- e) Promoting good agricultural practice, e.g. to maintain or improve soil fertility and prevent soil erosion;
- f) Promoting and conserving biodiversity, genetic resources and ecosystem services; respecting protected areas, areas of high conservation value and endangered species; and controlling and minimising the spread of invasive alien species;
- g) Increasing resilience of agriculture, underlying habitats and the associated livelihoods with regard to climate change with the help of adaptation measures.

4. with regard to labour rights, health and safety

- We will comply with international core labour standards in our business operations, in particular those relating to freedom of association and the right to collective bargaining, including for migrant workers, the elimination of all forms of forced and compulsory labour, the effective abolition of child labour and the elimination of discrimination in respect of employment and occupation.

In addition, as part of our business activities:

- a) Ensure health and safety in the workplace;
- b) Ensure appropriate wages, benefits and working conditions that are at least sufficient to meet the basic needs of workers and their families and endeavour to improve working conditions;
- c) Promote employment security and participate in government programmes to provide some form of income protection for employees whose employment has been terminated;
- d) Endeavour to prevent the rights of migrant workers from being violated;
- e) Introduce initiatives, measures and procedures to significantly improve the participation of women in decision-making processes and management functions.
- f) We will contribute to the realisation of the right to work by striving to increase both direct and indirect employment opportunities;
- g) Ensure that employees at all levels are provided with relevant training that meets the needs of the organisation and the development policies of the host country, including by increasing the productivity of young people and/or improving their access to appropriate employment or business creation opportunities;
- h) Ensure maternity protection in the workplace.
- i) Implement appropriate procedures to prevent risks to human life, health and welfare in the course of our business activities and hazards arising from the consumption, use or disposal of our goods and services, including by following good food safety practices;

A man with a beard and short hair, wearing a green polo shirt, a green baseball cap with an orange brim, and blue cargo pants with a brown belt, stands in a hop garden. He has his hands on his hips and is looking towards the camera. The background is a dense wall of green hop plants. In the foreground, there are rows of young hop plants in the soil.

We are HVG

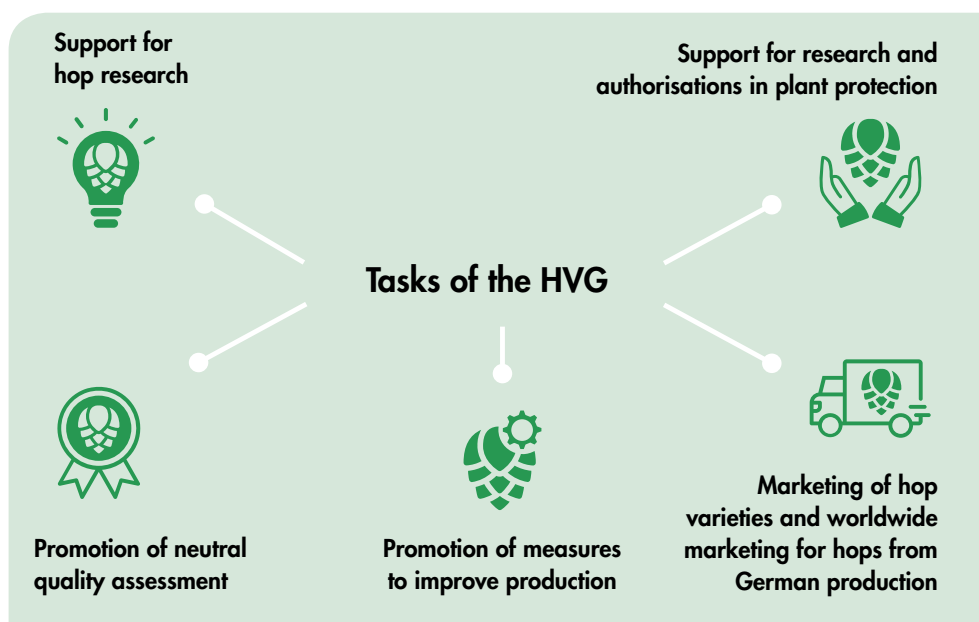
» I feel committed to sustainable cultivation of our hop gardens as part of our cooperative. I have therefore developed a revegetation management system for my hop gardens in order to achieve healthy, humus-rich soils. Clover-alfalfa mixtures and grasses provide permanent greenery in the hop gardens, which prevents erosion and drought problems. Biodiversity is just as important to me: Dry stone walls, hedgerow planting and agro-forestry concepts provide habitats for many plant and animal species. «

Johannes Schönaier (28), Bachelor of Science in Agriculture and HVG member, runs the "Schönaier Hof" farm in the municipality of Rohrbach (district of Pfaffenhofen). Schönaier grows eight different hop varieties on 25 hectares.

Our business activities

The cooperative business model stands for economic sustainability and fair participation

The economically successful marketing of our members' production has been the first and most important guiding principle for the sustainable existence of the cooperative for 70 years. Our tasks however go beyond processing and marketing and extend to all areas that are intended to strengthen and maintain hop production in Germany.



Over the past 30 years, we have been able to double the direct marketing share of our members' production and pay out over 30 million euros in additional dividends and product refunds to the growers.

Reporting requirements are set to increase significantly in the future. Reporting on sustainability criteria was previously voluntary for the HVG e.G., but this is to change in the short term. The EU's Corporate Sustainability Reporting Directive (CSRD) came into force on 5 January 2023. It is one of the three pillars of the European Union's "Sustainable Finance Strategy" alongside the Disclosure Regulation (SFRD) and the EU Taxonomy Regulation (EU Tax-VO). The provisions of the CSRD are to be transposed into national law within 18 months. From 2024, capital market-oriented companies are required to comply in their sustainability reporting. From 2025, this applies to all large companies (balance sheet total > € 20 million, sales revenue > € 40 million, over 250 employees) regardless of capital market orientation.

Our members are also our preliminary hops suppliers. We have set ourselves the objective of supporting them in organising hop farming in accordance with modern sustainability criteria.

	Comparison of HVG campaigns 2011/2012 with 2021/2022
Total fixed assets	+ 151%
Total assets	+ 54%
Total share owners' equity	+ 62%
Sales revenues Net Sales	+ 96%

Sustainable procurement of hops

Back in 2014, the Hop Ring developed a sustainability system for the German hop industry ("Farm Sustainability Assessment" of the Sustainable Agriculture Initiative-SAI).

By the 2025 harvest, the HVG aims to market 100% sustainably certified hops in order to ensure hop production for future generations while taking social, ecological and economic concerns into consideration. The HVG has set aside a budget of around € 200,000 per year to compensate growers for the additional work and to support them in their continuous improvement by providing advice. The introduction of the payment system for the 2021 harvest has already enabled the HVG to increase its share of sustainably produced hops by 22%, with 71% of the hops marketed already coming from certified sustainable production. An annual flat-rate operating fee and a volume-based special payment are offered as an incentive for growers to participate in the assessment. We continue to hope for the active participation of our current shortfall of members.



Secondary objective
9.1 Develop quality, reliable, sustainable

and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all



Secondary objective
12.1 Implement the TEN-YEAR FRAMEWORK OF

PROGRAMMES ON SUSTAINABLE CONSUMPTION AND PRODUCTION, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries

The HVG commissions experts to advise and inspect member farms. The following topics are covered:

- Documentation: SAI sustainability, cross compliance, applications, EDP programs
- Fertilisation: Implementation of the DÜV, determination of fertiliser requirements, nutrient balance sheet
- Seasonal workers: Legal certainty, customs requirements, DRK, SVLFG
- Crop protection: Stock assessments, PPP use, weed control
- Soil: Soil assessment, erosion control, green manuring, wilting
- Quality, yield, alpha
- Corporate management, business administration
- Technology: Dimensioning, optimisation, automation
- Energy: Energy saving, CO₂ footprint

Growing region Crop 2021	Sustainable-HVG suppliers Share in %	Sustainable-HVG hop batches Share in %
Hallertau	59.6	70.2
Elbe-Saale	80.0	86.5
Tett nang	66.2	70.0
Total	61.4	71.1

In the internal audit, 203 hop producers were audited in the reporting period, which corresponds to 35 % of all registered NH operations.

