BarthHaas®

REPORT

2021/2022

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BEER

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FOREWORD

As if the world did not have enough problems and crises already

The COVID-19 pandemic is not yet over, the climate crisis not yet defused, world famine not yet stopped… On February 24, 2022 the world found itself with a terrible new crisis in the form of Russia's large-scale assault on Ukraine. We are now witnessing the devastating effects in Ukraine and all over the world.

According to the United Nations 6.8 million people had fled from Ukraine by the end of May. Within Ukraine itself there are another 8 million refugees. This is a humanitarian catastrophe of unimagined proportions and the fastest-growing refugee crisis in Europe since the Second World War.

The Russian invasion of Ukraine has shaken the finance, stock and trade markets around the world. And the war shows to what extent our global dependence on fossil fuels has made the entire world economy a hostage to geopolitics.

Social upheaval and political uncertainties are among the effects of this crisis which marks a historic geopolitical turning point. The world is going through a process of realignment.

NEW MANAGEMENT

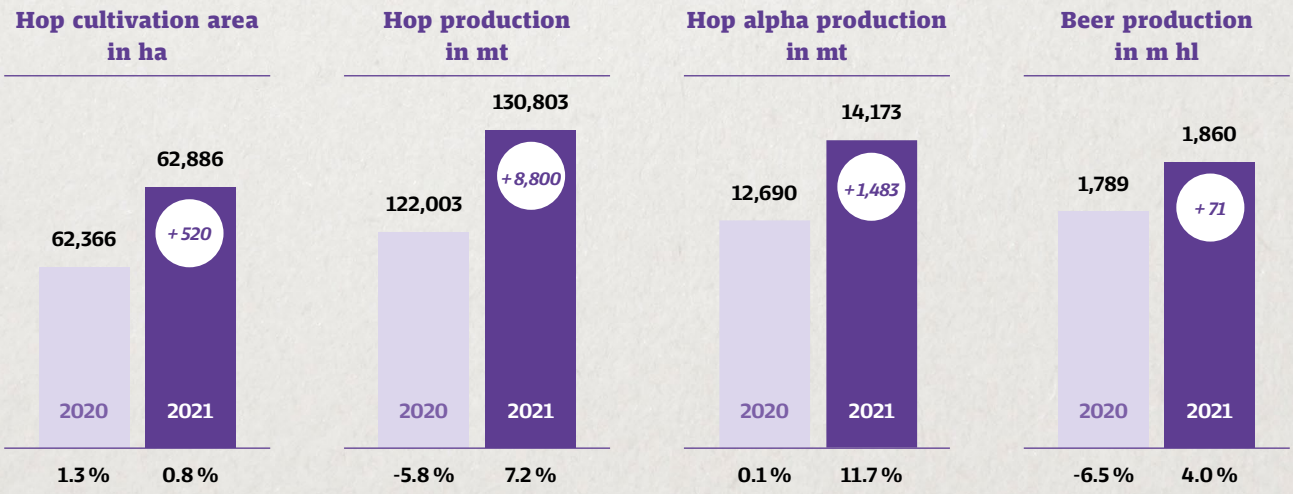
By reshaping its corporate structure, BarthHaas® has evolved from an owner-managed into an owner-controlled company. At the end of 2021, management responsibility was placed in the hands of **Oliver Bergner** and **Peter Hintermeier** who have both been members of the wider management team for many years. For the first time in the company's history, two non-family managers are now in charge of the company.

The newly established supervisory board comprises the following members: **Stephan Barth**, **Alexander Barth**, **Prof. Dr. Mirja Steinkamp** and **Dr. Philipp Ramin**. Alexander Barth continues to head the American sister company, John I. Haas, Washington DC.

Stephan Schinagl was appointed head of purchasing as of the beginning of 2022. This department had been managed by Peter Hintermeier since 1998.

Photo: Peter Hintermeier (left), Oliver Bergner (right)

WORLD MARKET BASIC DATAS



WORLD POLITICS

Reporting period ending May 31, 2022

On February 24, 2022, Russia began a war of aggression against its neighbor Ukraine in breach of international law. This marked the beginning of a historic geopolitical turning point. The consequences of this war are disastrous both for Ukraine and for the rest of the world. The ongoing war is leading to a division into a Western and a Far-Eastern bloc. The USA, the EU, the UK, Japan, Australia, South Korea, and several other smaller countries find themselves faced with an alliance of dictatorships, with China as the central power and Russia as a commodities power. In addition, the war threatens to cause famine in Africa and parts of the Arab world, with unforeseeable consequences. All this comes hard on the heels of a two-year pandemic whose cause, the SARS-CoV-2 virus, has not yet been eradicated and whose effects on health and on economic and cultural life have only partly been overcome.

The world order is in a state of instability, with new political and economic blocs emerging.

War in Europe

From April 2021, Russian troop concentrations were observed in the regions bordering Ukraine. Maneuvers also began in neighboring Belarus at the end of 2021. On February 21, 2022, Russia recognized the independence of the separatist People's Republics of Donetsk and Luhansk. Russia signed treaties of reciprocal assistance with both republics. These provided the pretext for an attack on the rest of Ukraine due to the alleged threat posed by Ukraine. **Russia's** large-scale invasion of **Ukraine** ordered by President Vladimir Putin began on February 24, 2022.

Other wars/conflicts

A civil war has been raging in **Yemen** since 2014. The war has worn down this totally impoverished country, plunging it into a humanitarian catastrophe. In early April 2022, President Abdrabbuh Mansur Hadi transferred power to a presidential governing council. The new council is to lead the country politically, militarily and with regard to security questions on an interim basis. A "final and comprehensive" solution to the yearslong civil war is to be negotiated with the Houthi rebels.

In **Ethiopia**, there has been a bloody civil war between the troops allied with the Tigray People's Liberation Front (TPLF) and the central government since early November 2020. The USA has imposed sanctions on the country, and the European Union has withdrawn its financial support. The African Union and the United Nations have been trying in vain to bring about a cease-fire. The civilian population lives in deadly peril and suffers severe human rights violations, forced migration, and starvation.

After 20 years, the USA and its western allies ended their military mission in **Afghanistan** on August 31, 2021. In the midst of the chaotic withdrawal of troops, the Taliban returned to power in this country torn by civil war. The army and police collapsed; government representatives fled. The Islamists declared themselves a government and proclaimed the Islamic Emirate of Afghanistan. Bombings and attacks are being carried out repeatedly by rival Islamist groups.

Sudan's supreme commander General Abdel Fattah al-Burhan deposed the government and declared a state of emergency on October 25, 2021. There have been mass protests ever since. People are demonstrating against the military coup and demanding the establishment of a civilian government. The Sudanese army is cracking down on the demonstrators with force. The military rulers lifted the state of emergency at the end of May 2022.

Elections/government coalitions

In **Iran**, **Ebrahim Raisi** succeeded **Hassan Rouhani** as the country's president on August 3, 2021. The election had been held in June.

In **Lebanon**, after more than a year without a government, the designated prime minister **Najib Mikati** and the head of state **Michel Aoun** agreed on the formation of a new cabinet in September 2021.

In **Germany**, a general election was held on September 26, 2021. The SPD, Greens and FDP agreed to form a coalition. On December 8, 2021, the 20th German parliament elected the Social Democrat **Olaf Scholz** as the new chancellor. On February 13, 2022, the incumbent president **Frank-Walter Steinmeier** was re-elected.

The **Japanese** parliament elected the conservative **Fumio Kishida** as the country's 100th prime minister on October 4, 2021.

Head of state and party leader **Xi Jinping** was assured unlimited rule by a resolution of the Central Committee of the Communist Party of **China** on November 11, 2021.

In the presidential elections in **Italy**, even after the sixth round of voting, none of the candidates received the required majority of the votes. The prime minister asked the incumbent president **Sergio Mattarella** to remain in office for a second period. The 80-year-old was sworn in to a further seven years in office on January 29, 2022.

The election for the presidency of the **French Republic** was won by the incumbent liberal president **Emmanuel Macron**. The result was decided on April 24, 2022 in a run-off against his rightwing-populist challenger **Marine Le Pen**.

South Korea held its 20th presidential election on March 9, 2022. The conservative **Yoon Suk-yeol** of the People Power Party (PPP) won and was confirmed in office as the new president.

WORLD POLITICS

COVID-19 pandemic

In the fall of 2021 the number of new Coronavirus infections rose dramatically, particularly in the USA and in European countries. Consequently, governments tightened their measures. As the Omicron wave subsided and thanks to often high vaccination rates, the COVID restrictions introduced by the governments in several countries and regions were relaxed or removed entirely at the end of the winter. China, on the other hand, found itself at the beginning of 2022 in the grip of the most severe wave of the virus since its outbreak in the Central Chinese city of Wuhan in December 2019. According to Johns Hopkins University, USA, by May 31, 2022 there had been 530 million confirmed cases of infection and 6.3 million deaths from or with COVID-19 worldwide. Unofficial estimates assume the actual number to be two to three times higher.

Defense alliance

In May 2022, Sweden and Finland formally applied to join NATO. A unanimous resolution of the member states is required for them to be admitted to the defense alliance.

CURRENCY EXCHANGE RATES

1 EUR EQUALS (REFERENCE BY ECB):

	on 1 June 2021	on 1 June 2022		on 1 June 2021	on 1 June 2022
Australia	1.5793 AUD	1.4861 AUD	**Poland**	4.4661 PLN	4.5913 PLN
China	7.8043 CNY	7.1586 CNY	**Russia**	89.9113 RUB	exposed RUB
United Kingdom	0.86285 GBP	0.85158 GBP	**Switzerland**	1.0986 CHF	1.0305 CHF
Japan	134.05 JPY	138.68 JPY	**Czech Republic**	25.462 CZK	24.748 CZK
Canada	1.4708 CAD	1.3536 CAD	**USA**	1.2225 USD	1.0712 USD

These exchange rates can only serve as an indication. They vary from bank to bank and are not binding.
The ECB has decided to suspend the publication of a euro reference interest rate for the Russian ruble until further notice.

WORLD ECONOMY

Reporting period August 1, 2021 to May 31, 2022

The world is at the beginning of a multiple crisis – one that is characterized by food and energy shortages, inflation, weak economic growth, and sovereign debt crises, but also by the increasingly noticeable consequences of climate change.

The coronavirus pandemic has shown how complex and interdependent the international supply chains have become. Disruptions in one country lead to production stoppages in other parts of the world. The war in Ukraine shows this economic integration against a different background, but with similar consequences.

Some of the economic ties that existed until recently will no longer do so in the future because the geopolitical circumstances will no longer allow it.

The **gross domestic product (GDP)** of the world economy grew by 6.1 % in 2021, compared with -3.1 % in COVID year 2020. Growth in the **euro zone** was lower than expected at 5.3 % (2020: -6.4 %), with **Germany** posting 2.9 % (2020: -4.9 %). The **USA** recorded growth of 5.7 % in 2021 (2020: -3.4 %), while **China** achieved 8.1 % (2020: 2.2 %), and the world's third-biggest economy **Japan** saw GDP rise by 1.7 % (2020: -4.5 %). The figures for the first quarter of 2022 show that the US economy shrank, economic development in China is suffering due to the zero-COVID strategy, and that inflation and the effects of the war are stifling growth in Europe.

COVID-19 pandemic

The tough restrictions required by the Chinese zero-COVID strategy subdued growth in the world's second-largest economy, with effects that were felt worldwide. The restrictions led to a noticeable reduction in freight traffic. The closure of key container hubs brought global trade to a standstill. Supply chains were disrupted. Factories had to pause or close down production.

Consequences of the war

In response to the invasion of Ukraine, a large number of sanctions have been imposed on Russia by Western countries. Many companies, including multinational groups, have announced, or already begun, their withdrawal from the Russian market. In some cases, business dealings have been restricted or suspended. The war has resulted in gas supplies being limited, oil boycotts being imposed, grain deliveries stopping, and supply chains being disrupted. In its struggle against Russia, Ukraine is receiving financial, humanitarian und military support from many countries around the world.

Monetary policy

The **European Central Bank (ECB)** phased out its Pandemic Emergency Purchase Program (PEPP) at the end of March 2022. In view of high inflation and solid economic growth, the **US central bank**, known as the **Federal Reserve (Fed)**, began to phase out the stimulatory securities purchases in its support program to combat the COVID-19 crisis.

Interest rates

The pandemic and the war are manifesting themselves in rising prices. Inflation is climbing noticeably in the USA and Europe. In April 2022, the **European Central Bank (ECB)** decided to leave its benchmark interest rate unchanged at zero despite the high inflation rate of 7.4 percent. In the USA, the year-on-year inflation rate in March 2022 was 8.5 percent, the highest level for over 10 years. The **Federal Reserve (Fed)** raised its prime rate by 0.25 percent to 0.25 to 0.5 percent from March 16, 2022 and by a further 0.5 percent from May 4, 2022.

Currencies

During the reporting period the **euro-US dollar** exchange rate reached its highest level of 1.1909 USD on September 3, 2021. The exchange rate came under pressure for a number of reasons. It bottomed out at 1.0354 USD on May 13, 2022.

Stock market

The **Dow-Jones Index (DJIA)** posted its highest-ever close on January 4, 2022 at 36,800 points. One day later, on January 5, 2022, the **German share index (DAX)** closed at a record high of 16,272. Russia's attack on Ukraine caused stock markets to fall worldwide. The lowest closes posted during the reporting period were 12,832 for the **DAX** on March 8, 2022 and 31,262 for the **DJIA** on May 20, 2022.

Commodities

At the turn of the year 2021/2022, a barrel of Brent crude oil cost less than 80 USD. Limited supply accompanied by rising demand caused the **oil price** to rise at the beginning of 2022. The Ukraine war and the associated tensions with Russia led to further price increases. On March 8, 2022, the oil price reached 133 USD, its highest level since 2008. On the last day of May, the price was around 116 USD.

The world market is seeing prices rising for commodities in general, including foodstuffs.

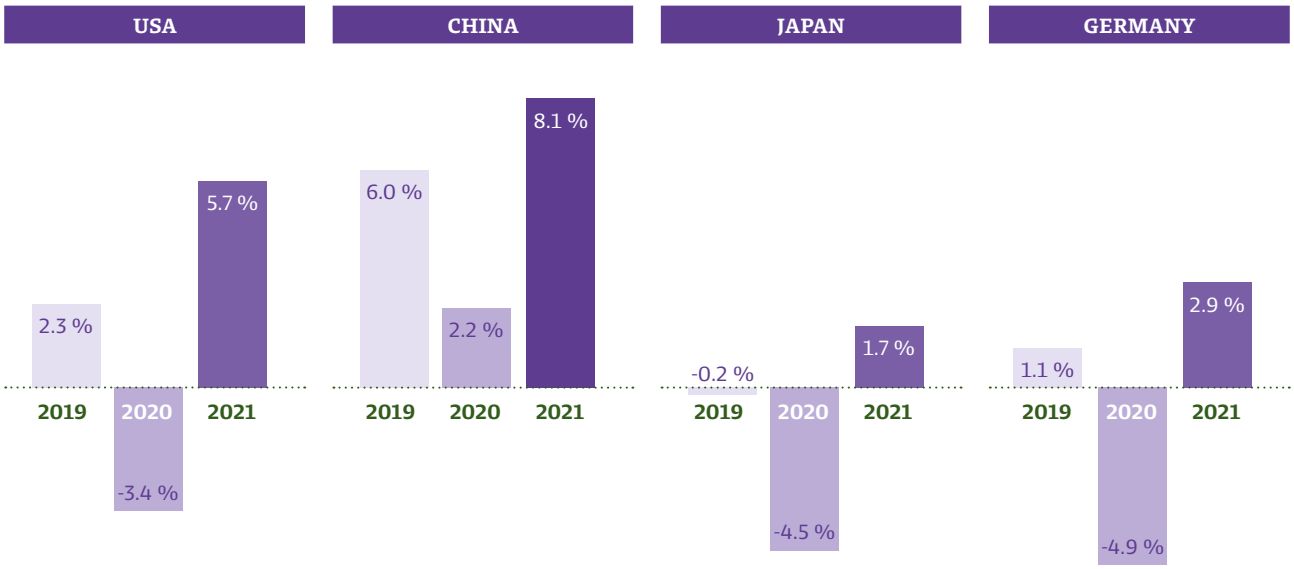
WORLD ECONOMY

Global tax reform

Meeting under the umbrella of the Organization for Economic Cooperation and Development (OECD), 136 states agreed on a global tax reform in October 2021. The countries participating represent more than 90 percent of the global economy. Four countries (Kenya, Nigeria, Pakistan and Sri Lanka) refused to accept the result of the multi-year negotiations.