Of these, 200 farms participate in a quality management system for hops and are therefore checked annually for compliance with sustainability criteria. The area under sustainable hop cultivation in Germany currently totals 14,179 hectares.

Amira as the result of the HVG hop breeding programme

When we started working with Jakob Schauer's cultivation expertise in 2017 (†24.11.2021), the HVG set itself the objective of introducing at least one new variety by 2025. The new introduction of Amira into the portfolio of German hop varieties means that we have achieved our objective of registering our own promising climate-adapted variety ahead of schedule. The HVG provides up to € 200,000 per year for trial cultivation, expert supervision and brew trials with professional tasting.



Secondary objective 8.2 Achieve higher levels of economic

productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors.



Secondary objective 13.3 Improve education and awareness-raising

as well as human and institutional capacities in the areas of climate change mitigation, climate adaptation, climate impact reduction and early warning.



Based on long-standing cultivation lines, our HVG experts evaluate and approve the potential candidates in accordance with the evaluation of plants and cone growth, analysis of aroma and bitter compounds, brewing trials, etc.

The aims of HVG selective cultivation are:

- Increased productivity or stable productivity with reduced fertilisation.
- Better resistance or tolerance to diseases and pests - reduced use of pesticides
- Stable varieties resistant to biotic stress, such as heat and drought.
- Excellent brewing and processing properties.

In addition to managing her family farm in Tegernbach, Anna Baum has been improving our breeding team since 2021 in the propagation, breeding and selection of promising candidates with future potential - currently just under a thousand.

Drawing on her bachelor's degree in agriculture from the HSWT and her experience on her own farm, she is able to control the selection of new varieties right through to flavour evaluation.



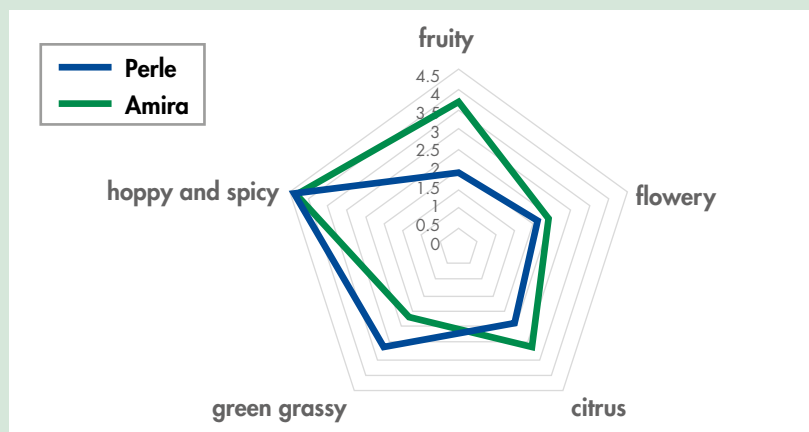
Agronomic properties

- Vigorous and high-yielding (ca. 2,500-3,000 kg/ha)
- Hop harvest: medium to late
- Cones: compact, firm
- Powdery mildew: resistant
- Heat and drought: stable yield and alpha acid content

Analytics

- Alpha content: Ø 9-11 %
- Cohumulone proportion: Ø 34 %
- Total oil: Ø 1.7 ml/100g

Tasting impression compared to classic varieties such as Perle as a late flavour addition in the brewhouse



Irrigation in hops farming

The risk analysis on page 27 shows that the weather and drought-related fluctuation in yields is a major challenge for sustainable hop farming in Germany. The proportion of irrigation needs to be significantly increased in the medium and long term. The HVG e.G. works with stakeholders from politics, science and hop production and is currently providing financial support for the plans for comprehensive hop irrigation in large parts of the Hallertau.

Our objective:

• Increase the proportion of irrigation and fertigation areas to 50% by 2030

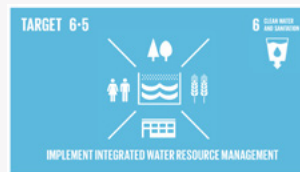
As a result of a multi-year programme, more than 20% of hop farming areas in Germany have been provided with drip irrigation systems since 2008 through financial incentives and intensive consultation. Other hop farming nations, such as the USA, grow almost 100% of their hops by means of irrigation and fertigation. There are regional differences in Germany. However, the difficulties of getting additional wells approved prevent the necessary expansion of irrigated areas. Preliminary work has shown that the water layers that we would use in the Hallertau region drain into the Danube from a

geological point of view, which would not cause any depletion of the groundwater reservoirs. Targeted nutrient supply in hop cultivation through fertigation also significantly reduces nitrate pollution, for example. Irrigation guarantees stable yields and thereby guarantees supplies to the worldwide brewing industry, which is heavily dependent on volatile German hop production. In addition, fertigation increases soil health, improves permeability as the soils do not dry out, as well as leading to a reduction in land use due to increased yields. There is still a need for political persuasion to highlight the benefits of irrigation and fertigation.



Secondary objective 2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural

practices that increase productivity and yield, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters whilst progressively improving land and soil quality



Secondary objective 6.5 By 2030, implement integrated water resources management at all levels, including through cross-border cooperation as appropriate



Secondary objective 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

The objective: The development of sustainable irrigation concepts that also function in the long term under future climate change conditions and stabilise the reliable supply of German hops.

The core question: Which water procurement sources are in a position to supply the required quantities of water?

Results of the feasibility studies on water procurement sources:

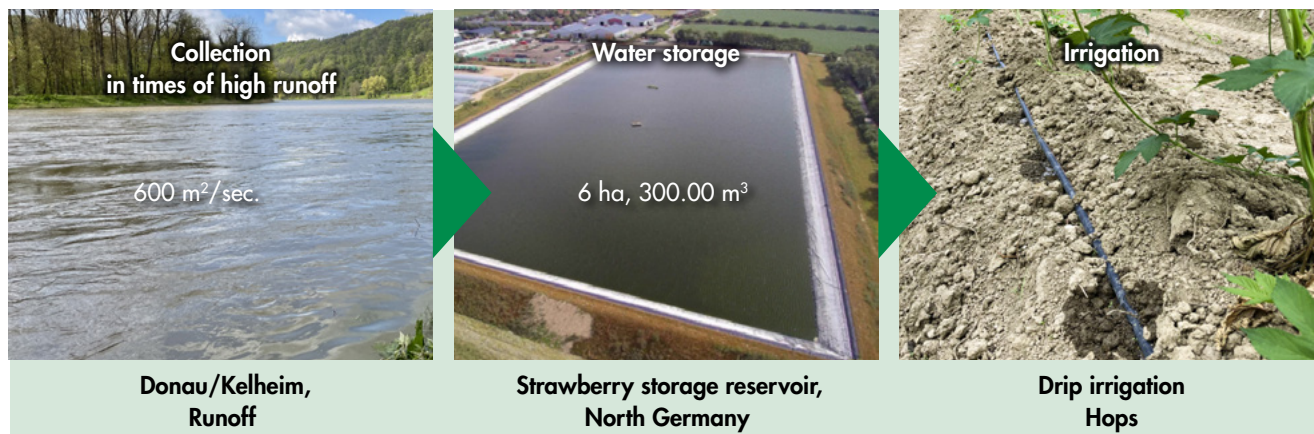
- 1) Small-scale collection of precipitation is **not** sufficient to provide security of supply
- 2) Groundwater utilisation in the required quantities is **not** permitted
- 3) Supra-regional water supply from larger surface waters with partial storage as a **solution**

For the irrigation concepts of the future, this means:

It is not possible to obtain the required quantities of water from groundwater and, in the long term, the continued use of existing groundwater wells is also being restricted. A comprehensive hop irrigation system requires the construction of **supply lines** to tap into larger bodies of water and the construction of additional **storage reservoirs**. Some of the irrigation water required is pumped into the basins during periods of high runoff (e.g. during the winter months) and stored there temporarily.

Hallertau Irrigation Association to safeguard hop farming during climate change

The realisation of the Hallertau Irrigation Association for hops is only possible by establishing a supra-regional infrastructure in a community. This has already been successfully practised in other parts of agriculture for decades and is under continuous development.



Irrigation AND fertigation as a solution

Yield, alpha acid and quality are effectively stabilised by irrigation in years with dry periods. However, it is currently only possible to irrigate just under 20 % of the hop acreage in the Hallertau region. As a result, with the support of the HVG, plans are currently underway for comprehensive hop irrigation in large parts of the Hallertau by establishing an irrigation association as a water and soil association in accordance with the Water Association Act (WVG). Central task: Water procurement and distribution for hop irrigation



Above-ground drip hose installation (l.), Perle variety with irrigation (r.). In extreme years with long dry periods, a total irrigation requirement of up to 1,500 m³/ha per year or 40 m³/ha per day may be required.



Climate change has long since arrived in hop farming

The historically poor hop year of 2022 with a 30 % drop in yield (compared to the previous year of 2021) has shown the challenges that climate change poses for hop farming. The frequency and duration of dry and hot spells has increased significantly for at least 10 years, as is apparent when analysing the water balance (= precipitation minus evaporation) in the months of June to August, these being the most important months for hop production. Potentially significant losses in yield and quality are the consequences for hop farming without irrigation!

Comparable projects in Germany and Israel help with the planning in the Hallertau.



Our environmental activities

A desire to protect the environment and respect for nature have influenced our activities for generations, both on the hop farms and in the processing facilities.

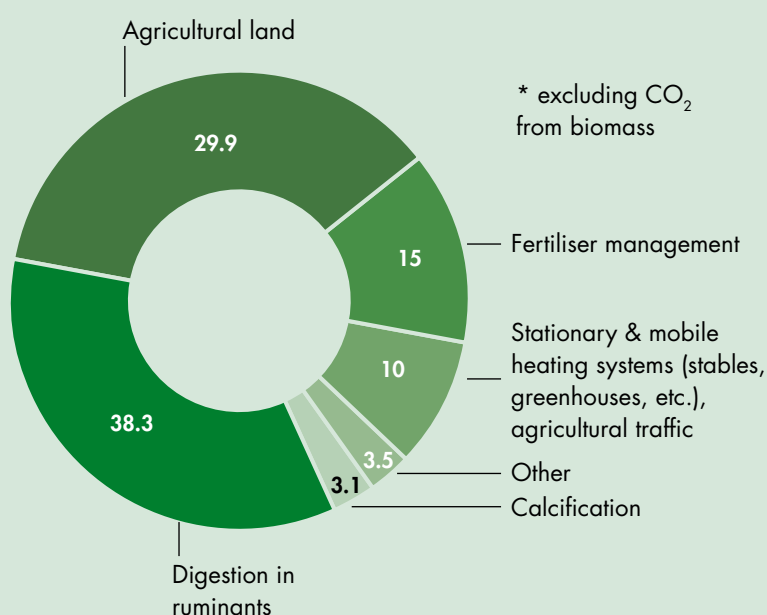
_____ In 2021, the HVG adopted its HVG standards for responsible corporate conduct with regard to environmental protection and the sustainable use of natural resources. In doing so, the members of the cooperative are expressing their clear commitment to continuous improvement of production in harmony with protection of our natural resources for future generations.

The European Green Deal aims to make the continent climate-neutral by 2050 and significantly reduce the environmental impact of the economy. A key component of this plan is the Farm to Fork (F2F) strategy in the area of agriculture and nutrition. The core points of F2F include the reduction of greenhouse gas emissions, engaging in more environmentally friendly agricultural practices, measures for biodiversity, animal and species protection as well as an increase in organically cultivated land.

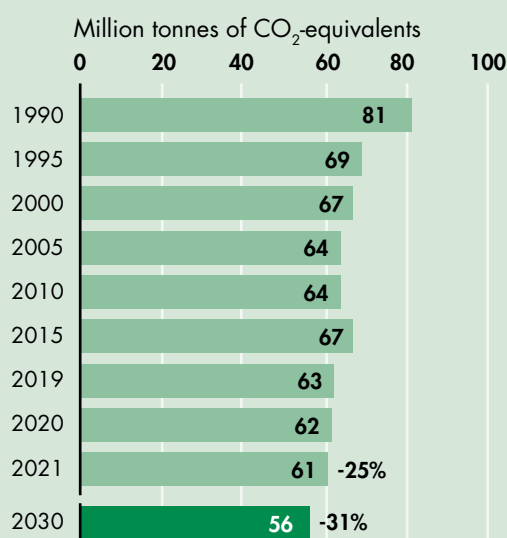
EU and German Climate Protection Act

In July 2021, the European Climate Law was adopted, which legally anchored greenhouse gas neutrality in 2050 and a greenhouse gas reduction of 55% by 2030 compared to 1990. A ruling by the Federal Constitutional Court led to the first amendment to the Federal Climate Protection Act in August 2021 and tightened the target path for the reduction of greenhouse gas emissions compared to 1990 as follows:

by at least 65 % by 2030 • by at least 88 % by 2040 • by 2045 Achievement of net greenhouse gas neutrality • negative greenhouse gas emissions are to be achieved after 2050.



Sources of emissions in agriculture* (2020) in %
Source: UBA (2022c)



Emissions trends in agriculture
(Source: Federal Government (2021c), UBA (2022c))

Preheating the air with a woodchip heating system replaces for an average farm ca. 8 litres of heating oil per hour. Based on 20 days of harvesting, annual heating oil savings of ca. 3000 litres of heating oil is possible.





"Green Hops" a transformational project

In 2023, a project will be launched to explore the existing technical alternatives for energy supply and marketing in the hop farming sector. Our commitment to a policy of high quality combined with efficient and sustainable cultivation and processing means that we are pursuing the transformation to "green hops" with a reduction in greenhouse gas emissions. This is reinforced by breweries that are increasingly requesting CO₂-neutral products as HVG customers.

We commissioned the Fraunhofer IGCV, an institute of the Fraunhofer Society for the Promotion of Applied Research, to conduct a preliminary study to identify suitable sustainable energy supply and energy marketing options for hop growers. The project starts in September 2023 and represents an investment of almost € 30,000.