KEY DATA

GDP growth (real)



		Balance of of payments in USD bn	Balance of trade in USD bn	Inflation rate Ø*	Interest rate Ø*	Unemployment (as of 31.12.)
USA	2019	-472.1	-861.5	1.8 %	2.14 %	3.7 %
	2020	-616.1	-922.0	1.2 %	0.89 %	8.1 %
	2021	-812.6	-1098.1	4.7 %	1.44 %	5.4 %
China	2019	102.9	393.0	2.9 %	4.90 %	4.5 %
	2020	274.0	515.0	2.5 %	4.90 %	4.2 %
	2021	315.7	554.5	0.9 %	4.90 %	3.9 %
Japan	2019	176.2	1.4	0.5 %	-0.11 %	2.3 %
	2020	148.9	28.8	0.0 %	-0.01 %	2.8 %
	2021	142.0	16.6	-0.2 %	0.07 %	2.8 %
Germany	2019	289.6	242.5	1.4 %	-0.27 %	4.9 %
	2020	269.1	218.1	0.4 %	-0.49 %	5.9 %
	2021	282.2	222.8	3.2 %	-0.34 %	5.1 %

The figures for 2019 and 2020 have been revised according to the latest statistics and subsequent recalculation.
** Interest rate for 10-year bonds. China: Lending rate for long-term loans.*

EUROPEAN UNION (EU)

Reporting period ending May 31, 2022

Accession to the European Union

As a result of the Russian war of aggression in **Ukraine**, several Eastern European countries have expressed the wish to join the EU. Ukraine officially applied for membership in the EU on February 28, 2022. Only a few days later, **Georgia** and **Moldova** also submitted membership applications. The applications of the countries of the Western Balkans (**Serbia**, **Montenegro**, **North Macedonia**, **Albania**, **Bosnia-Herzegovina** and **Kosovo**) to join the EU have been on hold for years. These countries are at different stages in the accession process, however.

Asylum and migration policy

From the beginning of November 2021 thousands of migrants from the Middle East tried illegally to cross the external borders of the EU into Poland or the Baltic States from Belarus. Poland closed its borders and refused them entry. For months the Polish government imposed an entry ban along its border with Belarus. Both the EU border protection agency Frontex and journalists were denied access to the national border. The EU accuses the authoritarian Belarusian ruler Alexander Lukashenko of deliberately trying to smuggle people into the EU in order to exert pressure on it to lift the sanctions it imposed in response to the violent suppression of the mass protests that have continued since 2020.

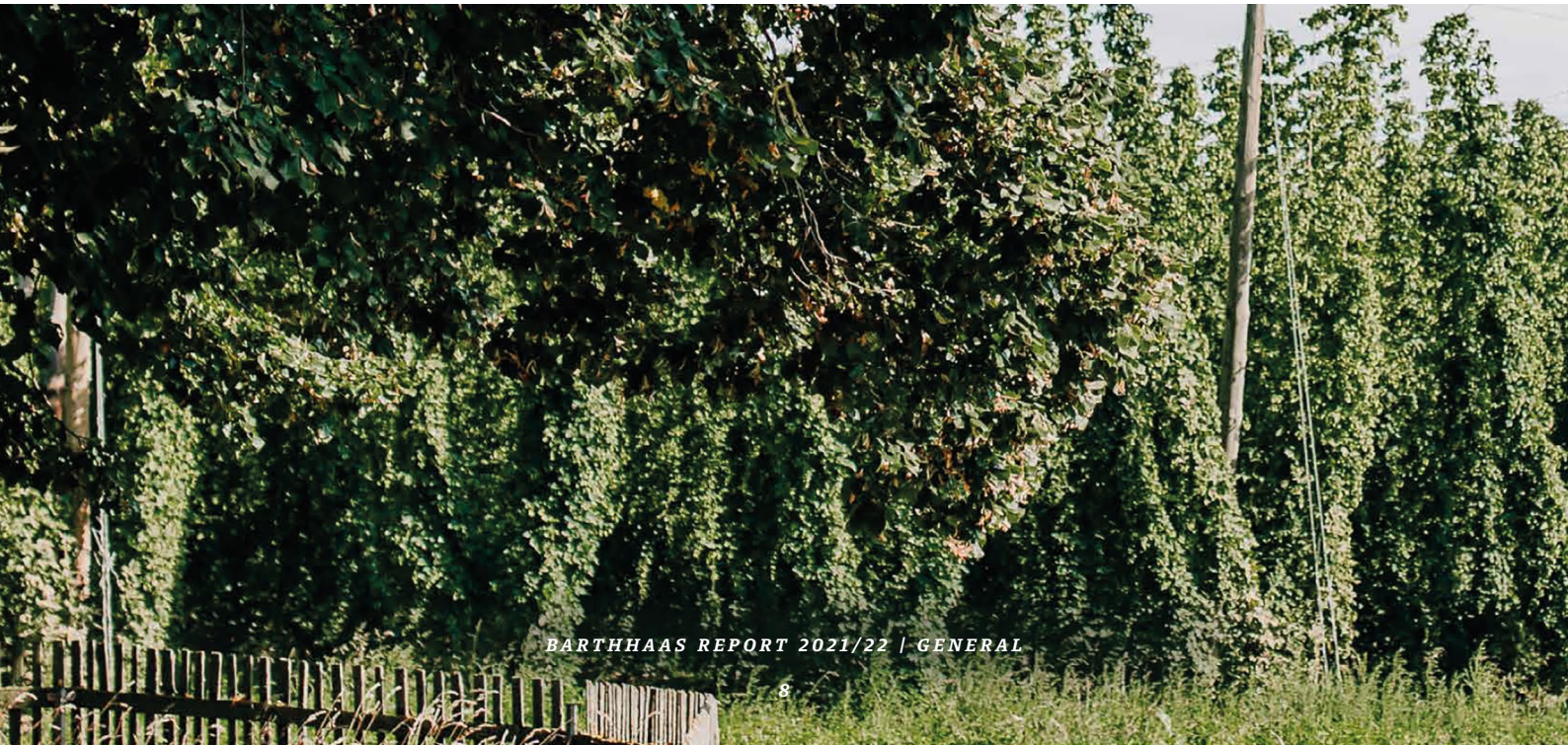
The Common Agricultural Policy (CAP)

The reform of the CAP had been the subject of a trialogue – i.e. negotiations between the most important EU institutions, the Agricultural Council, the Commission and the Parliament – since November 2020. In March 2021, with negotiations on the CAP stalling more and more due to a lack of willingness to compromise, the Portuguese agriculture minister and chair of the EU Agricultural Council, Maria do Céu Antunes, announced a "super trialogue". Here, all three EU CAP directives were to be negotiated at the most senior level.

The super trialogue between the EU Parliament, the Commission and the Ministers of Agriculture began on May 25, 2021. After nearly three years of negotiations, the EU institutions wanted finally to draw a line and decide on the CAP for the years 2023 to 2027. They intended to resolve the remaining contentious issues. On May 28, however, the negotiations were declared to have failed. There was major disagreement over the "green architecture" and over the question of capping and redistributing direct payments.

It was not until June 25 that a provisional political agreement on the new CAP was reached. This CAP compromise was formally ratified by the EU Agricultural Council on June 28. The new CAP comprises three regulations, the "horizontal regulation", the "Strategic Plans regulation" and the "Common Market Organization regulation". These regulations were formally adopted by the European Parliament on November 23, 2021, allowing the agricultural reform to be approved. The new CAP could therefore come into effect.

The new CAP is intended to be a fairer, more environmentally friendly, more animal welfare-oriented and more flexible agricultural policy. From January 2023, ambitious environmental and climate targets are to be realized in line with the aims of the "Green Deal".



EUROPEAN UNION (EU)

The new CAP is also intended to ensure that CAP funds are distributed more fairly, particularly to small and medium-size family farming businesses and young farmers.

On the basis of simpler rules at EU level, each member state has to elaborate a strategic plan for the implementation of the political guidelines in the next five years. This plan is designed to enable the member states to take local conditions into account and to prioritize performance. The strategy plans define the way in which CAP funding is aligned with certain targets and how these targets will contribute to achieving the EU-wide goals. The member states had to submit their strategy plans to the European Commission for assessment and approval. The Commission has until June 2022 to examine and approve the plans. They are to come into effect at the beginning of 2023.

In the future, the EU countries will have to present an annual performance report showing their progress towards reaching the defined targets.

Implications for hops as a specialty crop

Although the market regulation instruments are to remain largely unchanged in the course of the CAP reform, the sector interventions for hops will be integrated into the regulation governing the CAP strategy plans. This meant that the hop sector had to be analyzed separately within the framework of the German strategy plan.

A SWOT analysis was conducted on the basis of the description of the initial situation. The requirements for each sector were derived from this analysis. These requirements were then assessed regarding their relevance and support measures – so-called intervention categories – were developed.

With regard to the hop sector, Germany is making use of the option to offer support measures for which a separate finance volume totaling 2.2bn € per year has been designated in accordance with the CAP Strategy Plans regulation. This support serves to ensure that the German hop sector (more than one third of world production volume) remains competitive in the world market and also that hop growing will be more sustainable and, if possible, climate-neutral in the future.

The measures are to be planned, applied for and, once approved by the Federal Agency for Agriculture and Food, implemented by EU-approved growers' organizations within the framework of so-called "operational programs". To finance operational programs, the growers' organizations set up an operational fund.

The measures for the hop sector comprise five categories that are eligible for support wholly from EU funds:

- advice for hop growers on sustainability,
- research and development,
- climate protection and climate change adaptation measures,
- sales promotion, communication and marketing,
- ecological/organic or integrated farming.

In connection with the support measures, targets and milestones were defined and their achievement will be monitored according to specified indicators.

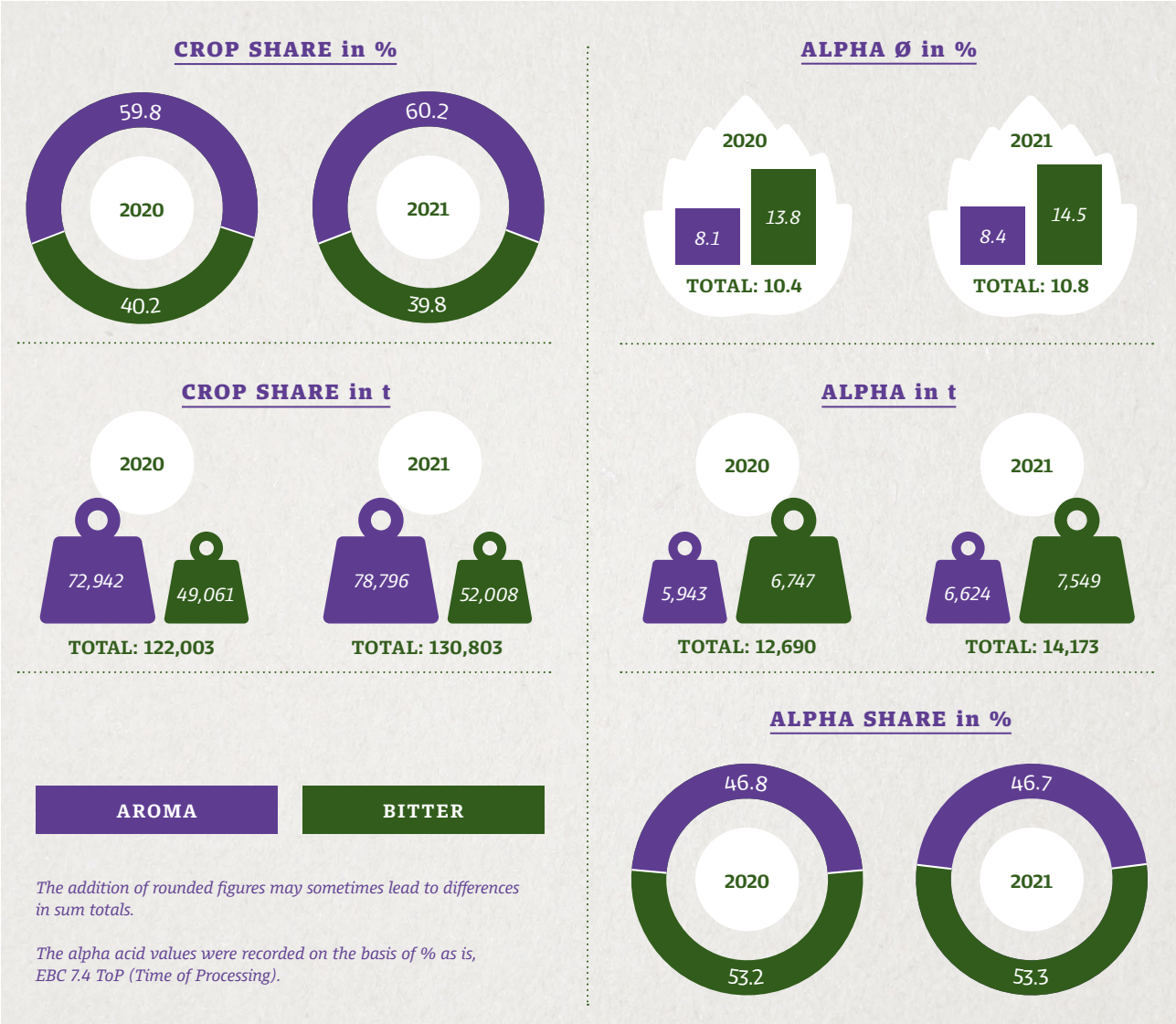
WORLD HOP ACREAGE AND CROP 2020/2021

		2020				2021			
		Acreage ha	Production mt	Ø-Alpha %	Alpha mt	Acreage ha	Production mt	Ø-Alpha %	Alpha mt
Germany	Hallertau	17,233.0	40,284.9	11.2 %	4,515	17,122.0	41,093.0	12.4 %	5,122
	Elbe-Saale	1,564.0	2,980.6	9.5 %	283	1,581.8	3,223.3	10.9 %	350
	Tettnang	1,479.4	2,850.8	8.2 %	234	1,494.4	2,716.4	8.7 %	238
	Spalt	407.6	717.1	6.8 %	49	399.8	807.9	7.9 %	64
	Rhen.-P./Bitburg	22.3	45.2	9.6 %	4	22.3	21.7	10.8 %	2
	Total	**20,706.3**	**46,878.5**	**10.8 %**	**5,085**	**20,620.3**	**47,862.2**	**12.1 %**	**5,776**
Czech Republic	Saaz	3,836.5	4,322.8	4.3 %	184	3,833.7	6,358.4	4.6 %	290
	Tirschitz	625.6	876.4	4.6 %	40	620.6	997.8	4.3 %	43
	Auscha	504.1	725.7	4.6 %	33	516.9	949.6	5.0 %	47
	Total	**4,966.2**	**5,924.9**	**4.3 %**	**257**	**4,971.2**	**8,305.7**	**4.6 %**	**380**
Poland		1,758.1	3,636.7	8.6 %	312	1,758.5	3,107.9	8.1 %	251
Slovenia		1,480.3	2,722.7	7.3 %	200	1,534.5	2,185.8	5.0 %	110
England**		867.9	923.8	7.2 %	67				
Spain (incl. Galicia)		562.0	916.0	10.4 %	95	573.0	963.8	10.9 %	105
France		499.7	763.5	4.0 %	30	584.6	957.2	5.8 %	56
Romania		269.0	255.0	10.3 %	26	264.0	240.0	9.3 %	22
Austria		267.4	525.4	8.0 %	42	264.7	394.0	8.9 %	35
Belgium		181.8	272.5	7.6 %	21	181.3	291.7	8.0 %	23
Slovakia		38.0	29.5	4.6 %	1	37.0	40.6	3.0 %	1
Bulgaria		32.5	46.0	11.5 %	5	32.5	53.4	10.4 %	6
Portugal		12.0	14.7	10.5 %	2	12.0	20.8	9.4 %	2
Netherlands		4.8	1.3	11.9 %	0	4.8	0.9	14.5 %	0
European Union		**31,646.0**	**62,910.4**	**9.8 %**	**6,143**	**30,838.4**	**64,423.9**	**10.5 %**	**6.767**
England**						673,8	916,5	6,8 %	62
Ukraine*		472.0	492.0	4.9 %	24	472.0	500.0	5.8 %	29
Russia*		356.0	622.6	4.8 %	30	366.0	590.0	4.7 %	28
Turkey		202.0	215.9	11.6 %	25	179.0	222.0	10.0 %	22
Belarus/White Russia		59.0	88.0	8.8 %	8	60.0	82.5	8.4 %	7
Switzerland		18.0	32.7	7.9 %	3	18.0	31.0	10.7 %	3
Serbia		7.7	7.9	8.7 %	1	9.0	12.2	9.7 %	1
Rest of Europe		**1,114.7**	**1,459.1**	**6.2 %**	**91**	**1,777.8**	**2,354.2**	**6.5 %**	**152**
EUROPE		**32,760.7**	**64,369.5**	**9.7 %**	**6,234**	**32,616.2**	**66,778.1**	**10.3 %**	**6,919**
USA	Washington	17,106.5	33,634.2	11.9 %	4,015	17,718.7	38,377.9	12.0 %	4,590
	Idaho	3,750.7	7,797.1	11.8 %	919	3,923.1	8,352.7	11.8 %	985
	Oregon	2,875.2	5,655.7	10.0 %	565	2,992.8	5,718.9	10.6 %	604
	PNW-States	**23,732.4**	**47,087.0**	**11.7 %**	**5,498**	**24,634.6**	**52,449.5**	**11.8 %**	**6,180**
	Other States	1,006.0	453.6	7.7 %	35	561.3	408.2	7.7 %	32
	Total	**24,738.4**	**47,540.6**	**11.6 %**	**5,533**	**25,195.9**	**52,857.7**	**11.8 %**	**6,211**
Canada*		313.0	219.0	9.1 %	20	255.0	200.0	9.1 %	18
Argentina		181.3	265.8	8.6 %	23	178.4	267.8	9.5 %	25
AMERICA		**25,232.7**	**48,025.4**	**11.6 %**	**5,576**	**25,629.3**	**53,325.5**	**11.7 %**	**6,255**
China	Xinjiang	1,311.0	3,371.5	7.2 %	241	1,356.1	3,742.0	7.2 %	269
	Gansu	1,018.5	2,398.4	6.3 %	152	1,001.8	2,543.0	7.5 %	191
	Total	**2,329.5**	**5,769.9**	**6.8 %**	**393**	**2,357.9**	**6,285.0**	**7.3 %**	**461**
Japan		94.5	187.2	5.6 %	11	85.7	171.2	5.2 %	9
ASIA		**2,424.0**	**5,957.1**	**6.8 %**	**404**	**2,443.6**	**6,456.2**	**7.3 %**	**470**
South Africa		425.4	705.6	14.0 %	99	409.8	739.2	14.6 %	108
AFRICA		**425.4**	**705.6**	**14.0 %**	**99**	**409.8**	**739.2**	**14.6 %**	**108**
New Zealand*		780.0	1,231.9	10.0 %	123	1,000.0	1,800.0	9.7 %	175
Australia		742.8	1,713.5	14.9 %	255	787.3	1,704.3	14.4 %	245
AUSTRALIA/OCEANIA		**1,522.8**	**2,945.4**	**12.8 %**	**378**	**1,787.3**	**3,504.3**	**12.0 %**	**421**
WORLD		**62,365.7**	**122.003.0**	**10.4 %**	**12,690**	**62,886.2**	**130,803.2**	**10.8 %**	**14,173**

** Estimate ** The United Kingdom left the EU on January 31, 2020, but remained a member of the EU Single Market until December 31, 2020. In the above statistics, the United Kingdom is classed as a European country outside the EU from January 1, 2021.*

ALPHA ACID PRODUCTION

The world hop crop, divided into the groups below, produced the following alpha acid volume:



The rise of almost 1 % (+520 ha) in world hop acreage and the increase of 6 % in yield per hectare (2020: 1.96 mt / 2021: 2.08 mt) together produced a crop volume that was 7 % higher (+8,800 mt) year on year. The average alpha acid content increased from 10.4 % to 10.8 %, resulting in a year-on-year increase in alpha yield of 12 % (1,483 mt).