Fraunhofer Institute for Casting, Composite
and Processing Technology IGCV

Project Planning

- Reference case, three orientation options for future energy supply systems and two price scenarios
- Simulation results with cost/revenue data, operating strategies and load profiles
- Economic and GHG-related key figures for the reference case and the three variants in three scenarios each
- Variants for different categories of hop growers with future technology combinations and their design and operating strategy

Starting position

The processing of hops is characterised by high energy input in September, which is due to the conditioning, drying, pressing and packaging processes that take place after harvest. The energy required for this is currently provided by heating oil or natural gas for most hop growers. Future energy supply systems need to be designed without these fossil fuels and take into consideration the advantages of hop farmers, such as the large roof areas usually available for photovoltaic systems. A large number of electrical and thermal generation systems and storage facilities are available for the concepts. Initial rough analyses based on an exemplary hop farmer showed that probably only combinations of different systems and storage technologies can be used cost-effectively. The selection of these combinations of technologies, the choice of system dimensions and basic operating modes as well as various possible price and revenue scenarios form a complex problem.

We commissioned the Fraunhofer IGCV to develop possible orientations for ecologically sustainable energy supply systems for hop growers and to investigate them by means of simulation studies. Possible future consumers and system components (e.g. heating networks, H2 technologies or electric vehicles) and energy marketing opportunities also need to be taken into consideration. The results of the evaluation of these studies consist of statements verified by data on the economic efficiency and greenhouse gas reduction potential of the orientations considered, which then allow for further investigation and implementation in a possible follow-up project.

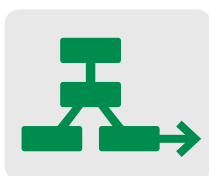


On average, between 30 and 35 litres of heating oil are consumed in the Hallertau for 100 kilograms of dry hops. Energy is also required for pressing and packaging processes after the harvest. Energy supply should be able to manage without fossil fuels in the future.



Project content:

The procedure includes the preparation of simulation studies, their implementation as well as subsequent evaluation and documentation. The simulation studies offer the opportunity to develop different technological orientations with existing and future facilities. This provides the data basis for the subsequent economic evaluation and classification of the greenhouse gas reduction potential. Top-Energy® software is used in the project to simulate the alignments and scenarios. It offers all the key components for the provision of heat, electricity, cooling, technical gases, solid fuels, hydrogen and other energy sources as well as consumers and storage technologies. Fraunhofer IGCV employees build models and parameterise the components based on the variants to be considered. This allows relevant technologies to be added, the design of the system size to be adjusted, costs to be defined and technical boundary conditions, such as system availability or capacity limits, to be specified. The simulation studies result in optimised operating strategies for the components in the form of load profiles and investment data over the specified monitoring period. The generated load profiles of the power plants and energy procurement allow for comparison of the variants, a detailed economic analysis and a subsequent life cycle assessment of the resulting greenhouse gas emissions.



Development and selection of orientations and scenarios

Creation of reference cases, three orientations for future energy supply systems, price scenarios



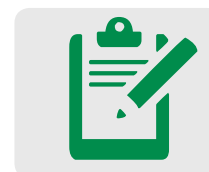
Modelling the variants and conducting the simulation studies

Development of simulation results with cost/revenue data, rough operating strategies and load profiles



Economic evaluation and GHG assessment

Calculation of economic and GHG-related key figures for the reference case and the three orientations each in two scenarios



Evaluation, comparison, and documentation

Determination of recommended alignment with future combinations of technologies and their general system design

Climate footprint of the HVG 2021/2022

We are very conscious of the impact of our activities on the climate.
Where do the emissions occur and to what extent?
We identify potential for reducing emissions by pinpointing and
balancing the sources of emissions.

	Cause of CO ₂ e-emissions	HVG cause	HVG emissions (in tonnes CO ₂ e)	
Scope 1	(own company)		21/22	18/19
	Fixed systems	Heating oil	25.00 †	23.00 †
	Mobile systems	Diesel vehicles + trucks	65.00 †	97.00 †
Result of Scope 1			90.00 †	120.00 †
Scope 2	(purchased energy)			
	District heating	Certified CO ₂ neutral	0 †	9.00 †
	Emissions from the generation of electricity purchased	Green electricity (Mainburg, Tettnang, Wolnzach)	0 †	81.00 †
Result of Scope 2			0 †	90.00 †
Scope 3	(upstream value chain)			
	Goods purchased	Hop production	44,200.00 †	46,000.00 †
	Business trips	Air travel	110.00 †	130.00 †
	Transport and distribution (upstream)	Logistics, transport of unprocessed hops	50.00 †	60.00 †
Result of Scope 3 (upstream)			44,360.00 †	46,190.00 †
Scope 3	(downstream value chain)			
	Payroll processing Hops	VA St. Johann	3,600.00 †	2,690.00 †
	Payroll processing Hops	VA Wolnzach - NATECO ₂	0 †	3,310.00 †
	Transport and distribution (downstream)	Truck logistics for hops	210.00 †	215.00 †
	Transport and distribution (downstream)	Sea freight logistics for hops incl. trucks	450.00 †	585.00 †
Result of Scope 3 (downstream)			4,260.00 †	6,800.00 †
Result of Scope 3 Total			48,620.00 †	52,990.00 †
Result of Scopes 1 - 2 - 3 Total			48,710.00 †	53,200.00 †



The following changes have been made to the calculation of the CO₂ footprint since our last report:

Scope 1:

The purchase of a new, far more efficient truck and the conversion of 5 cars in our fleet to electric drive systems enabled us to reduce our CO₂ emissions by 25 %.

Scope 2:

The supplier of district heating for the Competence Centre for Hops (Biowärmeverbund HKW Betriebs-GmbH) certifies climate neutrality for the 60,000 kWh is used. Our electricity consumption of 232,000 kWh has been completely converted to green electricity, reducing our Scope 2 from the previous 90 t to 0.

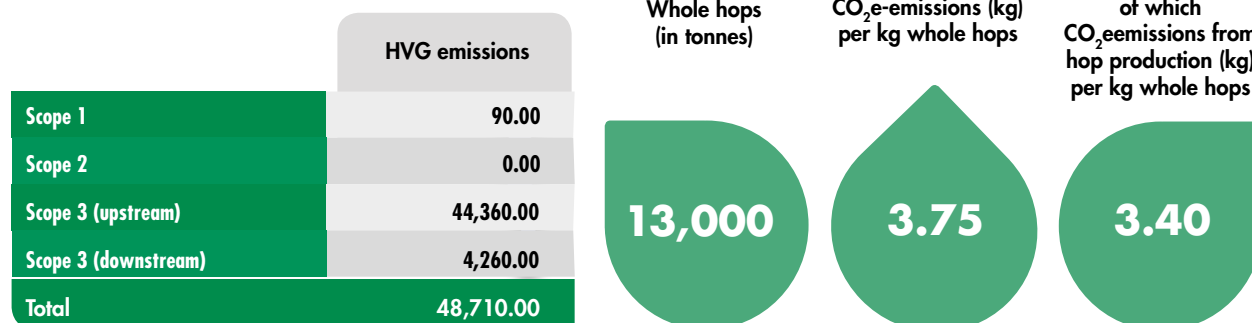
Scope 3 upstream:

Although we sold a larger volume of hops (+ 8.3 %) than in the previous reporting period, the reported carbon footprint is 4 % lower. The new values determined by the LfL for the raw hops enabled a more accurate picture to be obtained by applying a higher level of detail to the respective hop varieties.

Scope 3 downstream:

The relocation of hop extraction from Wolnzach to St. Johann has resulted in significant changes. The footprint in St. Johann, including packaging for pellets and extracts, is around 1,000 tonnes higher, but NATECO₂'s share of CO₂ is over 3,000 tonnes. Absolute emissions have therefore been reduced by 8.2 % in total.