The share of aroma hops increased in terms of crop yield, but fell slightly in terms of alpha production. The share of bitter hops fell or increased slightly accordingly.

The two main hop-growing countries, Germany and the USA, had a combined share of world alpha production totaling 85 % (2020: 84 %). The USA accounted for 44 % (2020: 44 %) and Germany for 41 % (2020: 40 %).

Share of alpha production in the aroma hop group: USA 60.4 % (2020: 60.1 %), Germany 22.0 % (2020: 20.9 %). Share of alpha production in the bitter hop group: Germany 57.2 % (2020: 56.6 %), USA 29.3 % (2020: 29.1 %).

The working group "Arbeitsgruppe Hopfenanalyse" (AHA) publishes the average alpha acid values measured in freshly harvested hops. The members of AHA are the in-house laboratories of the German processing plants Hallertauer Hopfenveredelungsgesellschaft, Mainburg and Hopfenveredelung St. Johann, HVG Mainburg, LfL Hüll, BLQ Weihenstephan, VLB Berlin, Labor Veritas (Zurich), TU Berlin and IHPS Žalec. These values form the basis for any adjustments of supply contracts between the brewing industry and the hop industry containing an "alpha clause". The average values serve as the basis for parties concluding new supply contracts containing an "alpha clause". The table includes the designation of varieties as aroma hops (A) or bitter hops (B) in accordance with IHGC (International Hop Growers' Convention) classification.

ALPHA ACID PRODUCTION

Alpha acid values of the AHA as is, as per EBC 7.4, in freshly harvested hops

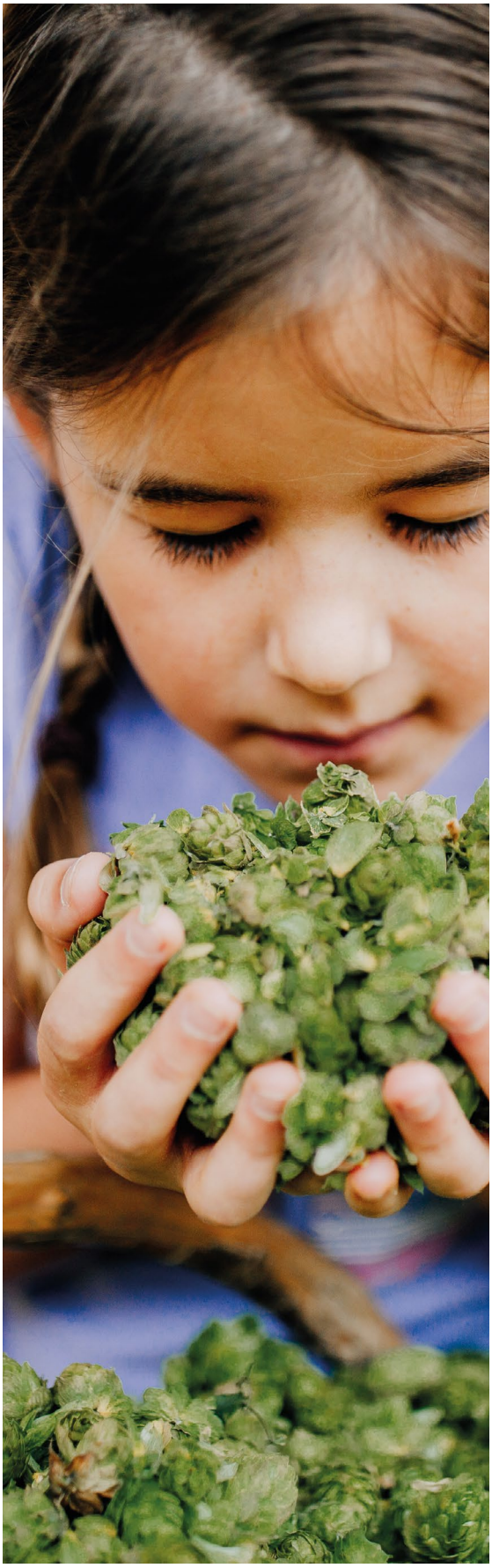
All other alpha acid values mentioned in the Barth Report were recorded on the basis of % as is, EBC 7.4 ToP (Time of Processing).

Area	Variety	Type	2020	2021	Ø 5 Years	Ø 10 Years
Hallertau	Hallertau Mittelfrueh	*A*	4.5	5.2	4.2	4.0
	Hersbruck Spaet	*A*	3.3	4.6	2.9	2.7
	Saphir	*A*	4.2	4.3	3.6	3.6
	Opal	*A*	8.5	8.7	7.6	7.4
	Smaragd	*A*	5.8	7.6	5.2	5.3
	Perle	*A*	7.4	9.0	7.1	7.0
	Spalt Select	*A*	5.2	6.4	4.8	4.6
	Hallertau Tradition	*A*	6.3	6.1	5.7	5.7
	Mandarina Bavaria	*A*	9.0	9.9	8.3	8.1
	Hallertau Blanc	*A*	10.9	9.9	9.5	9.2
	Huell Melon	*A*	7.2	8.4	6.8	6.5
	Northern Brewer	*A*	9.1	10.5	8.6	8.5
	Polaris	*B*	20.6	21.5	19.9	19.7
	Hallertau Magnum	*B*	14.2	16.0	13.3	13.4
	Nugget	*B*	12.0	11.1	10.9	10.8
	Hallertau Taurus	*B*	15.5	17.8	15.8	16.0
	Herkules	*B*	16.6	18.5	16.3	16.5
Tettnang	Tettnang	*A*	4.3	4.7	3.9	3.6
	Hallertau Mittelfrueh	*A*	4.7	5.0	4.4	4.2
Spalt	Spalt	*A*	4.7	5.2	4.1	3.7
	Spalt Select	*A*	4.7	6.4	4.7	4.4
Elbe-Saale	Hallertau Magnum	*B*	11.9	13.8	11.9	12.2
Czech Rep.	Saaz	*A*	3.6	4.0	3.4	3.2
	Sládek	*A*	6.8	7.7	6.1	6.3
	Premiant	*A*	7.8	8.5	7.2	7.6
Poland	Lubelski	*A*	5.0	3.5	3.7	3.6
	Marynka	*A*	8.8	7.5	7.9	8.0
	Sybilla	*A*	6.6	6.5	5.6	-
Slovenia	Aurora	*A*	11.4	6.8	8.4	8.4
	Savinjski Golding	*A*	4.5	2.2	3.1	2.9
	Bobek	*A*	5.9	3.9	4.5	4.4
	Celeia	*A*	4.1	3.3	3.3	3.3

Alpha acid values as is, as per EBC 7.4, ToP (Time of Processing)

USA	Nugget	*B*	13.6	13.2	13.5	13.6
	CTZ	*B*	16.1	15.1	15.6	15.2
	Pahto®	*B*	18.5	18.6	17.9	17.5
	Bravo™	*B*	14.5	14.7	14.5	14.6
	Summit™	*B*	16.5	15.2	15.8	16.0

Type A *= Aroma* ***Type B*** *= Bitter*



COUNTRY REPORT GERMANY

Area	Variety	Development of acreage Acreage ha			Development of production Ø Yield mt/ha		Production mt	
		2020	+/–	2021	2020	2021	2020	2021
Hallertau	Perle	2,887.4	-1.4	2,886.0	1.90	2.13	5,481.03	6,134.44
	Hallertau Tradition	2,717.7	-56.7	2,661.0	1.89	2.05	5,140.55	5,447.43
	Hersbruck Spaet	897.5	-82.5	815.0	1.86	1.77	1,664.99	1,443.08
	Hallertau Mittelfrueh	500.9	-22.6	478.3	1.51	1.59	757.28	762.60
	Spalt Select	491.5	-47.7	444.6	2.00	2.11	985.21	935.83
	Saphir	369.2	-51.8	317.4	2.10	2.17	774.55	689.98
	Mandarina Bavaria	245.1	-39.8	205.3	2.75	2.32	673.09	476.59
	Opal	141.6	-6.6	135.0	1.97	2.12	278.44	286.50
	Northern Brewer	133.5	-6.3	127.2	1.83	1.82	244.92	231.89
	Hallertau Blanc	140.0	-13.0	127.0	2.53	2.38	353.95	302.46
	Amarillo	155.3	-28.7	126.6	2.74	2.66	425.30	337.33
	Other Aroma	427.0	14.3	440.4	0.00	0.00	869.07	810.90
	Total Aroma	**9,106.3**	**-342.4**	**8,763.9**	**1.94**	**2.04**	**17,648.38**	**17,859.03**
	Herkules	6,254.1	245.3	6,499.4	3.00	2.95	18,792.79	19,172.63
	Hallertau Magnum	1,290.2	-55.9	1,234.3	2.11	2.36	2,726.63	2,909.79
	Polaris	215.7	75.3	291.0	1.71	1.59	369.48	463.92
	Hallertau Taurus	196.1	-31.1	165.0	1.96	2.16	384.04	356.12
	Nugget	117.5	-10.5	107.0	2.56	2.42	300.75	258.49
	Other Bitter	53.2	8.2	61.4	1.18	1.19	62.82	73.00
	Total Bitter	**8,126.7**	**231.4**	**8,358.1**	**2.79**	**2.78**	**22,636.51**	**23,233.95**
	Total Hallertau	**17,233.0**	**-111.0**	**17,122.0**	**2.34**	**2.40**	**40,284.89**	**41,092.98**
Elbe-Saale	Perle	262.5	10.0	272.5	1.68	1.85	441.69	503.08
	Saaz	149.6	5.5	155.1	1.42	1.64	212.34	254.05
	Northern Brewer	132.7	-5.2	127.5	1.69	1.96	224.82	250.53
	Other Aroma	133.3	7.9	141.2	1.92	1.64	255.28	232.21
	Total Aroma	**678.0**	**18.1**	**696.1**	**1.67**	**1.78**	**1,134.13**	**1,239.87**
	Hallertau Magnum	622.3	-1.1	621.2	1.99	2.11	1,239.78	1,309.22
	Herkules	138.5	-1.3	137.2	2.43	3.13	336.47	429.86
	Polaris	105.3	13.5	118.8	2.15	1.90	226.84	225.47
	Other Bitter	19.8	-11.2	8.6	0.00	2.19	43.33	18.87
	Total Bitter	**886.0**	**-0.3**	**885.7**	**2.08**	**2.24**	**1,846.42**	**1,983.42**
	Total Elbe-Saale	**1,564.0**	**17.8**	**1,581.8**	**1.91**	**2.04**	**2,980.55**	**3,223.29**
Tettnang	Tettnang	718.2	-36.7	681.5	1.44	1.46	1,031.23	997.32
	Hallertau Mittelfrueh	139.6	-1.4	138.2	1.83	1.81	255.06	250.54
	Perle	102.9	23.9	126.8	1.66	1.68	171.22	212.72
	Other Aroma	212.7	10.4	224.4	0.00	0.00	470.5	410.65
	Total Aroma	**1,173.4**	**-4.0**	**1,170.7**	**1.64**	**1.60**	**1,928.01**	**1,871.23**
	Herkules	282.7	11.5	294.2	3.09	2.73	874.12	802.28
	Other Bitter	23.4	7.4	29.5	2.08	1.39	48.69	42.89
	Total Bitter	**306.0**	**19.0**	**323.7**	**3.02**	**2.61**	**922.81**	**845.17**
	Total Tettnang	**1,479.4**	**15.0**	**1,494.4**	**1.93**	**1.82**	**2,850.82**	**2,716.40**
Spalt	Spalt	113.0	-6.0	107.0	1.17	1.51	132.42	161.19
	Other Aroma	249.7	-3.5	246.2	1.90	2.31	473.65	525.47
	Total Aroma	**362.7**	**-9.5**	**353.2**	**1.67**	**1.94**	**606.07**	**686.66**
	Total Bitter	**44.9**	**1.7**	**46.6**	**2.47**	**2.60**	**110.99**	**121.19**
	Total Spalt	**407.6**	**-7.8**	**399.8**	**1.76**	**2.02**	**717.06**	**807.85**
Rhen.-P./ Bitburg	**Total Aroma**	**14.7**	**0.0**	**14.7**	**1.83**	**0.86**	**26.90**	**12.71**
	Total Bitter	**7.6**	**0.0**	**7.6**	**2.41**	**1.18**	**18.28**	**8.96**
	Total Rhen.-P./Bitburg	**22.3**	**0.0**	**22.3**	**2.03**	**0.97**	**45.18**	**21.67**
Total Aroma		**11,335.1**	**-336.5**	**10,998.6**	**1.88**	**1.97**	**21,343.49**	**21,669.50**
Total Bitter		**9,371.2**	**250.5**	**9,621.7**	**2.72**	**2.72**	**25,535.01**	**26,192.69**
GERMANY TOTAL		**20,706.3**	**-86.0**	**20,620.3**	**2.26**	**2.32**	**46,878.50**	**47,862.19**

COUNTRY REPORT GERMANY

Farm structure

The steady decline in the number of hop growers continues. In 2021 there were 25 fewer producers in Germany (Hallertau -20, Spalt -5). The average hop acreage farmed by the 1,062 producers rose to 19.4 ha (+0.4 ha). In the Hallertau production region, the average hop acreage farmed by the 860 producers was 20 ha. In Elbe-Saale there were 29 farms with 55 ha, in Tettnang 125 with 12 ha, and in Spalt 46 with 9 ha. In Rhenish Palatinate/Bitburg, Germany's smallest production region, there were two hop growers with an average of 11 ha per grower.

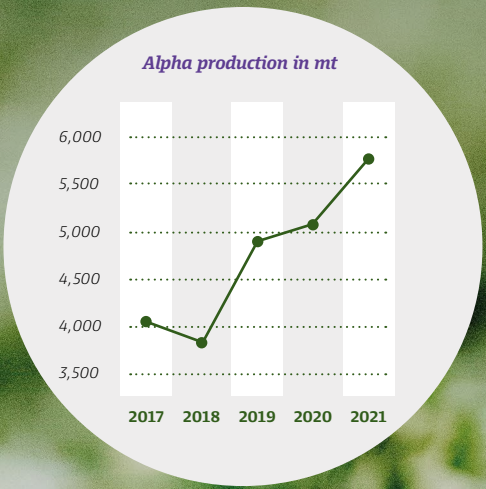
Acreage and variety development

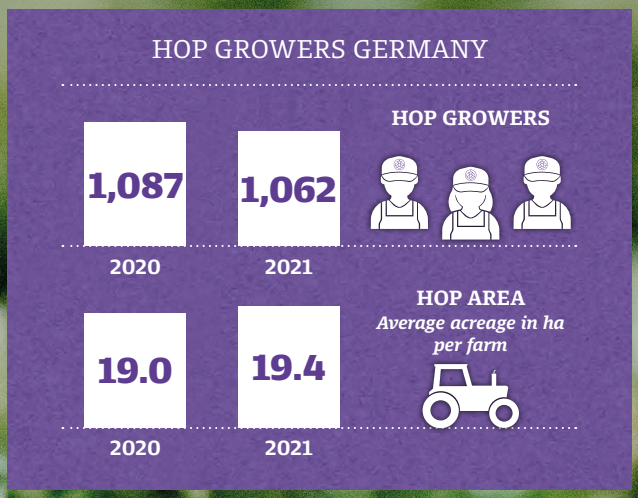
After seven years of expansion, hop acreage in Germany fell again for the first time in 2021. It fell by 86 ha (-0.4 %) as a result of a reduction in aroma variety acreage by 337 ha (-3 %) and the expansion of bitter variety acreage by 251 ha (+3 %). Aroma variety acreage amounting to 10,999 ha accounted for 53 % (-1.4 %) of total hop acreage. The bitter varieties on the other hand, with 9,622 ha, saw their share rise to 47 % (+1.4 %).

The top five varieties in Germany had a combined acreage of 15.831 ha and accounted for more than three quarters of the country's total hop acreage (77 %). The variety with the largest share of acreage, the bitter hop **Herkules**, also saw the largest expansion, adding 257 ha (4 %). The second-placed variety, the aroma hop **Perle**, saw its acreage grow slightly by 34 ha (1 %). The opposite was the case for the number-three variety **Hallertau Tradition**. Its acreage declined by 26 ha (-1 %). In fourth place, the bitter variety **Hallertau Magnum** saw its acreage decline by 57 ha (-3 %). The fifth-placed variety **Hersbruck Spaet** shed an acreage of 83 ha (-9 %). The second-largest acreage expansion for this crop year was recorded for the bitter variety **Polaris** which added 96 ha (+28 %).

The changes in acreage for each variety over the last five years are described in the table acreage and variety development.

Hallertau is Germany's largest hop-growing region, with 17,122 ha and accounting for 83 % of the country's total acreage. It is followed by Elbe-Saale with 1,582 ha (8 %), Tettnang with 1,494 ha (7 %), Spalt with 400 ha (2 %) and Rhenish Palatinate/Bitburg with 22 ha.





COUNTRY REPORT GERMANY

TOP 5 VARIETIES BY AREA SHARE 2021

1. 33.8 % HERKULES
2. 16.2 % PERLE
3. 13.8 % HALLERTAU TRADITION
4. 9.0 % HALLERTAU MAGNUM
5. 4.0 % HERSBRUCK SPAET

In the last five years hop acreage developed as follows:

Variety	2017 ha	2018 ha	2019 ha	2020 ha	2021 ha	Percentage of acreage 2021	Difference to previous year	Change in %
Perle	2,966	3,003	3,148	3,297	3,331	16.2%	34	1.0 %
Hallertau Tradition	2,704	2,712	2,770	2,870	2,844	13.8%	-26	-0.9 %
Hersbruck Spaet	916	924	918	904	821	4.0%	-83	-9.2 %
Tettnang	747	750	732	718	682	3.3%	-37	-5.1 %
Hallertau Mittelfrueh	723	687	678	671	650	3.2%	-21	-3.1 %
Spalt Select	532	578	611	608	558	2.7%	-50	-8.3 %
Saphir	473	515	492	449	395	1.9%	-55	-12.1 %
Northern Brewer	300	293	279	266	255	1.2%	-11	-4.3 %
Mandarina Bavaria	356	321	298	278	230	1.1%	-48	-17.2 %
Saaz	137	156	156	157	162	0.8%	6	3.5 %
Hallertau Blanc	170	168	167	167	149	0.7%	-18	-10.8 %
Amarillo	280	300	206	178	144	0.7%	-34	-19.1 %
Opal	141	141	146	144	138	0.7%	-7	-4.6 %
Spalt	121	120	118	113	107	0.5%	-6	-5.1 %
Akoya	-	-	-	26	104	0.5%	78	303.9 %
Other Aroma	526	519	501	489	429	2.1%	-60	-12.3 %
Total Aroma	**11,091**	**11,185**	**11,221**	**11,335**	**10,999**	**53.3%**	**-337**	**-3.0 %**
Herkules	5,797	6,309	6,554	6,717	6,974	33.8%	257	3.8 %
Hallertau Magnum	2,011	1,992	1,954	1,918	1,861	9.0%	-57	-3.0 %
Polaris	174	225	275	340	437	2.1%	96	28.3 %
Hallertau Taurus	284	258	228	211	169	0.8%	-42	-19.8 %
Nugget	131	128	123	123	111	0.5%	-12	-9.7 %
Other Bitter	55	47	61	61	70	0.3%	9	14.8 %
Total Bitter	**8,452**	**8,959**	**9,195**	**9,371**	**9,622**	**46.7%**	**251**	**2.7 %**
GERMANY TOTAL	**19,543**	**20,144**	**20,417**	**20,706**	**20,620**	**100.0 %**	**-86**	**-0.4 %**

The rounding of acreage figures sometimes leads to differences in sum totals.

Crop volume

There was sufficient precipitation in the winter of 2020/2021 to replenish the water reserves in the upper soil strata. In addition, with the soil loosened by good frost action, conditions were favorable for vegetation to begin. Thanks to the mainly dry weather in March, ground conditions in the hop gardens were suitable for vehicles, and crown pruning was able to go ahead in the usual period. In early April the weather conditions changed, however. Very cool temperatures with night frosts persisted throughout almost the entire month and only approximately half of the usual volume of rain fell. As a result, the hop plants developed only very slowly and bine training could not begin until around May 6, some 10 days later than usual. The weather conditions in May remained predominantly cool and rainy, further slowing the early growth of the hop plants. It was not until the end of the month that rising temperatures and warm nights brought favorable growing conditions. However, by the end of June, plant growth was still a good week behind the long-term average. Above-average rainfall accompanied by moderate temperatures in July created ideal growing conditions for the hop plants. Although the plants were unable to fully make up for the delay in growth, the weather provided favorable conditions for flowering. In August, precipitation levels in all regions were very high and, in some cases, even twice as high as the long-term average. This promoted cone development

and enabled the hop plants to make up for their subdued growth performance in spring. However, the damp weather conditions led to high disease pressure from downy mildew, making intensive plant protection measures necessary in July and August. In places where waterlogged ground made plant protection measures impossible, both quality and yield suffered in varieties susceptible to infection. Powdery mildew, on the other hand, was only a minor issue, and pest infestation was comparatively slight. On most farms, picking began in the first week of September, only a few days later than usual. The medium and late-maturing varieties benefited from the ideal ripening conditions and produced above-average alpha content.

Parts of the Tettnang production region were affected to varying degrees by hail on July 8 and 29. By the time harvesting began at the end of August, however, the majority of the damaged plants had recovered well.

In the Bitburg production area, an extreme storm on July 14/15 caused catastrophic flooding, destroying a large part of the fields and trelliswork.

In August, the Crop Estimate Commission forecast a potential total crop volume of 47,845 mt. Although the crop volume was not estimated exactly for each production region, the overall result of 47,862 mt could hardly have been forecast more precisely.

The average yield of both the aroma varieties and the bitter varieties was above the average for the last several years. Altogether, the yield harvested was 2.32 mt/ha.

Alpha content

The alpha acid content of all the main varieties was above the multi-year averages for the last five and 10 years. An overview of alpha acid content for individual varieties can be found in the ALPHA ACID PRODUCTION section. Due to the above-average crop and alpha yields, alpha acid production increased by 14 % year on year.

Market situation
Contract market

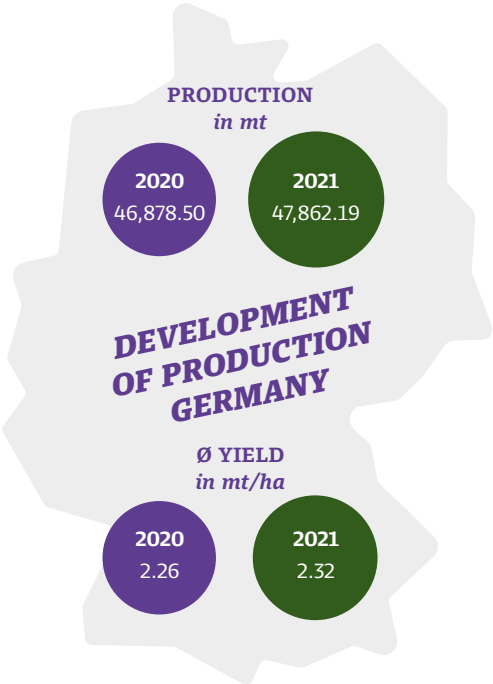
After the hop marketers had ended their forward contract market activities in January 2021, bidding began again in April, although initially this was limited to the **Hersbruck** variety. The bids received were 7.50 EUR/kg for crop years 2021 to 2023 and 7.30 EUR/kg for crop years 2024 up to and including 2031. From June, orders included offers of 30.00 EUR/kg alpha for crop years 2021 to 2031 for the bitter varieties **Herkules** and **Polaris**. Toward the end of June, the price for **Hersbruck** rose to 8.00 EUR/kg for all crop years. **Perle** and **Opal** hops also found buyers at a price of 7.50 EUR/kg. Bidding also resumed for **Hallertau Tradition** at prices of 7.00 EUR/kg for crop years 2021 to 2023, 7.20 EUR/kg for crop years 2024 and 2025,and 7.50 EUR/kg for crop years 2026 to 2031. The contract market came to a standstill in the weeks prior to the 2021 harvest.

After the harvest, it was not until November that new forward contract offers were received. Growers were able to sell **Hersbruck** hops (crop years 2022 to 2031) for 8.50 EUR/kg. Buyers now offered contracts for the variety **Spalt Select**, which had not been in demand for some time, at prices of 6.50 EUR/kg for crop year 2022, 6.60 EUR/kg for 2023, 6.70 EUR/kg for 2024 and 6.80 EUR/kg for 2025. The bitter varieties **Herkules** and **Polaris** sold at prices of 33.00 EUR/kg alpha for crop years 2022 to 2025 and 35.00 EUR/kg alpha for 2026 to 2031.

By spring, on the basis of average yields, 90 % of crop 2022 had been forward-contracted. The forward contracting rates for the key hop-producing countries for crop years 2022 to 2025 can be found in the HOP FORWARD CONTRACTS section.

Crop 2021 spot market

As a result of above-average crop yield, the proportion of hops sold on the basis of forward contracts decreased, which led to an increase in the volume of spot hops. According to the EU crop report, German hop growers had forward-contracted 81 % of their crop volume at an average price of 6.58 EUR/kg. Growers received the first bids for non-contracted hops in the third week of September, before the harvest was over. Fixed-price purchase offers were only received in isolated cases and for selected varieties. Most of the non-contracted hops were bought at prepayment prices by marketing firms as pool hops.



COUNTRY REPORT CZECH REPUBLIC

Variety	Development of acreage Acreage ha			Development of production Ø Yield mt/ha		Production mt	
	2020	+/–	2021	2020	2021	2020	2021
Saaz	4,216.1	-32.5	4,183.6	1.07	1.59	4,508.08	6,662.83
Sladek	365.0	8.8	373.8	2.05	2.41	749.47	901.92
Premiant	195.6	21.2	216.9	1.79	1.84	350.27	398.81
Other Aroma	122.4	-2.1	120.3	1.63	1.80	199.11	216.24
Total Aroma	**4,899.1**	**-4.6**	**4,894.5**	**1.19**	**1.67**	**5,806.93**	**8,179.80**
Agnus	52.7	7.7	60.4	2.00	1.79	105.50	108.40
Other Bitter	14.3	2.0	16.3	0.87	1.08	12.50	17.54
Other Bitter	**67.0**	**9.7**	**76.7**	**1.76**	**1.64**	**118.00**	**125.94**
CZECH REPUBLIC TOTAL	**4,966.1**	**5.1**	**4,971.2**	**1.19**	**1.67**	**5,924.93**	**8,305.74**

Farm structure

In the Czech Republic, the number of hop growers decreased by three, bringing the total number of producers to 121 for crop 2021. The average hop acreage per farm rose from 40 ha to 41 ha year on year.

Acreage/crop volume/alpha content

Although hop acreage remained virtually unchanged, there were some changes in the varietal mix. **Saaz** (-33 ha) and **Kazbek** (-4 ha) hops were grubbed out and replaced with **Premiant** (21 ha), **Sladek** (9 ha) and **Agnus** (8 ha). Aroma varieties were cultivated on slightly more than 98 % of acreage; the rest were bitter varieties. The **Žatec (Saaz)** production region accounts for 77 % of the total hop acreage in the Czech Republic.

The growing season started out cold and rainy. By late May, 95 % of the acreage had been strung with hops. At this point in time, growth was around 10 days behind the long-term average. June brought summery conditions, with a steady increase in temperature and rainfall. There was a hot spell from June 17 to 21, with temperatures reaching 36 °C. On June 24, the **Žatec** region was struck by hail. Hops covering an area of approx. 600 ha were damaged to varying degrees. In July, the summery temperatures and rainy weather continued. In the **Tršice (Tirschitz)** production area, tropical temperatures of 33 to 36 °C were recorded. On July 14, the **Žatec** region was hit by another hailstorm with extreme precipitation across 110 ha. By mid-July the **Saaz** hops were in full flower, while the other varieties were mostly only just beginning to flower. The rainy weather conditions continued with brief periods of heat until the harvest which began between August 20 and 28. Right until the end, growth was a few days behind the long-term average. The average yield of 1.67 mt/ha was 25 % above the five-year average.

The alpha values once again increased compared to the previous season and were much higher than the five- and 10-year averages. An alpha acid content overview for individual varieties can be found in the ALPHA ACID PRODUCTION section. While there was hardly any change in acreage, the alpha yield was almost 50 % higher year on year due to a very high crop yield and alpha values that were far above average.

Market situation

On the basis of average yields per hectare, the 2021 crop was almost completely sold out on account of existing forward contracts. Due to the above-average crop yields, spot hops were available. The growers' forward contract prices were 190 to 220 CZK/kg (7.50 to 8.70 EUR/kg). For the spot hops, they received an average of 150 CZK/kg (5.90 EUR/kg). The growers were able to sell all of their hops. In spring 2022, trading companies held approximately 250 to 300 t of unsold hops.

A reduction in acreage of about 45 ha is expected for 2022 (**Saaz** -62 ha, **Saaz Late** -12 ha, **Sladek** +22 ha., **Agnus** +10 ha). The 2022 crop can already be considered to be sold out, as forward contracts account for almost 100 % of the crop volume. An overview of the development of forward contracting up to crop year 2024 can be found in the HOP FORWARD CONTRACTS section.

COUNTRY REPORT POLAND

Variety	Development of acreage Acreage ha			Development of production Ø Yield mt/ha		Production mt	
	2020	+/–	2021	2020	2021	2020	2021
Lubelski	359.2	-34.4	324.8	1.60	1.43	574.19	466.00
Marynka	334.5	-2.7	331.8	2.13	1.67	713.91	554.24
Sybilla	99.4	-9.1	90.3	1.85	1.44	183.45	130.40
Other Aroma	158.1	-7.9	150.2	2.17	1.74	342.90	261.01
Total Aroma	**951.2**	**-54.1**	**897.1**	**1.91**	**1.57**	**1,814.45**	**1,411.65**
Hallertau Magnum	629.7	9.3	639.1	2.14	1.89	1,348.80	1,206.21
Magnat	156.4	46.2	202.6	2.80	2.26	437.96	457.00
Other Bitter	20.8	-1.0	19.8	1.70	1.67	35.45	33.06
Total Bitter	**806.9**	**54.5**	**861.4**	**2.26**	**1.97**	**1,822.21**	**1,696.27**
POLAND TOTAL	**1,758.1**	**0.4**	**1,758.5**	**2.07**	**1.77**	**3,636.66**	**3,107.92**

Farm structure

The number of hop growers decreased by 9 in crop year 2021, leaving 655 active producers. The average planted hop acreage increased slightly, but remained under 3 ha per grower.

Acreage/crop volume/alpha content

The results of the 2021 acreage survey were unchanged year on year; however, the ratio of aroma varieties to bitter varieties shifted by 3 % in favor of the bitter varieties to 51:49 %. The most significant changes were seen for **Lubelski** (-10 %) and **Sybilla** (-9 %) among the aroma varieties and **Magnat** (+30 %) among bitter varieties.

Precipitation in the spring was responsible for good moisture penetration of the soil. April and May were colder than the long-term average. Plant development was slow in all regions. By the end of May it was delayed by two weeks. In the Wilków region, a hailstorm and strong winds in June damaged the hop plants. The difference between the hop-growing regions and the individual varieties by late June was greater than usual. July brought normal to high summer temperatures. It also rained regularly, which is unusual for the west of Poland. The hops reached trellis height and flowered later than expected. Production volume was below the long-term average among both the aroma varieties (1.57 mt/ha) and the bitter varieties (1.97 mt/ha).

While average alpha content was in line with the long-term average, there were differences among the individual varieties. An alpha acid content overview for individual varieties can be found in the ALPHA ACID PRODUCTION section. As a result of the poor harvest, the alpha yield was down 20 % year on year.

Market situation

The below-average crop yield increased the proportion of hops sold through forward contracts or delivery commitments to 70 %. Depending on the time of sale, prices ranged between 25 and 29 PLN/kg (5.40 and 6.25 EUR/kg) for **Lubelski** hops and between 16 and 25 PLN/kg (3.45 and 5.40 EUR/kg) for the other varieties. As in previous years, spot market activity did not begin until comparatively late in the year (late October/early November). Only bitter varieties priced between 13 and 17 PLN/kg (2.80 / 3.65 EUR/kg) and the aroma varieties **Marynka** and **Perle** at 12 – 14 PLN/kg (2.60 / 3.00 EUR/kg) and 17–20 PLN/kg (3.65 / 4.30 EUR/kg), respectively, were purchased at fixed prices. There were no official market prices for any other varieties. The growers sold most of the available spot hops through delivery to long-standing trading partners. In fall, the forward contract bids for bitter hops per kilo of alpha acids were not interesting enough for the Polish growers. Only small quantities were sold. An overview of the development of forward contracting up to crop year 2025 can be found in the HOP FORWARD CONTRACTS section.