Result overview 2021/2022 (in tonnes)



Wolnzach
headquarters

100%
Processing
in a radius of
no more than
25 kilometres

85%
Hops originate
from a radius of
no more than
35 kilometres

15%
Hops originate
from a radius of
no more than
375 kilometres

Local processing and sourcing of ingredients

Economic hop farming and biodiversity

In 2018, a multi-year project was launched with the development of a catalogue of measures to promote biodiversity in hop farming with the financial participation of the HVG - in its capacity as an EU-recognised producer organisation. The pilot project "Biodiversity in harmony with hop farming" aims to show how biodiversity is preserved and improved without compromising economic productivity.

The "Eichelberg biodiversity backdrop" will be used as an example to demonstrate the biodiversity that already exists there and how biodiversity can be specifically improved through individual, simple measures. In the area of the classic hop farming village of Eichelberg on the edge of the Ilm valley, there is a largely closed area of 85 hectares. Of these, 34 ha (40 %) are hop fields, 28 ha (33 %) are arable land and the remainder is divided between wooded areas, grassland, flowering areas, "Eh-da areas" and special sites.

A broad network of affected associations, organisations and institutions was established for the project financed by the HVG. In addition to the Hops Research Centre of the LfL and the Niederlauterbach interest group (as the predominant landowner), the TU Munich, the AELF Pfaffenhofen-Ingolstadt (specialist centre for agroecology), the Landesbund für Vogelschutz (LBV), the regional nature conservation authority in the district of Pfaffenhofen, the Bavarian Farmers' Association, the local hunter, the Hop Ring and the Association of German Hop Growers were also involved.

Implementation of the action plan began in spring 2021. This includes an inventory of the "flagship species" typical of the hop culture, which should help to make the objectives and successes of biodiversity promotion in hops tangible in a simple way. The following species were selected because they are rather rare, but typically find their habitat in and around hop fields in the Hallertau - in other words, they are hop-specific species:

In addition to the HVG Hop Processing Cooperative e.G., the LfL Hop Research Centre, the Niederlauterbach Interest Group e.V., the Technical University of Munich, the AELF Pfaffenhofen-Ingolstadt, the State Association for Bird and Nature Conservation (LBV) and the Regional Nature Conservation Authority in the Pfaffenhofen-Ingolstadt district, the Bavarian Farmer's Association, the local hunter, the Hopfenring and the Association of German Hop Growers were also engaged.



- Woodlark *Lullula arborea*: already occurs in the area, should continue to be encouraged
- Grey partridge *Perdix perdix*: still occurs in the neighbouring Ilm valley, should establish itself again in the project area
- Tree sparrow *Passer montanus*: likes to breed on hop trellises and is encouraged here
- C-moth or "hop bird" *Nymphalis c-album*
- Hop daystar *Hemerobius humulinus*
- Ant lions (*Myrmeleon formicarius*, *Euroleon nostras*)

The promotion of biodiversity requires the availability of diverse habitats and retreats that fulfil the different requirements of individual species. Various structures are being created across the biodiversity landscape:

- Reading cairns, e.g. for reptiles
- Sand mounds, e.g. for sand beetles, wild bees, grasshoppers, ant lions
- Deadwood piles, e.g. for wild bees, reptiles
- Copses for birds and small game
- Dead hedge e.g. for birds, reptiles and amphibians;

- Flower strips and flowering areas for numerous insect species
- Butterfly bush *Buddleja davidii* as a feeding centre for butterflies, wild bees, hoverflies etc.
- Nettle climbers for caterpillars of noble butterflies, predatory mites and many other beneficial insects
- Raw soil/fallow land, e.g. for ground nesting birds such as the woodlark and as feeding habitat
- Wild vines at the edge of hop gardens as a habitat for predatory mites and other beneficial insects; also a food source for honeybees, bumblebees and many bird species
- Nesting boxes especially for certain bird species, in particular the tree sparrow (small flight holes)
- Seeding between the hop tramlines

The project partners want to emphasise the responsible approach of farmers to nature, sensitise the public to local species and their needs as well as increase acceptance of measures to promote biodiversity. Since the summer of 2023, a specially created educational trail presenting the various habitats and their inhabitants has also served this purpose.



The hop gardens that characterise the landscape in the Hallertau are surprisingly accepted as a substitute habitat for the woodlark. The hop gardens provide cover, food and, above all, singing and perching sites for the now increasingly rare woodlark.



Soil analysis in the laboratory

Waste

- **Cultivation:** About 14 tonnes of plant waste per hectare are produced during the hop harvest. Since 2012, we have operated the world's first facility for the production of bio natural gas from hop residues in cooperation with E.ON, the energy company.
- **Processing:** The harvested hop cones are pressed into special polypropylene rectangular bales. The material is new, approved for food use and contains no additions of reclaimed or recycled material to ensure that it is fully recyclable. This means that around 400 tonnes of PP material is produced for the entire harvest, which is 100% recycled. The changeover to this new rectangular packaging was advanced by us through a promotional programme in 1999.
- Environmental management of our processing facilities is certified in accordance with ISO 14001:2015. All of the CO₂ from the processing facilities comes from natural fermentation. The production of hop pellets and extract generated around 12,000 tonnes of hop spent grains in the reporting period, which are traded as animal feed due to their high protein content.

Water

- **HVG:** Water use in our HVG offices and the Mainburg facility was 550 cubic metres for the reporting period.
- **Processing:** The relocation of the extraction facility from Wolnzach to St. Johann has resulted in an increase in water consumption to around 0.7 cubic metres of water per tonne of hops processed. A hop dosage of 300 grams per hectolitre in the brewhouse means a water input of around 0.2 litres per 100 litres of wort.



Fertilisation

- **Cultivation:** In the newly established laboratory for determining the nitrogen content N_{min} , the Hop Ring determines the soil quality for proper fertilisation to ensure the necessary contribution of nitrogen (N), phosphate (P_2O_5), potassium oxide (K_2O), magnesium oxide (MgO), lime (CaO) and trace nutrients such as boron and zinc. 2,959 analyses from 636 companies made use of this service, which documents all data on a field-specific basis.

The pesticide residue monitoring system

- **HVG:** The hop industry has conducted comprehensive pesticide residue analyses since the 2011 harvest. A representative cross-section of all varieties and harvest times is obtained by using every 20th sample of the German hop harvest in anonymised form for a residue analysis. Each sample is tested for more than 500 potential chemical residues. The producer organisation HVG contributes € 100,000 annually to the costs of this monitoring.

Organic agriculture

- **HVG:** Some of our members are passionate and committed organic farmers and were pioneers in this field in Europe. The total area of hops farmed according to organic agriculture criteria in Germany has increased from 81.1 hectares in 2011 (8 farms) to just under 196 hectares (12 farms). This equates to 0.9% of the total amount of hops grown. The HVG markets almost 20 tonnes of hops produced according to organic standards through special agreements between growers and breweries. Both HVG and Hopfenveredlung St. Johann are certified by AB Cert for the processing and trading of organic hops.



Our social activities

A cooperative differs from other companies in more than just its legal form. The members of a cooperative are a long-term community with a shared set of interests and a common destiny.

_____ According to the Genossenschaftsverband, the 7,000 cooperatives in Germany are a driving economic force with more than 900,000 employees and 23.5 million members. The International Cooperative Alliance puts the number of cooperatives worldwide at over 3 million, in which 280,000 people find work. We at the HVG are also convinced that only by working together is it possible to achieve objectives that each individual would not be in a position to accomplish on their own. Entrepreneurial success is not an end in itself, however, but rather the necessary platform for shaping the future and thereby constantly improving the lives of all those who work in the cooperative. Day in, day out, the HVG member farms and employees give their best to grow the finest hops with care, process them carefully and deliver them reliably to breweries all over the world. We gladly get up every morning to carry out this worthwhile task.