For 2022, further reduction of the area planted with the aroma varieties **Lubelski** and **Sybilla** can be expected. On the other hand, the area planted with the bitter varieties **Hallertau Magnum** and **Magnat** are set to increase slightly. Overall, acreage is expected to remain stable or decrease slightly compared to crop year 2021.

COUNTRY REPORT SLOVENIA

Variety	Development of acreage Acreage ha			Development of production Ø Yield mt/ha		Production mt	
	2020	+/–	2021	2020	2021	2020	2021
Aurora	556.4	73.0	629.4	2.00	1.29	1.114.30	811.23
Celeia	466.6	-19.8	446.8	1.91	1.71	891.40	762.03
Savinjski Golding	157.0	-7.5	149.5	1.33	0.96	208.49	143.88
Bobek	140.9	1.3	142.2	1.85	1.48	260.60	210.93
Others	135.2	5.9	141.1	1.62	1.53	219.47	215.28
Total Aroma	**1,456.1**	**52.9**	**1,509.0**	**1.85**	**1.42**	**2,694.26**	**2,143.35**
Total Bitter	**24.2**	**1.3**	**25.5**	**1.18**	**1.67**	**28.48**	**42.48**
SLOVENIA TOTAL	**1,480.3**	**54.2**	**1,534.5**	**1.84**	**1.42**	**2,722.74**	**2,185.82**

Farm structure

The number of hop growers remained unchanged at 122. Due to the rise in acreage, the average planted area per farm also increased slightly to 13 ha. Two craft brewers who grow hops on a very small scale for their own use entered the industry, meaning that there are now eight growers in addition to those who are officially active.

Acreage/crop volume/alpha content

Apart from minor changes to the acreage of almost all varieties, the acreage adjustments were accounted for by the two main varieties. Hop acreage in Slovenia rose by almost 4 %, including an increase of 73 ha (+13 %) for **Aurora** and a decrease of 20 ha (-4 %) for **Celeia**.

The winter of 2021/2022 was significantly rainier and warmer than the long-term average. Cold weather conditions in April and May delayed growth, and in the second half of May it rained almost every day. By late May, almost the entire crop had been strung. June was warmer, and by the middle of the month temperatures had increased to over 30 °C almost daily, reaching highs of 35 °C. Precipitation volume in June was only a quarter of the long-term average. Wherever possible, the hop gardens were irrigated. Rain showers on July 5 brought the heatwave to an end. On average, July was 2 °C warmer than usual. Warm summer temperatures continued throughout August. Two events reduced production volume: Strong winds around Kapla brought down around 100,000 hop plants. On August 8, a severe hailstorm to the south and east of Žalec damaged an area of 300 to 400 ha, causing up to total crop loss in some instances. Temperatures were above average for the entire month. The precipitation volume was in line with the long-term average, although mid-month the summery temperatures were interspersed with highs of 35 °C on some days. At 1.4 mt/ha, due in part to the crop losses caused by hail, the crop yield was below average. This result is primarily influenced by the low yield of 1.3 mt/ha for the main variety **Aurora**, which averaged 1.7 mt/ha over the past five years.

Alpha acid content proved disappointing, with values far below average. Only **Celeia** matched its long-term average. An alpha acid content overview for individual varieties can be found in the ALPHA ACID PRODUCTION section. The combination of decreased production volume and significantly lower alpha values produced a year-on-year drop in alpha yield of 45 %.

Market situation

When picking began, growers had already forward-contracted 80 % of the 2021 crop volume. Marketers' interest in spot hops was hesitant. The prices paid for the first lots of **Aurora**, **Celeia** and **Bobek** were between 6.00 and 6.50 EUR/kg. Over time, prices dropped. **Aurora** and **Celeia** were sold within a price range of 4.00 to 4.50 EUR/kg in October and for 3.50 EUR/kg in January. With the exception of **Aurora**, of which there were no stocks left, the volume harvested still had not been fully sold by spring 2022.

Fortunately, the prevalence of the citrus viroid (CBCVd) is declining. For many farms, the statutory planting ban enforced due to the infection of their hops with the viroid has ended. They are now replanting the affected acreage. Some growers are also erecting new trelliswork. Overall, acreage is expected to expand by an area of 70 ha planted predominantly with **Aurora** hops for crop 2022.

Assuming an average yield, 75 % of the coming crop is estimated to have been sold by the spring.

COUNTRY REPORT USA

Area	Variety	Development of acreage Acreage ha			Development of production Ø Yield mt/ha		Production mt	
		2020	+/–	2021	2020	2021	2020	2021
Washington	Citra®	3,295.4	252.2	3,547.6	1.71	1.77	5,636.4	6,282.4
	Mosaic®	1,503.4	193.5	1,696.9	2.24	2.39	3,366.8	4,049.2
	Cascade	1,164.3	123.8	1,288.1	1.74	1.78	2,024.0	2,288.4
	Simcoe®	1,300.7	-17.0	1,283.7	1.84	1.84	2,395.2	2,368.3
	Centennial	989.1	-188.6	800.5	1.84	1.78	1,818.1	1,422.1
	Amarillo®	564.6	-24.7	539.9	1.85	1.86	1,043.4	1,003.8
	Chinook	478.8	-3.7	475.1	1.87	2.07	893.4	985.7
	Sabro®	463.4	-10.1	453.3	2.11	2.47	979.5	1,121.2
	El Dorado®	428.2	22.2	450.4	1.79	2.10	767.8	947.1
	Azacca®	292.2	3.2	295.4	1.71	2.14	500.1	632.1
	Cashmere	181.3	97.9	279.2	1.70	1.56	307.7	436.6
	Talus™	62.3	160.3	222.6	1.75	1.46	109.3	324.3
	Cluster	167.1	-9.3	157.8	2.31	2.26	386.8	356.6
	Idaho7®	138.0	19.0	157.0	1.95	3.58	268.5	562.7
	Tahoma	71.6	85.4	157.0	1.78	1.18	127.5	185.7
	Comet	133.6	22.6	156.2	0.98	1.83	130.5	285.7
	Ekuanot®	259.4	-105.2	154.2	2.42	2.92	627.5	450.7
	Palisade	99.6	35.2	134.8	2.37	2.09	235.9	281.9
	Strata™	20.2	101.2	121.4	3.37	2.24	68.0	272.2
	Bru-1™	115.7	4.1	119.8	1.12	1.59	129.7	190.0
	Other Aroma	1,005.2	-85.4	919.8	1.88	1.96	1,885.2	1,800.2
	Total Aroma	**12,734.1**	**676.6**	**13,410.7**	**1.86**	**1.96**	**23,701.3**	**26,246.9**
	CTZ	1,954.3	-123.9	1,830.4	2.44	2.98	4.766.3	5,449.1
	Pahto®	893.6	-38.1	855.5	2.26	2.76	2.022.1	2,361.8
	Pekko®	324.2	108.8	433.0	1.39	2.32	450.2	1,005.6
	Apollo™	303.5	0.0	303.5	2.52	3.00	764.8	910.0
	Super Galena™	192.2	2.1	194.3	2.95	3.19	567.9	620.3
	Eureka™	188.2	0.4	188.6	2.61	3.39	491.9	638.8
	Summit™	259.0	-82.1	176.9	1.23	1.51	318.2	267.8
	Other Bitter	257.4	68.4	325.8	2.14	2.69	551.5	877.6
	Total Bitter	**4,372.4**	**-64.4**	**4,308.0**	**2.27**	**2.82**	**9,932.9**	**12,131.0**
	Total Washington	**17,106.5**	**612.2**	**17,718.7**	**1.97**	**2.17**	**33,634.2**	**38,377.9**
Idaho	Citra®	618.0	87.4	705.4	1.71	1.58	1,054.9	1,117.2
	Mosaic®	480.0	78.5	558.5	2.62	2.40	1,256.1	1,340.2
	El Dorado®	212.9	38.4	251.3	1.78	1.99	379.3	500.8
	Idaho7®	228.2	11.4	239.6	2.74	3.18	624.7	761.8
	Chinook	252.5	-41.7	210.8	1.81	2.36	456.8	497.2
	Cascade	164.7	29.1	193.8	1.36	1.75	223.9	338.7
	Willamette	53.0	104.4	157.4	1.79	1.47	95.1	231.3
	Simcoe®	172.0	-15.0	157.0	1.11	1.26	191.2	197.3
	Amarillo®	217.7	-63.9	153.8	1.77	2.03	384.6	312.5
	Other Aroma	519.6	101.7	621.3	1.57	1.47	815.9	912.8
	Total Aroma	**2,918.6**	**330.3**	**3,248.9**	**1.88**	**1.91**	**5,482.5**	**6,209.8**
	CTZ	589.6	-166.3	423.3	3.00	3.55	1,766.6	1,503.6
	Eureka™	74.9	59.5	134.4	2.46	2.86	184.6	384.3
	Other Bitter	167.6	-51.1	116.5	2.17	2.19	363.4	255.0
	Total Bitter	**832.1**	**-157.9**	**674.2**	**2.78**	**3.18**	**2,314.6**	**2,142.9**
	Total Idaho	**3,750.7**	**172.4**	**3,923.1**	**2.08**	**2.13**	**7,797.1**	**8,352.7**
Oregon	Citra®	537.0	58.7	595.7	1.69	1.58	906.5	944.1
	Mosaic®	240.8	100.8	341.6	2.42	2.33	581.6	795.1
	Strata™	195.9	141.2	337.1	2.32	2.12	454.0	713.7
	Cascade	305.1	-35.6	269.5	1.84	1.79	560.6	481.9
	Simcoe®	191.8	10.1	201.9	2.04	1.84	391.9	371.9
	Willamette	244.8	-64.3	180.5	2.08	1.64	509.9	295.6
	Centennial	197.9	-50.6	147.3	1.88	1.55	371.5	228.5
	Other Aroma	537.0	64.1	601.1	1.82	1.88	976.3	1,129.1
	Total Aroma	**2,450.3**	**224.4**	**2,674.7**	**1.94**	**1.85**	**4,752.3**	**4,959.9**
	Nugget	334.3	-102.8	231.5	2.06	2.42	689.8	561.0
	Other Bitter	90.6	-4.0	86.6	2.36	2.29	213.6	198.0
	Totale Bitter	**424.9**	**-106.8**	**318.1**	**2.13**	**2.39**	**903.4**	**759.0**
	Total Oregon	**2,875.2**	**117.6**	**2,992.8**	**1.97**	**1.91**	**5,655.7**	**5,718.9**
Total Aroma		**18,103.0**	**1.231.3**	**19,334.3**	**1.87**	**1.94**	**33,936.1**	**37,416.6**
Total Bitter		**5,629.4**	**-329.1**	**5,300.3**	**2.34**	**2.84**	**13,150.9**	**15,032.9**
USA Pacific Northwest		**23,732.4**	**902.2**	**24,634.6**	**1.98**	**2.13**	**47,087.0**	**52,449.5**
Other States		1.006.0	-444.7	561.3	0.45	0.73	453.6	408.2
USA TOTAL		**24,738.4**	**457.5**	**25,195.9**	**1.92**	**2.10**	**47,540.6**	**52,857.7**

Due to the conversion of acres into ha and from lbs into mt, there may be minor statistical deviations and differences in the sum totals caused by figures being rounded up or down.

COUNTRY REPORT USA

The summary below pertains to the traditional growing regions of Washington, Oregon, and Idaho which are also referred to as the Pacific Northwest (PNW) states. Developments outside the PNW states are reported in a separate section.

Farm structure

For crop 2021 the number of hop farms in the Pacific Northwest (PNW) decreased by one, reducing the total number of growers to 69. Larger farms that have multiple corporate entities are counted as one farming unit. The average farm size increased slightly to 357 ha, with Washington leading at 479 ha per farm, followed by Idaho and Oregon at 392 ha and 136 ha, respectively. With the further acreage expansion for crop 2021, most PNW farms were near the capacity levels of their existing harvesting infrastructure.

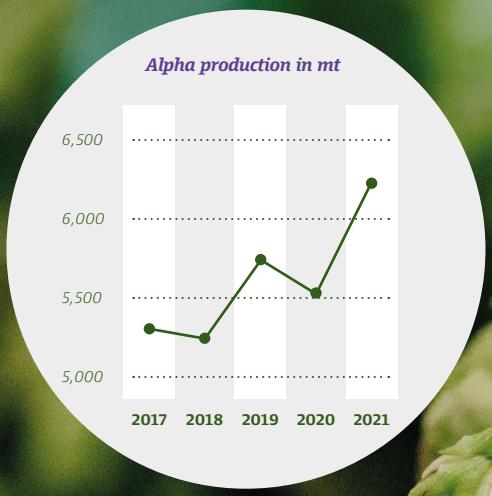
It is estimated that approximately 26 additional states grew hops for crop 2021. With a few exceptions, most hop farms outside the PNW region are of much smaller scale compared with the large established farms in the PNW.

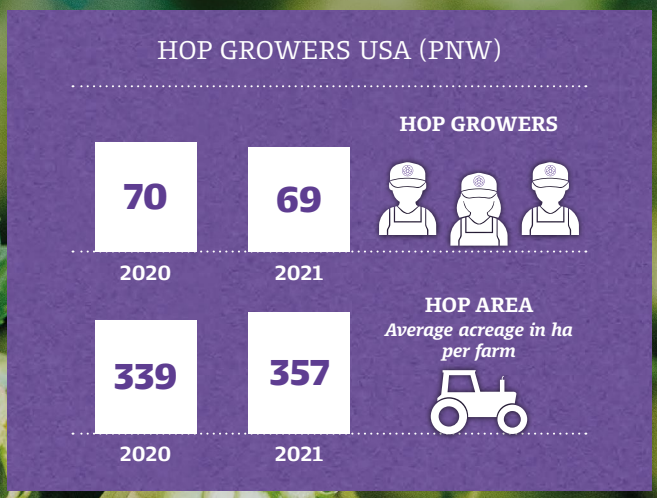
Acreage and variety development

Following a 4 % acreage expansion in 2020, crop 2021 saw a further increase of 4 % (903 ha), marking the 10th consecutive year of acreage expansion in the US and again setting another all-time acreage record. The total acreage strung for harvest in crop year 2021 was 24,635 ha for the PNW region. The trend toward aroma varieties continued, increasing from 76 % to 78 % as a share of total PNW acreage, while the bitter category dropped to 22 %. Acreage of proprietary varieties rose slightly to 67 %, compared with 33 % for public varieties. Proprietary varieties continue to be contracted with growers on a full-production basis rather than for specific volumes, which eliminates the possibility of spot hops.

All three PNW states increased acreage by a similar percentage for crop 2020. Washington remains the dominant producing state at 17,719 ha (72 % PNW share) followed by Idaho at 3,923 ha (16 %) and Oregon at 2,993 ha (12 %).

Beyond the 3 PNW states, it is estimated that another 26 states grew approximately 561 ha of hops for crop 2021, down 44 % from the prior year. As a result, the estimated acreage in the non-PNW states has dropped to about 2.5 % of the total US acreage.





COUNTRY REPORT USA

TOP 5 VARIETIES BY AREA SHARE 2021

1. 19.7 % CITRA®
2. 10.5 % MOSAIC®
3. 9.1 % CTZ
4. 7.1 % CASCADE
5. 6.7 % SIMCOE®

Acreage for the main varieties in the PNW region has developed as follows over the past five years:

Variety	2017 ha	2018 ha	2019 ha	2020 ha	2021 ha	Percentage of acreage 2021	Difference to previous year	Percentage change
Citra®	2,072	2,583	3,517	4,450	4,849	19.7 %	398	8.9 %
Mosaic®	1,098	1,113	1,662	2,224	2,597	10.5 %	373	16.8 %
Cascade	2,811	2,499	2,212	1,634	1,752	7.1 %	117	7.2 %
Simcoe®	1,865	1,614	1,730	1,665	1,643	6.7 %	-22	-1.3 %
Centennial	2,132	1,954	1,545	1,222	968	3.9 %	-254	-20.8 %
Amarillo®	1,217	1,166	959	870	772	3.1 %	-98	-11.3 %
Chinook	981	1,143	946	766	718	2.9 %	-48	-6.3 %
El Dorado®	276	218	402	641	702	2.8 %	61	9.5 %
Sabro®	-	-	299	498	575	2.3 %	77	15.5 %
Strata™	-	-	-	216	491	2.0 %	275	127.2 %
Idaho7®	-	-	-	366	397	1.6 %	30	8.3 %
Willamette	620	590	429	380	391	1.6 %	11	3.0 %
Cashmere	-	-	125	232	338	1.4 %	106	45.5 %
Azacca®	234	221	238	292	295	1.2 %	3	1.1 %
Talus™	-	-	-	62	223	0.9 %	161	258.4 %
Comet	99	132	130	171	215	0.9 %	44	25.8 %
Tahoma	93	99	93	72	193	0.8 %	121	168.9 %
Mt. Rainer	58	174	153	146	170	0.7 %	23	16.1 %
Ekuanot®	398	354	270	274	168	0.7 %	-105	-38.5 %
Cluster	258	272	216	175	166	0.7 %	-9	-5.3 %
Palisade	233	212	196	103	138	0.6 %	35	34.3 %
Crystal	278	250	180	121	123	0.5 %	2	1.3 %
Bru-1™	-	-	-	116	120	0.5 %	4	3.5 %
Other Aroma	1,862	1,863	1,704	1,406	1,332	5.4 %	-74	-5.3 %
Total Aroma	**16,586**	**16,458**	**17,008**	**18,102**	**19,334**	**78.5 %**	**1,232**	**6.8 %**
CTZ	1,977	2,478	2,645	2,544	2,254	9.1 %	-290	-11.4 %
Pahto®	399	716	885	917	863	3.5 %	-54	-5.9 %
Pekko®	-	-	126	324	433	1.8 %	109	33.6 %
Apollo™	371	416	429	388	374	1.5 %	-13	-3.4 %
Eureka™	177	219	247	263	323	1.3 %	60	22.8 %
Nugget	604	580	471	356	253	1.0 %	-103	-28.9 %
Super Galena™	231	270	223	227	229	0.9 %	2	0.9 %
Summit™	654	637	434	259	177	0.7 %	-82	-31.7 %
Bravo™	259	149	122	100	115	0.5 %	15	15.0 %
Other Bitter	305	351	295	251	279	1.1 %	28	11.2 %
Total Bitter	**4,978**	**5,815**	**5,875**	**5,629**	**5,300**	**21.5 %**	**-329**	**-5.8 %**
PNW TOTAL	**21,564**	**22,272**	**22,883**	**23,732**	**24,635**	**100.0 %**	**903**	**3.8 %**

The rounding of acreage figures sometimes leads to differences in sum totals.

COUNTRY REPORT USA

The top 5 varieties in the US accounted for over half of the US acreage at 13,095 ha collectively (53 %). **Citra®** added 398 ha (9 %) to maintain its place at the top of the US acreage list for a fourth consecutive year with a share of nearly 20 % of all PNW acres. **Mosaic®** passed **CTZ** to move into second place with an increase of 373 ha (17 %), while **CTZ** dropped to third with a reduction of 290 ha (11 %) as activity in the US alpha market remained slow. The recent slide of **Cascade** appears to have ended with an increase of 117 ha (7 %) for crop 2021, which moved it slightly ahead of **Simcoe®** and into fourth place. Acreage of fifth-placed **Simcoe®** has been relatively stable in recent years and was again almost flat for 2021.

Just outside the top 5, **Centennial** continued its dramatic downward trend with a reduction of 254 ha (21 %). Total acreage of this variety thus halved within the space of only 4 years. Other varieties with notable increases for crop 2021 include **Strata®** (+275 ha / 127 %), **Talus®** (+161 ha / 258 %), **Tahoma** (+121 ha / 169 %) and **Cashmere** (106 ha / 46 %). Within the bitter category, in addition to the drop in **CTZ** acreage, **Nugget** shed 103 ha (29 %) as it continued to fall out of favor. Only minor changes were seen in other varieties within the bitter category.

Crop volume

Weather conditions during winter in the PNW region brought above-average precipitation and snowpack as predicted. In spring, very full mountain reservoirs set the stage for ample water supply for the 2021 crop-growing season. However, by early summer an unprecedented heat dome had settled over the PNW region, bringing extreme temperatures to the growing areas throughout much of June and into July. High temperatures exceeded 38 °C (100 °F) for several weeks, with record high temperatures reaching 43 – 46 °C (110 – 115 °F) on several dates during this period. The heat scorched the hop crop that was still in its early, vulnerable stages of development as most bines had not yet reached trellis height. By late June, it appeared that many of the fields might be severely damaged and stunted, although observations varied considerably across the growing areas. Baby fields in particular sustained more damage than mature fields, given that first-year plantings do not yet have the fully developed root structure needed to take up water.

However, as crop development progressed into late July and early August, most of the crop largely recovered well beyond industry expectations and was significantly aided by the sufficient supply of water. Baby crops, however, did not fully recover, nor did some of the earlier-maturing varieties. The heat caused delayed and variable bloom for most varieties. Heading into harvest, the crop was late in reaching maturity – about 5 days behind the normal schedule in Washington and Idaho, although closer to normal in Oregon. Cone sets looked average to above average for many varieties, although cone size generally appeared smaller than normal.

Crop variability was evident from farm to farm and by variety. **Citra®** generally appeared weak prior to harvest, but baled out nicely with yields at the long-term average. **Cascade**, on the other hand, consistently looked weak all season and came in with yields roughly 15 % below average. **Centennial**, a variety that typically does not do well in heat, performed surprisingly well with average yields. **Chinook**, **Cluster** and **Idaho 7™** yields were strong, while other varieties including **Mosaic®**, **Amarillo®**, **El Dorado™**, **Simcoe®** and **Strata®** produced average yields. **Willamette** and a few smaller varieties were below average. Bitter varieties, which generally thrive in heat, saw yields of about 8 to 10 % above average for the category, although alpha content was below the 5-year average, particularly with **CTZ**.

Despite the challenges and crop concerns, cone weights and yields were stronger than expected, resulting in overall crop yields near long-term averages. Upon completion of harvest, the USDA reported that the PNW states had produced 52,449.5 mt, up 5,363 mt (11.4 %) over the prior season, setting a new record volume for the US.

Earlier concerns with the heat wave focused not only on potential impact on yields, but also on crop quality. However, as yields rebounded beyond expectations, so did crop quality. Rather than being harmful, the earlier heat stress on the plants appears to have enhanced the aromatic attributes of the crop for many varieties. Aroma quality was generally robust, with good color and above-average oil content for many varieties. While picking windows were slightly out of sync due to the late maturity of the crop, growers were able to adjust harvest schedules to pick the individual varieties at the proper time. Pest and disease pressure was unusually low throughout the season, including low mite infestation which is normally prevalent with high temperatures. An alpha acid content overview for individual varieties can be found in the ALPHA ACID PRODUCTION section.

COVID-19 again added labor challenges for growing and harvesting the crop despite this season being the second crop grown during the pandemic. While a sufficient supply of labor was available, farm practices continued to include additional safety procedures, personal protective equipment, backup staffing, and regulated worker housing constraints, which added significantly to the cost of growing the crop.

COUNTRY REPORT USA

Market situation
Contract market

Forward contract activity with growers commenced shortly after the crop 2020 harvest concluded, with most of the activity occurring over the months of October 2020 through January 2021. With the COVID-19 Delta variant subsiding by late 2020, the forward market outlook generally was beginning to improve, leading to further acreage increases for crop 2021. Contract terms varied from one-year to multi-year purchases typically consisting of 2021 to 2023 crops, with a few deals exceeding 3 years. A good portion of purchases was for bitter varieties including **CTZ**, **Pahto®** and **Eureka®**, with most of the volumes coming from existing acreages. New plantings of aroma varieties were also booked during this timeframe led by **Citra®**, **Mosaic®** and **Strata®**, with smaller acreages booked for **Cascade**, **Cashmere**, **Tahoma**, and a few others. The grower market simmered after the early winter activity and remained relatively inactive until the crop 2021 harvest.

An overview of the development of forward contracting up to crop year 2024 can be found in the HOP FORWARD CONTRACT section.

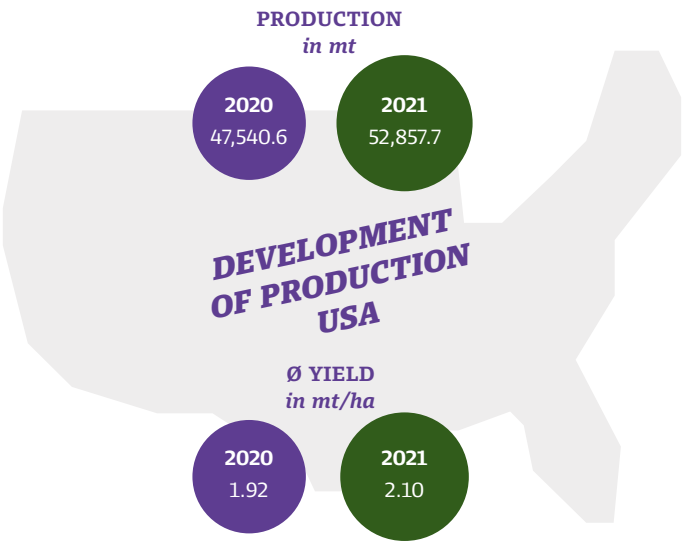
Spot market crop 2021

With the crop producing average yields for most varieties, spot hops were available for several of the public varieties. **Cascade** spots were picked up quickly due to poor yields and current supply tightness for this variety. Similar spot demand existed for **Willamette**, which had also experienced low yields, as well as smaller varieties including **Mt. Hood**, **Crystal**, and **Liberty**. **Chinook** had had good yields, yet saw some late spot activity. **CTZ** spots were widely available given strong yields. Most of the **CTZ** spots were picked up by late fall although at prices below contract price levels due to soft global market conditions for generic alpha. In contrast to the prior year, upon concluding the crop 2021 harvest, grower market activity for forward crops did not immediately materialize, as market signals were beginning to show signs of potential softening ahead.

Outside the Pacific Northwest

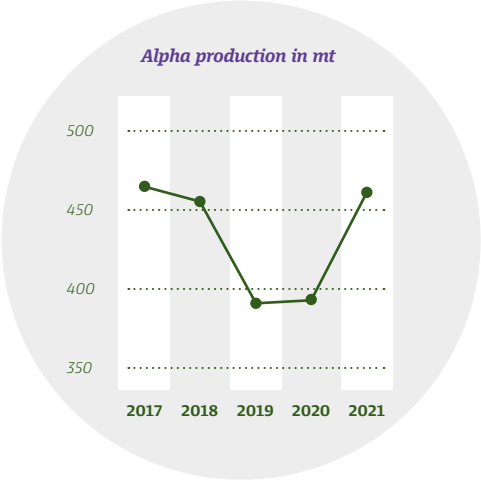
As reported by Hop Growers of America (HGA), US hop acreage outside the PNW region dropped by an estimated 44 % from the prior year. Hops from the non-PNW region are more prevalently sold into smaller, local markets which are heavily weighted toward craft breweries with on-premise distribution models. This segment of the brewing industry was hit hard by the COVID pandemic over the past two years, leading to a drop in demand for a large share of the non-PNW hop production. Of the 2.5 % share of total US acreage represented by the non-PNW states, approximately 63 % of those acres collectively come from Michigan, New York and Montana, while the other 37 % of non-PNW acres are spread over 23 additional states that have relatively small acreages.

While the non-PNW growing regions did not experience the historic heat dome seen in the PNW, the other states also had their share of challenging growing conditions this season. Notably Michigan, the fourth-largest producing state, experienced a growing season hampered by several extended wet spells with above-normal precipitation, contributing to increased mildew and other fungal issues which greatly reduced yields. HGA estimates that a total crop of 408.2 mt was produced in the 26 states beyond the PNW region, a drop of 10 % from the prior year. This volume represents slightly less than 1 % of the total US crop.



COUNTRY REPORT CHINA

Area	Variety	Development of acreage Acreage ha			Development of production Ø Yield mt/ha		Production mt	
		2020	+/–	2021	2020	2021	2020	2021
Xinjiang	Tsingtao Flower	652.0	10.7	662.7	2.42	2.72	1,579.50	1,802.00
	Marco Polo	417.0	-9.0	408.0	2.83	2.85	1,182.00	1,162.00
	SA-1	126.7	40.0	166.7	2.58	2.54	328.00	424.00
	Kirin Flower	38.0	0.0	38.0	4.50	4.50	171.00	171.00
	Aroma	77.3	3.4	80.7	1.44	2.27	111.00	183.00
	Total Xinjiang	**1,311.0**	**45.1**	**1,356.1**	**2.57**	**2.76**	**3,371.50**	**3,742.00**
Gansu	Tsingtao Flower	802.7	0.0	802.7	2.47	2.53	1,987.00	2,032.00
	Bitter	178.7	-10.2	168.5	1.93	2.70	344.70	455.00
	Aroma	37.1	-6.5	30.6	1.80	1.83	66.70	56.00
	Total Gansu	**1,018.5**	**-16.7**	**1,001.8**	**2.35**	**2.54**	**2,398.40**	**2,543.00**
Total Aroma		**241.1**	**36.9**	**278.0**	**2.10**	**2.38**	**505.70**	**663.00**
Total Bitter		**2,088.4**	**-8.5**	**2,079.9**	**2.52**	**2.70**	**5,264.20**	**5,622.00**
CHINA TOTAL		**2,329.5**	**28.4**	**2,357.9**	**2.48**	**2.67**	**5,769.90**	**6,285.00**



There are no reliable statistics on acreage and production volume in China. The figures presented here, which due to the acreage sizes in China are often based on estimates, have been gathered from our own sources.

Farm structure

The number of hop farms increased to 23 (+1), while the average hop acreage per farm decreased to 103 ha (-3 ha) as a result of the trend in acreage development. In the **Xinjiang** production region, the average cultivated acreage of the 15 farms fell by 4 ha to 90 ha. In the **Gansu** region, the average acreage of the eight farms operating there dropped by two to 125 ha per farm.

Acreage/crop volume/alpha content

For the first time following three years of declining acreages, the statistics for crop year 2021 registered an upturn. In the **Xinjiang** production region, acreage increased by 45 ha, bringing the region's share of China's total hop acreage to 58 %. The **Gansu** region, on the other hand, saw its share fall back to 42 %, following the loss of 17 ha.

Aroma hops were grown on 12 % of acreage (+2 %), bitter hops on 88 %. The bitter hop **Tsingtao Flower** remained the most widely grown variety, accounting for a 62-percent share of China's total hop acreage.

In the **Xinjiang** region, the temperatures in the spring of 2021 were somewhat higher than in the same period in previous years, while precipitation in most of the areas in the region was comparatively low. In the second half of March and early April there was a renewed spell of very cold weather. Temperatures in the summer months trended above the long-term average, with considerable variation between the individual areas in the production region, however. Most of the precipitation fell during the flood season in late June and between the middle and the end of August. The average annual temperature in crop year 2021 was slightly higher in most areas of Xinjiang, while annual precipitation was slightly lower. Rainfall was unusually heavy in the western part of South Xinjiang, however. Summer temperature patterns have changed significantly. The average temperature and the average highest temperature between the middle and the end of June were the lowest in the last 30 years, whereas the temperatures in July rose sharply, setting the second highest record since 1961. The crop yield of 2.76 mt/ha was slightly higher than the average for the last five years.

In the **Gansu** production region, depending on the area, the hops were pruned in good weather conditions at the usual time between mid-March and mid-April. In May and June, the hop plants grew unusually fast. On July 19 and 27, very strong winds in the Jiuquan area brought down small sections of hop yards. Thanks to the absence of rain at harvest time, picking went ahead without interruption. The crop yield of 2.54 mt/ha was the highest since 2015.

Very high alpha acid values were recorded across the board for all varieties. The average alpha content was 7.3 %, far exceeding the five-year average. While the average alpha

COUNTRY REPORT CHINA

content recorded for **Tsingtao Flower** hops was 5.9 %, it was considerably higher in **Gansu** than in **Xinjiang**. The high crop yields and the above-average alpha acid levels led to a year-on-year increase in alpha yield of 17 %.

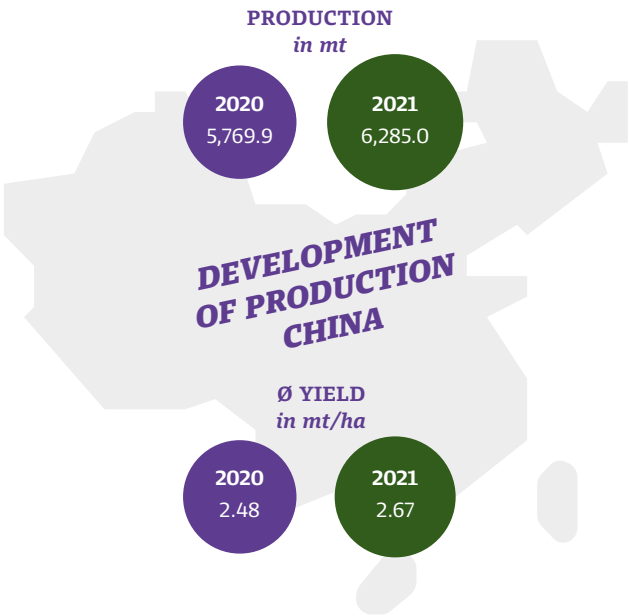
Market situation

In China there is no forward contract market comparable to that in Europe or the USA. Instead, it is customary for farmers and buyers to conclude purchase agreements. These agreements only contain a definition of quantity and quality. The actual price is negotiated at a later date.

In the **Xinjiang** region, by harvest time growers had entered into agreements to sell approximately half their production volume, without a price being fixed. Initial deliveries of **Tsingtao Flower** hops changed hands at a price of 27.50 CNY/kg (3.70 EUR/kg). The price paid for subsequent deliveries was 25 CNY/kg. **Marco Polo** hops sold at a price of 34 CNY/kg (4.55 EUR/kg). The crop is reported to be sold out.