Principles of the cooperative system

Our cooperative promotes community and solidarity among hop farming families while creating a framework for sustainable development and utilisation of their hop production in a way that prioritises their interests and prosperity.

1. Identity principle and funding principle

The purpose of the cooperative is to promote the acquisition and the economy of its members through joint business operations. The members of the HVG are also its owners and suppliers, who have voluntarily joined forces to process and market what they produce.

2. Principle of self-help, self-responsibility and self-administration

The HVG is managed and controlled by its members. They joined forces 70 years ago to achieve common objectives in the field of hop farming and utilisation. By working together, their dependence on external players is minimised whilst their resources and expertise are shared. The cooperative and its assets are owned exclusively by its members.

3. Democratic principle:

Every member of the HVG has one vote, regardless of the capital contribution, which promotes democratic decision-making and participation. Cooperatives in Germany are based on the Cooperatives Act, which was last revised in a fundamental form in 2006. European law also permits the establishment of cross-border European cooperatives (Societas Cooperative Europaea, SCE).



We are HVG

» I've been an enthusiastic hop grower for years now. My parents familiarised me with all the work with hops at an early age and so it was natural for me to train as a farmer at the agricultural college in Pfaffenhofen, which I also completed with my master's degree. Why should we give our harvested hops to anyone other than our own cooperative, after all, we growers are the HVG!

I am therefore convinced that their interest also reflects our own. The combination of many years of stability and the reimbursement of goods make the HVG an interesting and unique trading partner. «

f.l: Katharina Maier with her parents Raimund and Gabi Maier, hop growers in the Hallertau (Eschelbach/ Wolzach)



HVG organized events and training programmes



Survey among member farms: Your Youngers' and Ladies' Hoppportunity–Campaign

The HVG has conducted an extensive survey to obtain information about the interests, wishes and expectations of its member farms and to use the results to develop an event and training programme. The target groups were explicitly female hop growers and young hop growers - i.e. both young female and male farm heirs. The HVG calls this campaign "Your Younger's and Ladies Hoppportunity" with high-quality offers aimed at promoting sustainable further development of hop farming businesses.

Each member of the HVG had received a corresponding questionnaire for the hop growers working on the farm and for the young hop growers. A total of 1,433 letters per survey were sent by post; alternatively, the addressees could also take part in the survey online via a link. The response rate from both the female hop growers and the young hop growers, at approximately 10% each, was within the range of comparable surveys and was sufficient to derive validated results.

In addition to a small amount of personal information, the survey focused mainly on the demand for specific events and the prioritisation of certain agricultural topics.

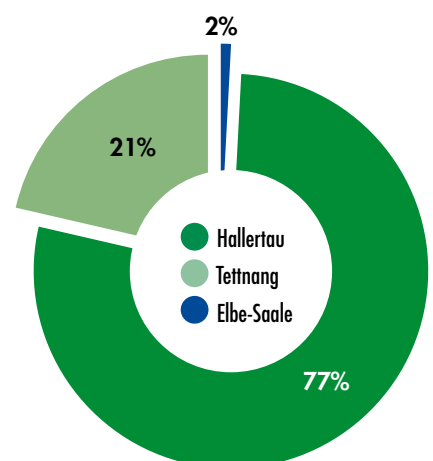


Fig.1: Origin of the participants.

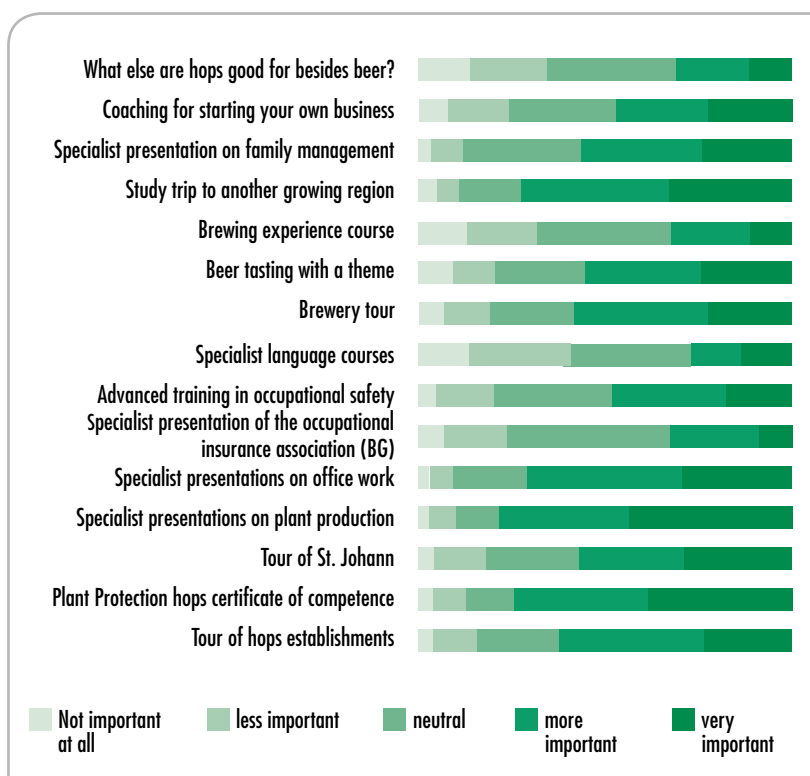


Fig. 2: Area "creative and social family events or seminars"

Figure 2 uses a colour gradient to visually show where the respective focal points are located. Dark green means extremely important and light green means not important at all. The gradation takes place in five stages.

The average age of participating young hop growers was around 25 years, that of the female hop growers around 43 years. Around 77% of respondents came from the Hallertau farming region, with around a fifth from Tettang. Structurally, there are fewer family-run businesses in the Elbe-Saale region, which explains the lower participation rate.

On several occasions, however, it was repeatedly emphasised that training courses were not accepted either due to a lack of time or as unsuitable or unappealing events were on offer. These findings enabled the HVG to filter out topics from the survey that had not yet been offered to both female hop growers or young hop growers.

Most of the participants already had experience of taking part in hop farming events.





Specialist presentations in the areas of farm production, office work and public relations

The three categories of topics surveyed related to specialised lectures on hop production and office work, further training in public relations to increase the appreciation of agriculture, and creative and social family events or seminars.

When evaluating the individual event proposals, it became clear that both the young hop growers and the female hop growers were interested in the same topics. Conventional specialist presentations on the day-to-day business on a farm, concerning hop production and office work, are preferred. The focus of the female hop growers, with an average score of 4.3 out of a possible 5 points, is increasingly on office management.

The highest average score among young hop growers was 4.1 points for the specialised lectures on plant production. The many personal comments clearly demonstrated the great interest in being able to analyse and evaluate one's own business in terms of economic figures in order to make decisions for the future on this basis. In contrast, the feedback on the topic of public relations work to increase the appreciation of agriculture was much more reserved. Another topic that has always been close to the HVG's heart attracted a great deal of attention, with an average score of 3.8 points: The compatibility of career and family. This was emphatically demonstrated by the questioning: As soon as uncertain challenges or even conflicts within the family determine everyday life, this also has a negative impact on business operations.

It is therefore important to know how to bring together work and family life in such situations. The HVG, as a cooperative of hop farming families, decided after this survey to configure appropriate offers on the topic of "work-life balance" to raise awareness of how it is possible to combine the two areas of family and work on a farm without conflict.