In the **Gansu** region, as in the previous year, the volume of hops covered by purchase agreements exceeded the volume harvested. The normal price for **Tsingtao Flower** was 27 CNY/kg (3.60 EUR/kg), while for hops with a high alpha content it was 34 CNY/kg (4.55 EUR/kg). Part of the shortfall, which amounted to approx. 300 mt, was bought in from the **Xinjiang** production region.

In crop year 2022, hop acreage in the **Gansu** region is expected to reach 1,047 ha, corresponding to an increase of 34 ha. Hop acreage in **Xinjiang** is expected to remain the same as in crop year 2021.



COUNTRY REPORT AUSTRALIA

Area	Variety	Development of acreage Acreage ha			Development of production Ø Yield mt/ha		Production mt	
		2021	+/–	2022	2021	2022	2021	2022
Victoria	Galaxy®	306.6	46.8	353.4	2.33	2.12	715.0	750.8
	Vic Secret™	89.1	28.8	117.9	2.61	2.47	232.7	290.6
	Super Pride	33.0	0.0	33.0	0.91	0.91	30.0	30.0
	Pride of Ringwood	47.0	0.0	47.0	1.06	1.06	50.0	50.0
	Topaz™	22.6	0.0	22.6	2.98	2.43	67.3	54.9
	Ella™	12.9	0.0	12.9	2.39	2.40	30.8	31.0
	Eclipse®	20.4	29.7	50.1	2.48	1.89	50.6	94.6
	Cluster	3.0	0.0	3.0	0.67	0.67	2.0	2.0
	Total Victoria	**534.6**	**105.3**	**639.9**	**2.20**	**2.04**	**1,178.4**	**1,303.9**
Tasmania	Galaxy®	117.2	22.4	139.6	2.21	1.84	258.8	257.0
	Enigma®	53.4	4.2	57.6	1.60	1.51	85.5	86.8
	Super Pride	16.2	0.0	16.2	2.70	2.47	43.8	40.0
	Ella™	36.7	0.0	36.7	1.64	1.79	60.1	65.8
	Cascade	16.3	0.0	16.3	1.76	1.58	28.7	25.8
	Pride of Ringwood	12.9	0.0	12.9	3.80	3.48	49.0	45.0
	Total Tasmania	**252.7**	**26.6**	**279.3**	**2.08**	**1.86**	**525.9**	**520.4**
AUSTRALIA TOTAL		**787.3**	**131.9**	**919.2**	**2.16**	**1.98**	**1,704.3**	**1,824.3**

COUNTRY REPORT AUSTRALIA CROP 2022

Farm structure

As in the previous year, Hop Products Australia (HPA) owns the hop farms Bushy Park Estates in Tasmania, Buffalo River Valley and Rostrevor Hop Gardens, both in Victoria, with a total acreage of 810 ha (2021: 675 ha). Not included in the above figure are four other growers in Australia. Their average hop acreage per farm fell from 28 ha in 2021 to 27 ha in 2022.

This year's harvest marked a significant milestone for HPA, with the completion of a AUD 35 million capital expansion project that involved planting 300 new hectares of **Galaxy®**, **Vic Secret™** and their newest proprietary hop **Eclipse®**, as well as constructing a new processing facility. The facility now houses an additional two picking machines and 12 kiln floors as well as state-of-the-art conditioning and packaging equipment, effectively boosting its total processing capacity by 50 %.

Acreage/crop volume/alpha content

In the hop-growing region in Victoria, the increase in acreage was a result of expansion among **Galaxy®** (+15 %), **Eclipse®** (+146 %) and **Vic Secret™** (+32 %). The 11 % increase in acreage in Tasmania is due to the expansion of **Galaxy®** (+19 %) and Enigma® (+8 %). Australian hop acreage increased by 17 % in total. **Galaxy®** now accounts for nearly half of total hop acreage. Reduction in **Topaz™** production (-40 %) was due to hail damage not reduction in acreage.

Cooler daytime temperatures and increased precipitation in spring and summer are characteristic of the La Niña weather phenomenon. Persisting warm weather towards the end of the vegetation period led to most plants developing laterals and a promising number of flowers. The Victoria production region saw above-average precipitation. The hop harvest began in the first week of March and continued through to the end of the month. As the new plantings will not produce a full yield until 2024, the acreage expansion has not yet translated to a significant increase in production volume. The average yield of the 2022 harvest was therefore just under 2 mt/ha, including the newly established gardens.

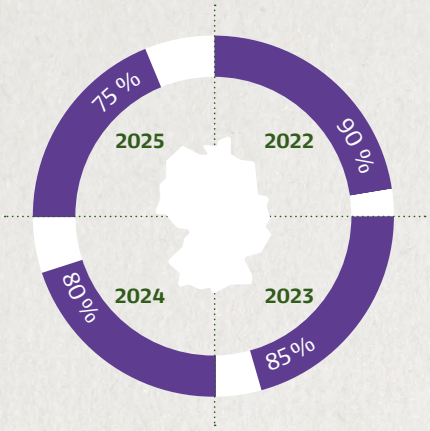
While the alpha acid content was generally similar to that of the 2021 crop, it was slightly higher in **Enigma®**, **Vic Secret™** and **Ella™** hops. Due to the increased production volume, the alpha yield was up 7 % year on year.

Market situation

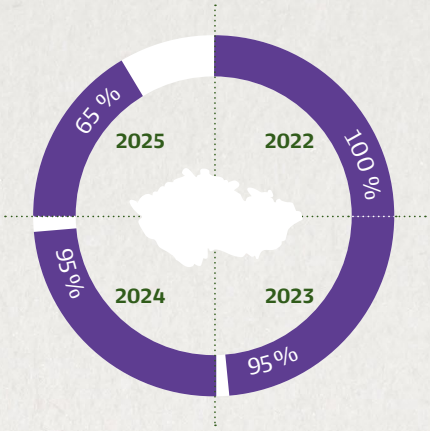
There are only limited quantities of unsold hops. The forward contract rate for hops picked in 2022 was 95 %. 90 % of the 2023 crop is already under contract. The forward contracting rates for the key hop-producing countries for crop years 2022 to 2025 can be found in the FORWARD CONTRACTS section.

HOP FORWARD CONTRACT RATES

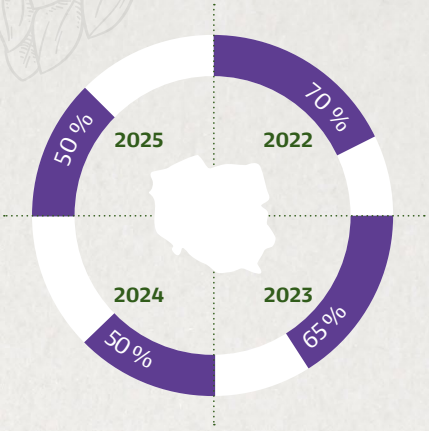
GERMANY



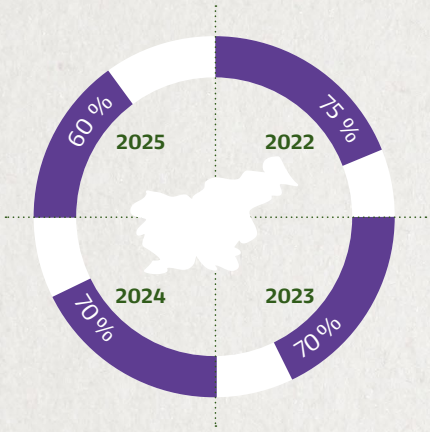
CZECH REPUBLIC



POLAND



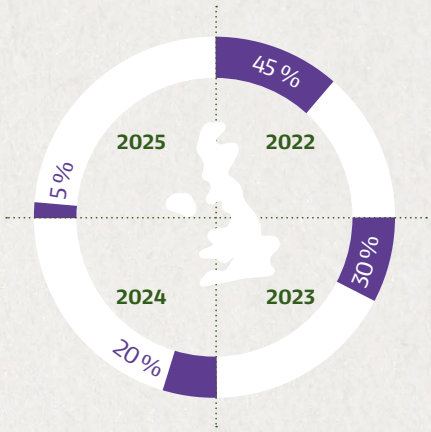
SLOVENIA



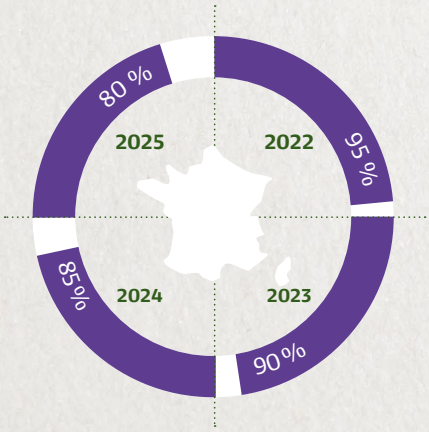
FORWARD CONTRACT RATES (AS PER SPRING 2021)

Due to insufficient availability of official data, the forward contracting rates are based on estimates and have been calculated on the long-term average yield.

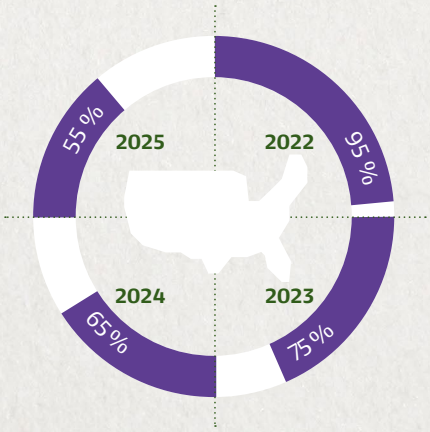
ENGLAND



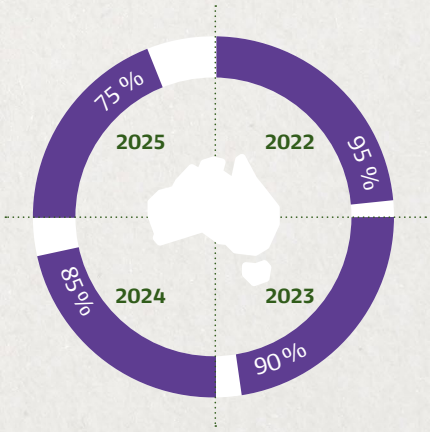
FRANCE



USA



AUSTRALIA



CONVERSION TABLE WEIGHTS AND MEASURES

Area:

1 hectare (ha) = 10,000 m^2	= 2,471 acres
1 acre	= 0.4047 ha

Volume:

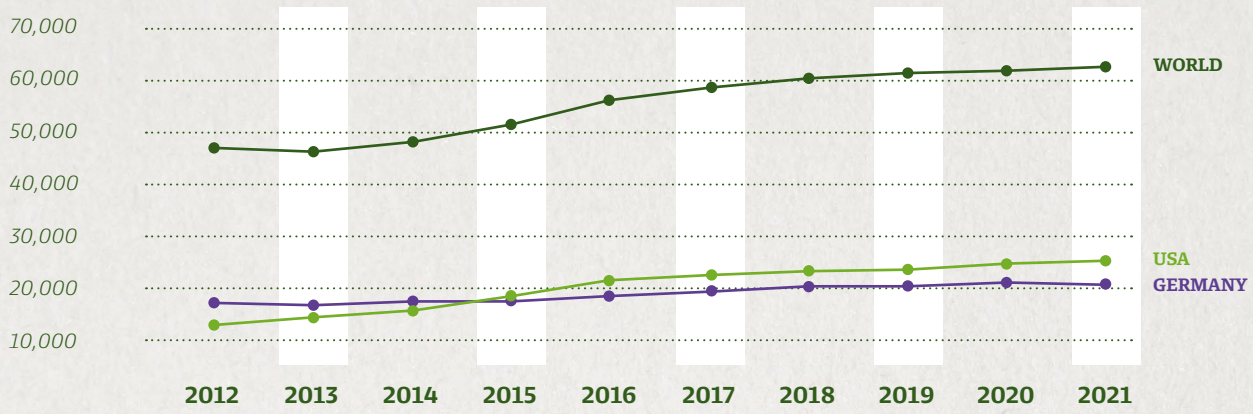
1 hl = 100 l	= 26.42 gall = 0.8523 bbl (US)
1 hl = 100 l	= 22.01 gall = 0.6114 bbl (Brit.)
1 barrel (bbl/USA)	= 31 gall = 1.1734 hl
1 barrel (bbl/GB)	= 36 gall = 1.6365 hl

Weight:

1 metr. ton (t) = 1,000 kg	= 20 Ztr. (DE) = 2,204.6 lbs
1 Zentner Ztr. (DE) = 50 kg	= 110.23 lbs = 1.102 cwt (US)
	= 110.23 lbs = 0.984 cwt (GB)
1 hundredweight (cwt/US)	= 100 lbs = 45.36 kg
	= 0.9072 Ztr.
1 hundredweight (cwt/GB)	= 112 lbs = 50.800 kg
	= 1.0160 Ztr.
1 centner (GB)	= 100 lbs = 45.36 kg
	= 0.9072 Ztr.
1 kg	= 2.20462 lbs
1 lb	= 0.45359 kg

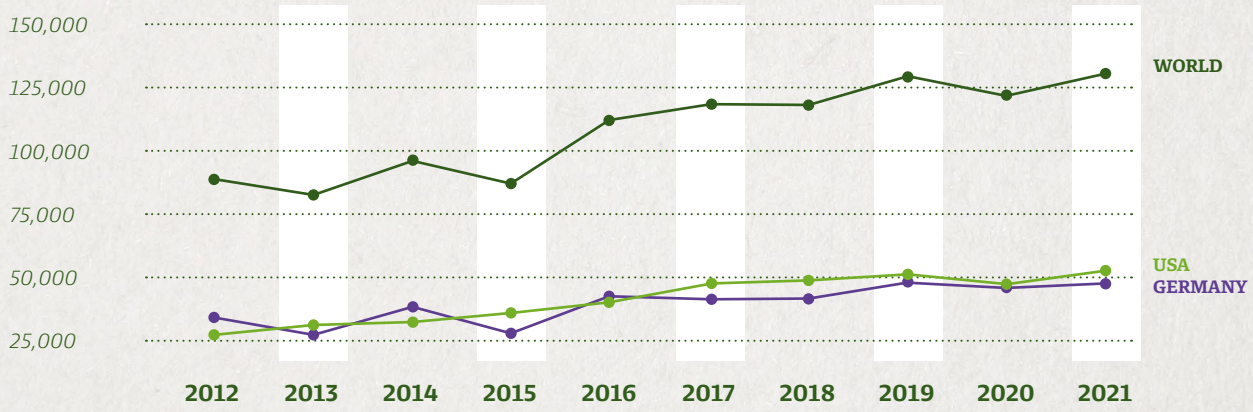
DEVELOPMENT AREA UNDER CULTIVATION

HOP AREA UNDER CULTIVATION IN HA



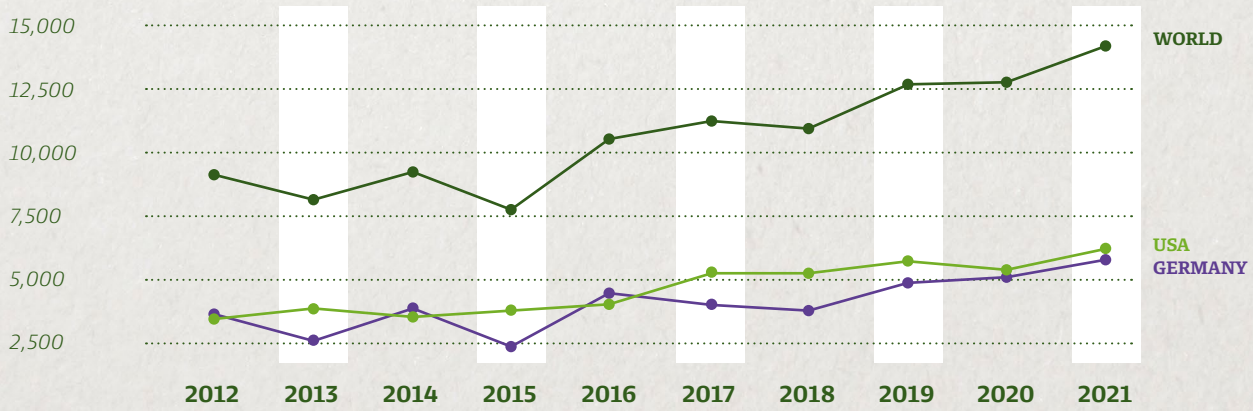
DEVELOPMENT PRODUCTION

HOP PRODUCTION IN MT



DEVELOPMENT ALPHA PRODUCTION

HOP ALPHA PRODUCTION IN MT



OUTLOOK 2022

Reporting period: early June 2022

Germany

According to figures provided by the German Hop Growers' Association, the total planted hop acreage in Germany in 2022 was 20,604 ha. This represents a year-on-year reduction of only 17 ha. The acreage planted with aroma varieties now amounts to 10,800 ha (-199 ha), bringing their share of total hop acreage to 52 %. The area planted with bitter varieties amounts to 9,804 ha (+182 ha), which represents a share of 48 %.