Further training for hop growers and future generations who will take over the farms

The HVG is focussing more strongly on the interests of female hop growers and young hop growers, i.e. the next generation of farm workers, as part of its own sustainability concept. The cooperative aims to contribute to the further development of the farms and thus to their economic success with a personalised and specialist range of events relating to hop farming and farm life.

The aim is to promote the sustainability of hop farming through joint training courses and events and to strengthen the member farms and their families regarding the three pillars of economy, environment and social responsibility.



The HVG relies on proven institutions that have already demonstrated their expertise in the past when searching for suitable speakers and consultants:



- inlingua language school
- Bayerischer Bauernverband (Bavarian Farmer's Association)
- Akademie der Maschinenringe (organisation for education and training in the agricultural sector)

The HVG decided to retain these formats even after the Covid-19 pandemic, when all events were held online, so that members from all German cultivation regions could take part from the comfort of their own homes without having to travel.

Face-to-face events are also planned for the future in order to facilitate personal dialogue.

The HVG also intends to increase the use of paperless information about events. To this end, members are given the opportunity to register for an e-mail and/or WhatsApp broadcast.



The seminar programme "Your Younger's and Ladies Hopportunity" at a glance for winter 2021/2022: "Organising farm handovers - a contract like any other?"

What is the best way to ensure a successful farm handover? How do I plan a farm handover? What needs to be taken into consideration? Who should be addressed? These and many other questions relating to farm handovers were discussed during the HVG online seminar, which took place over two days in cooperation with the Bavarian Farmers' Association and was attended by 80 participants. Initially, the focus was on the soft factors of the farm handover. The speaker from the farmers' association gave an informative and entertaining presentation on the interpersonal aspects that are often underestimated or even completely disregarded when handing over a farm. After all, what use is a well-drafted contract if, in the end, it is not suitable for the people it affects? Or when misunderstandings and disputes arise from concerns or questions that are not addressed? This was supplemented by the second part of the event a few days later. The focus was on the hard factors of farm handover - i.e. everything to do with the legal and statutory regulations and requirements as well as changes to agricultural social insurance for transferors and transferees.

The speakers' presentations showed that the interplay of soft and hard factors forms the basis for a successful farm handover and thus for the sustainable management of a new generation of hop growers. The consistently positive feedback has led to plans to repeat this event for all young hop growers who were unable to attend.



Secondary objective 4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship



Secondary objective 4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development



Secondary objective 5.5 Ensure women's full and effective participation as well as equal opportunities for leadership at all levels of decision-making in political, economic and public life

Spring 2022: "Office organisation in agriculture"

Following the great response from members to the start of the HVG event series, another online webinar has been offered before the start of the new hop season. The topic of this evening event was "Office organisation in agriculture".

The speaker from the Akademie der Maschinenringe provided the audience of around 135 with comprehensive information on a wide range of techniques and possibilities in office organisation: from conventional filing systems and card indexes to innovative tools for the future.

The chat questions during the event and the feedback from the audience indicated that there is clearly a great deal of interest in digital tools and cross-device data storage for greater efficiency in the office.



Teresa Locher has been working at the HVG Hop Centre in Tettmang since 2019, where she is responsible for purchasing, logistics and marketing. She comes from a hop farm in Tettmang and, as one of our youngest employees, she is in charge of the HVG Youngers' & Ladies' Hopportunity programmes.



» The language courses offered by the HVG for its members are in great demand. It is of course a challenge to learn a new language while doing your normal work. It does, however, make communication with foreign workers much easier: This ranges from giving work instructions to strengthening relationships with seasonal staff. «

Claudia Locher, hop grower from Tett nang

Winter 2022/2023: Digital office 2.0, pension preparation and elderly care, language courses in Romanian and Polish
Language courses in Romanian and Polish, retirement provision in agriculture with regard to the life partner and digitalisation in the agricultural office - these were the topics of the HVG event series in winter 2022/2023 for young hop growers. The positive response in terms of registrations alone showed that there is an extremely high level of interest in these topics on the part of members and their families. The first language course was fully booked within a few hours as the number of participants was limited. The project started in December 2022 with a total of four language courses and 40 participants in collaboration with the Inlingua language school in Ingolstadt. The participants completed the course at A1 level after 15 teaching units. The HVG is once again offering its members language courses in the next winter season. In addition to the weekly language courses, two further evening events were also on the programme. The young hop

growers were particularly interested in the presentation of app applications and online platforms for the digital office, as they will be increasingly confronted with the digital realisation of office work in the future. The female hop growers, who often manage the offices on the farms, also were able to gain a lot of practical experience about the digital office of the future.

The third seminar topic, "Retirement provision", was also well received by all age groups. As the agricultural pension fund only provides partial cover, the presentation provided information on other supplementary options and alternatives.

Winter 2023/2024: Language courses

The HVG is once again offering basic language courses in Polish and Romanian next winter in cooperation with inlingua. In addition, advanced courses in Polish and Romanian for participants who have already completed the basic language courses are being added to the repertoire of events.

Outlook for 2024:

Two major projects are being planned as part of the "Your Youngers' and Ladies' Hopportunity" campaign:

USA exchange programme for young hop growers

The HVG is currently working intensively on preparing a special programme for young hop growers: a 2-3 month stay with US hop growers in Yakima Valley (Washington State). The period has not yet been fixed, but the stay will be during a time when a lot of work is involved in hop farming, i.e. April/May or August/September.

The official invitation will be issued in 2023, when young persons taking over the farm aged between 21 and 30 will be able to apply. This exchange programme is intended by the HVG to provide added value for the young hop growers, who will become acquainted with processing facilities and breweries as well as the US hop farm during their stay.

Exchange of experience between young brewers and young hop growers

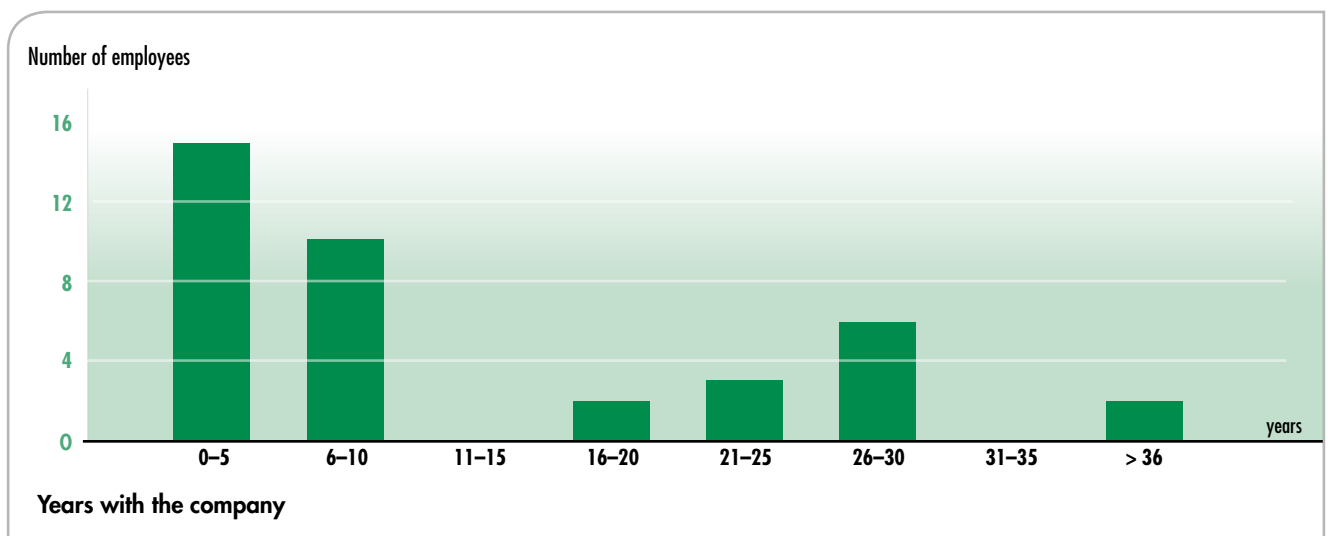
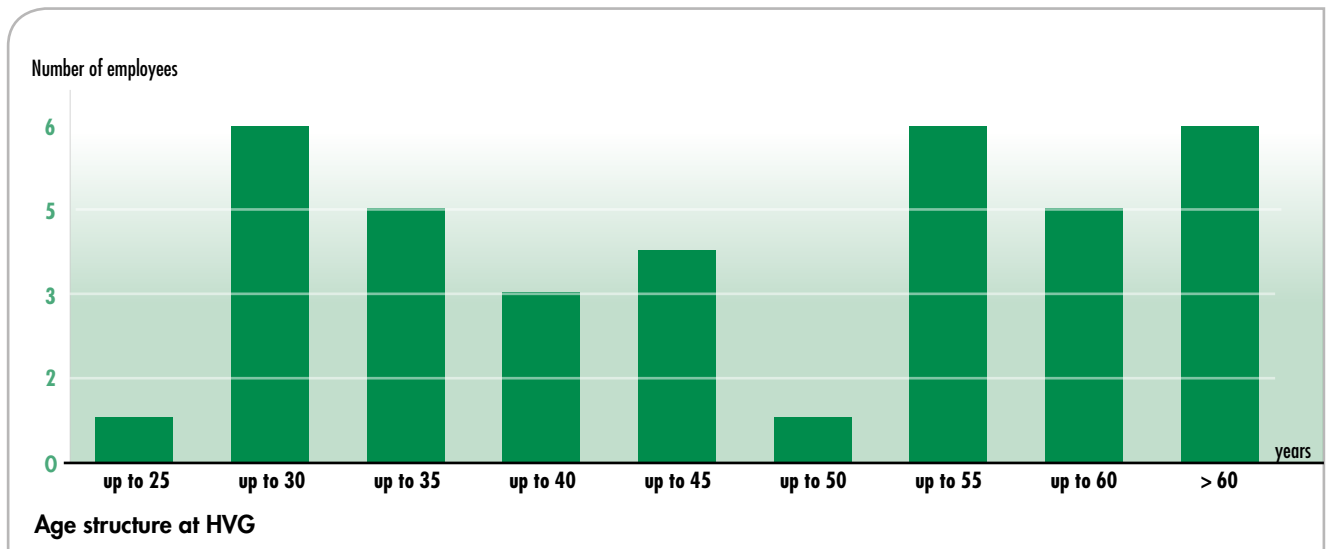
The HVG is also planning to organise an exchange of experiences between young brewers and young hop growers in the coming year. Programmes have been set up in cooperation with the Bavarian Brewers' Association to enable both target groups to get to know each other's fields of work. Two days in Tettnang at selected hop farms are planned from spring 2024.

The aim of this HVG programme is for the two target groups to get to know and understand the topic of "sustainability" for the other target group. The invitation to apply will also be published at the end of the year.



Operating structure

Our HVG core team consists of 34 employees (12 women and 22 men). The average age is 46 years and is evenly distributed from 25 years for our youngest colleague to 64 years for our most experienced colleague.



Sustainability also means rejuvenation and moving with the times. 40% of the core team has been with us for less than 5 years, while a third of the team has been with us for more than 15 years. Many of our new employees come from hop farms themselves.

The average total amount of time that employees stay with the HVG is 12 years. This puts us very close to the national average in terms of average age and length of service. We have seasonal workers providing additional support at the HVG Natural Hop Centre in Mainburg from September to spring, directly after the hop harvest. This number varies somewhat depending on the month of the year.

There are about 25 staff (14 women and 11 men) in addition to our core team. Of our 28 female colleagues (47% of all HVG employees), 13 work part-time.





In 2022, the HVG was the presenting partner at the Hallertau Beer Festival in Attenkirchen - the largest beer tasting festival in southern Germany.

More than 130 different beers were sampled by around 20,000 visitors over the weekend and they were entertained by more than 20 music groups. The HVG was represented with a music stage and an information tent on the festival grounds, which became a meeting point for brewers and visitors who wanted to find out more about hops.



(r.): The specially brewed festival beer "Hoppy Lager" was brewed with the Tango flavour hop and the new hop variety Amira from HVG.

(b.): The barrel tapping of the 6th Hallertau Beer Festival was attended by the organisers, the patron, the priest and the Hop Queen as well as former Olympic ski champion Markus Wasmeier, on the far right next to the HVG Chairman of the Board Dr. Johann Pichlmaier.



Employee well-being

Our doors are always open and our dealings are direct and unbureaucratic. Flat hierarchies, faith in individual abilities and personal responsibility determine our daily actions.

Working atmosphere:

We create the conditions required to make the working environment as pleasant and safe as possible. When there is room for improvement, we act accordingly. Issues such as the working environment for individuals and infrastructure are also separately addressed and documented in the annual staff appraisal and in additional selective staff surveys. We constantly ask ourselves: How do we ensure an optimal working environment?



1. We attach great importance to treating each other with respect, both within the HVG and externally with our stakeholders, and condemn any form of discrimination and marginalisation.



2. Our HVG Standards for Responsible Business Conduct, which relate to a) labour rights, health and safety, b) governance*, c) human rights and d) the environment, set out the values which guide us.



3. The workstations meet modern ergonomic standards. We consistently and comprehensively take into consideration the aspects of occupational safety, health protection and hazardous areas. This is monitored by an outside company and verified by the Employer's Liability Insurance Association.



4. We ensure that we have modern software and hardware for information technology and have removed most printers from the offices or fitted remaining ones with filters due to the fine dust particulates.



5. The employees at the Leaf Hops Centre in Mainburg are provided with work clothes that meet the latest standards.



6. Every year at Christmas time, we donate to various charitable organisations in the growing regions where our members are based.

We aim to ensure two things: First, that hop farming provides a sustainable livelihood both now and for future generations. Second, as hop growers in Germany, we are committed to continuing to supply the best hops for the brewing world.



_____ The foresight of the Hallertau hop growers to join forces 70 years ago to form the HVG-Hopfenverwertungsgenossenschaft e.G., and then in 2001/2002 to unite with the organisations from Tettnang and Elbe-Saale to form a strong German cooperative, is truly impressive. Cooperatives, with their concept of a community of solidarity between producers, are far more sustainable than most other forms of society. The economic rise of the HVG to become one of the most important hop market participants worldwide emphasises the importance of the cooperative idea. I am convinced that our companies will only succeed in mastering the changes that are currently emerging as a result of the climatic challenges and the consequences of armed conflicts by working closely together in this association. The commitment of our growers and HVG colleagues, the innovations in cultivation, processing and crop protection and the indispensable support from politicians and organisations in the Competence Centre for Hops will ensure that hop farming in Germany continues to provide a sustainable livelihood for hundreds of families and a reliable source of the best hops for the world's brewing industry.

A handwritten signature in blue ink, reading "Carlos Ruiz".

Yours, Carlos Ruiz
Power of Attorney/Sustainability Coordinator
International Sales Manager HVG



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Auditing Association:

The competent auditing association pursuant to § 54 GenG is the Cooperative Association of Bavaria with its registered office in Munich (Genossenschaftsverband Bayern, Türkenstrasse 22-24, 80333 München), which can be contacted at www.gv-bayern.de.

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