Of the 23 aroma and 4 bitter varieties to have seen a fall in acreage, the foremost are **Hallertau Tradition** (-58 ha), **Hallertau Magnum** (-48 ha), **Mandarina Bavaria** (-35 ha), **Tettnang** (-27 ha), **Northern Brewer** (-25 ha), **Saphir** (-21 ha), **Hallertau Blanc** (-21 ha), **Spalt Select** (-19 ha), **Hallertau Mittelfrueh** (-14 ha) **Huell Melon** (-14 ha) and **Hersbruck Spaet** (-11 ha). On the other hand, the acreage of 8 aroma and 5 bitter varieties, above all **Herkules** (+168 ha), **Polaris** (+57 ha), **Tango** (+32 ha), **Perle** (+24 ha) and **Akoya** (+19 ha), has increased.

In the German variety rankings, the bitter hop **Herkules**, with an acreage of 7,142 ha, has seen its share of total acreage rise to 35 %. The aroma variety **Perle**, with an acreage of 3,354 ha, has maintained its share of 16 %. The aroma variety **Hallertau Tradition** remains in third place with 2,786 ha. Its share has fallen to 13.5 %.

In the winter months up until March 2022 the temperatures were slightly above the long-term average. Although precipitation volumes were sufficient until February, they were below average in March and April. April was significantly cooler than usual. Thanks to dry weather conditions, the spring work was able to be completed on schedule. Training began in early May. May was a month of contrasts, with temperatures initially above the long-term average and then below it. The stage of development reached by the plants by early June was several days ahead of the long-term average.

In the early evening of May 29, a thunderstorm accompanied by heavy rain and hail passed over the Hallertau region. Hop plants were damaged to varying degrees over an area of approximately 500 to 700 ha.

USA (PNW)

As reported by the United States Department of Agriculture in June 2022, US hop acreage (PNW region) will drop in 2022 for the first time in a decade. Crop 2022 acreage is reported at 24,240 ha strung for harvest, which represents a modest year-on-year reduction of 395 ha (-2 %). Despite aroma varieties accounting for approximately 80 % of US planted acreage, aroma acreage will again trend upward with a small increase of 2 % (+454 ha) for crop 2022, while bitter acreage will be trimmed back by 16 % (-849 ha).

In recent years, proprietary aroma varieties have largely driven the dramatic increase in US acreage. However, a look at the acreage data for crop 2022 shows some corrections occurring within some of the largest proprietary varieties. In contrast, some of the larger public varieties, having shed significant acreage in recent years, have seen acreage leveling off or even increasing with crop 2022.

Citra® will remain the most widely grown variety in the US with 20 % of total acreage (4,905 ha) but no acreage expansion for 2022. **Mosaic®** will likewise maintain its position in second place on the acreage list with a share of about 11 % (2,636 ha) and will also see flat acreage growth. The aroma varieties seeing the largest reductions include **Sabro®** (-285 ha), **El Dorado™** (-216 ha), and **Idaho 7™** (-171 ha), all of them proprietary varieties. Partially offsetting these reductions are increases including **Cascade** (+302 ha), **Simcoe®** (+189 ha), **Chinook** (+129 ha), and **Strata™** (+119 ha). **Centennial** has shed significant acreage over four consecutive years, but with crop 2022 will see a slight increase of 88 ha. **Amarillo®** will also increase by a similar amount.

Varieties driving the acreage reduction in the high alpha category include **CTZ** (-603 ha) and **Pahto®** (-171 ha). Total acreage for this category will decline to 4,451 ha, or about 18 % of the US acreage, while the aroma category will see its share increase slightly to 82 %, reflecting the continuing influence of the craft beer market on demand for US aroma varieties.

Weather conditions were favorable over the 2021/2022 winter, resulting in above-normal levels for mountain snowpack and precipitation in the PNW region. Coming out of the winter, persistent La Niña conditions have led to a cooler, wetter spring in the PNW, resulting in crop development being about one to two weeks behind the normal schedule. However, sufficient time remains for growth to accelerate and catch up. Although the summer weather is forecast to be drier and warmer than normal, the PNW region is expected to have a sufficient water supply until harvest time.

World

From 2013 to 2021, planted hop acreage worldwide grew by 16,640 ha, which corresponds to an increase of 36 %. After eight years of acreage growth, the area planted worldwide for crop 2022 will be approximately 62,530 ha, showing a decline of some 360 ha year on year. This reduction will by no means be sufficient to restore the equilibrium between supply and demand.

WORLD BEER OUTPUT 2020/2021

It is becoming increasingly difficult to obtain figures for beer output volume in individual countries. In addition, there are often significant differences in the production figures provided by different sources. Output volumes indicated below are in some cases estimates based on close scrutiny of all available data and our own judgement.

Europe

Ranking	Country	2020	2021
5	Germany	87,027	85,443
6	Russia	79,500	82,124
9	United Kingdom	*32,217*	38,399
10	Poland	*39,066*	38,200
11	Spain	34,738	38,000
14	Belgium	*23,573*	25,000 *
16	France	*21,600*	22,200 *
17	Netherlands	*22,140*	22,086
19	Czech Republic	20,122	19,600
22	Ukraine	17,970	17,071
24	Romania	16,750	16,600
25	Italy	*15,829*	16,600
33	Austria	9,562	9,851
34	Turkey	8,660	9,330
38	Portugal	6,600	6,800
39	Ireland	7,100	6,400 *
42	Denmark	*5,874*	5,900 *
43	Hungary	5,378	5,568
46	Serbia	5,500 *	5,000 *
48	Bulgaria	*4,570*	4,900 *
50	Sweden	*4,143*	4,500 *
52	Belarus/White Russia	4,301	4,344
55	Greece	*3,377*	3,700 *
60	Finland	*3,571*	3,472
62	Slovakia	*3,034*	3,400 *
63	Switzerland	3,404	3,382
65	Norway	*3,039*	3,300
67	Croatia	2,965	3,267
76	Lithuania	2,540 *	2,500 *
82	Slovenia	*1,960*	2,000 *
90	Estonia	1,291	1,366
103	Bosnia-Herzegovina	920 *	950 *
104	Moldova	876 *	905 *
109	Latvia	702 *	772 *
110	Georgia	720 *	750 *
111	North Macedonia	630 *	650 *
115	Albania	560 *	580 *
125	Cyprus	310	357
127	Montenegro	300 *	310 *
129	Armenia	234	281
132	Iceland	245	250 *
133	Luxembourg	201	225
143	Malta	128	155
	TOTAL	**503,227**	**516,488**

America

Ranking	Country	2020	2021
2	USA **	*203,813*	203,565
3	Brazil	*132,800*	143,000
4	Mexico	126,900	134,700
13	Colombia	25,300	26,093
15	Canada	*22,674*	22,867
21	Argentina	17,823	19,087
28	Peru	12,200	14,010
32	Chile	9,800	10,350
40	Ecuador	5,845	6,113
41	Dominican Republic	3,996 *	5,952
45	Guatemala	2,950 *	5,400
58	Bolivia	4,230	3,530
68	Panama	3,230	3,262
69	Venezuela	1,745	3,149
70	Paraguay	3,030	3,050 *
78	Cuba	2,340	2,300 *
87	Costa Rica	1,720	1,735 *
89	Nicaragua	1,420	1,434 *
95	El Salvador	1,200	1,218 *
97	Puerto Rico	860	1,117
100	Uruguay	1,040	1,040 *
101	Honduras	1,000 *	1,000 *
106	Jamaica	900 *	900 *
114	Trinidad	580	580
122	Guyana	380	380
137	Haiti	195 *	195 *
141	St. Lucia	175	175
147	Bahamas	148 *	148 *
148	Dutch Antilles	140 *	140 *
149	Suriname	100 *	100 *
151	Barbados	80 *	80 *
156	Martinique	60 *	60 *
157	Aruba	55 *	55 *
159	St. Vincent	45 *	45 *
160	Belize	40 *	40 *
161	Grenada	30 *	30 *
162	St. Kitts	25 *	25 *
164	Antigua	20 *	20 *
165	Dominica	11 *	11 *
169	Cayman Islands	5 *	5 *
	TOTAL	**588,905**	**616,961**

Italics: corrections of figures for 2019 as stated in last year's report. These figures only became known after going to press or were subsequently corrected.

All figures in 1,000 hl *Ranking by output quantity 2021*

** Estimate* *** USA including Hard Seltzer and Flavored Malt Beverages*

WORLD BEER OUTPUT 2020/2021

Africa

Ranking	Country	2020	2021
12	South Africa	26,000 *	31,000 *
20	Nigeria	18,800 *	19,400 *
31	Angola	9,000 *	11,000 *
35	Ethiopia	10,600	8,950 *
36	Cameroon	6,500	7,200
49	Dem. Rep. of the Congo (Zaire)	4,300	4,700 *
51	Tanzania	3,900 *	4,500 *
53	Kenya	4,500 *	4,300 *
54	Mozambique	3,800 *	3,800 *
56	Ivory Coast	3,400	3,600
57	Uganda	3,000 *	3,600 *
61	Burkina Faso	3,000	3,400
64	Congo (Brazzaville)	3,000 *	3,350 *
66	Ghana	3,000 *	3,300
73	Zambia	3,250 *	2,800 *
74	Namibia	2,200 *	2,700 *
77	Burundi	2,400 *	2,400 *
79	Zimbabwe	2,200 *	2,200 *
80	Rwanda	2,200 *	2,200 *
83	Tunisia	2,041	1,980
86	Gabun	1,800	1,800 *
88	Algeria	1,350	1,500
92	Benin	1,215	1,300 *
94	Botswana	1,200 *	1,250 *
96	Togo	800	1,200 *
98	Madagascar	1,600	1,100
99	Malawi	1,050 *	1,050 *
105	Egypt	900 *	900 *
107	Morocco	*756*	780 *
117	Chad	465	500 *
120	Guinea Conakry	400	430 *
121	Mauritius	400 *	413
123	Lesotho	360 *	380 *
128	Equatorial Guinea	280	310 *
130	Eritrea	182	280
131	Central African Republic	260	250 *
134	Réunion	250 *	220 *
135	Kingdom Eswatini	220 *	220 *
138	Mali	190	190 *
142	Sierra Leone	170 *	170 *
145	Senegal	150	150 *
146	Liberia	145	150 *
150	Seychelles	80 *	80 *
158	Guinea Bissau	45 *	45 *
167	Cape Verde	8 *	8 *
170	Niger	65	0
171	Gambia	30	0
172	São Tomé and Príncipe	20 *	0
	TOTAL	**131,482**	**141,056**

Australia/Oceania

Ranking	Country	2020	2021
23	Australia	16,580 *	16,830 *
71	New Zealand	2,930	2,900
108	Papua New Guinea	780 *	780 *
139	Fiji Islands	200 *	180 *
140	Tahiti	200 *	180 *
144	New Caledonia	155 *	150 *
154	Solomon Islands	68 *	65 *
155	Samoa	65 *	62 *
166	Vanuatu	10 *	9 *
	TOTAL	**20,988**	**21,156**

Asia

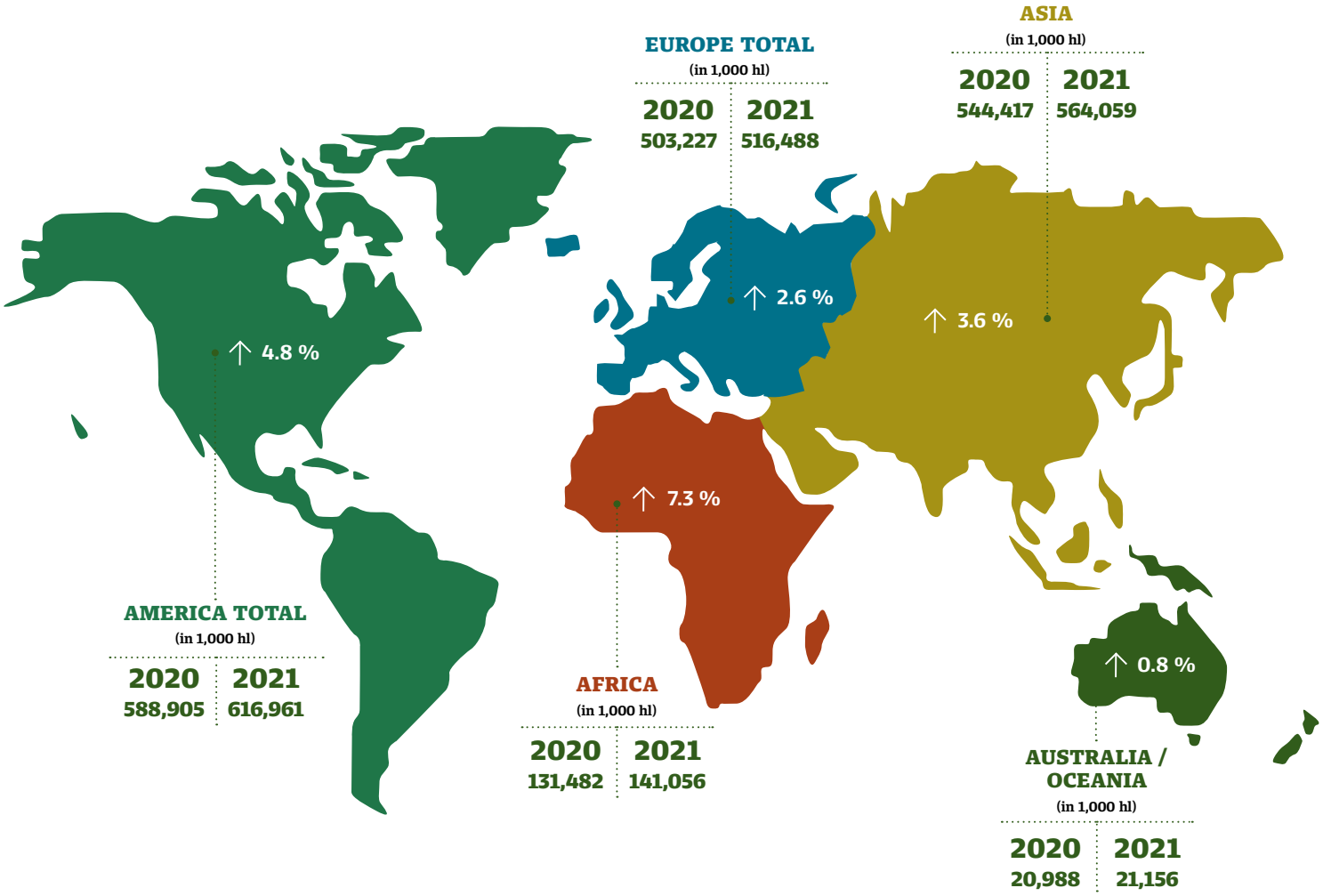
Ranking	Country	2020	2021
1	China	*344,110*	359,740
7	Japan	46,874	44,561
8	Vietnam	40,000	42,000
18	Thailand	20,076	19,806
26	Cambodia	14,000	16,000
27	India	14,230	15,000 *
29	Philippines	*13,000*	14,000
30	South Korea	*14,430*	13,380
37	Kazakhstan	6,734	7,017
44	Taiwan	5,424	5,462
47	Laos	4,500	5,000
59	Myanmar	4,200	3,500
72	Uzbekistan	2,740 *	2,845 *
75	Malaysia	*2,000 *	2,550
81	Indonesia	2,000	2,000
84	Nepal	1,750 *	1,900
85	Singapore	1,750 *	1,900 *
91	Sri Lanka	1,300 *	1,300 *
93	Israel	1,200 *	1,300 *
102	Iran	420 *	1,000 *
112	Mongolia	570 *	650 *
113	Azerbaijan	548	585 *
116	Bhutan	500 *	500 *
118	Hong Kong	*480 *	490
119	Turkmenistan	490 *	485 *
124	Kyrgyzstan	340 *	360
126	Tajikistan	370 *	345 *
136	Lebanon	210 *	210 *
152	Pakistan	76	76 *
153	Jordan	70 *	72 *
163	Bangladesh	20 *	20 *
168	Palestine	5 *	5 *
	TOTAL	**544,417**	**564,059**

WORLD

	2020	2021
TOTAL	**1,789,019**	**1,859,720**

BEER OUTPUT DEVELOPMENT 2020/21

Development by continent



	2020 1,000 hl	2021 1,000 hl	2020 +/– % rel.	2021 +/– % rel.
European Union*	373,403	345,595	-7.0 %	-7.4 %
Rest of Europe*	129,824	170,893	0.8 %	31.6 %
EUROPE TOTAL	**503,227**	**516,488**	**-5.1 %**	**2.6 %**
North America	353,387	361,132	-0.9 %	2.2 %
Central America/Caribbean	21,225	25,927	-7.0 %	22.2 %
South America	214,293	229,902	-6.7 %	7.3 %
AMERICA TOTAL	**588,905**	**616,961**	**-3.3 %**	**4.8 %**

** The United Kingdom left the EU on January 31, 2020, but remained a member of the EU Single Market until December 31, 2020. In the above statistics, the United Kingdom is classed as a European country outside the EU from January 1, 2021.*

Since our sources amend their data retroactively, or new information makes revision necessary, the beer output volume figures for 2020 have been corrected. For example, in 2020 beer output was not 5 % lower year on year, as originally calculated, but 6.5 % lower, with brewing volume totaling 1,789,019 hl.

World beer production in 2021 was up by just below 71m hl year on year, amounting to a rise of 4 %.

The top five beer-producing countries, **China**, **USA**, **Brazil**, **Mexico** and **Germany**, were able to maintain their share of global beer production and accounted for half of total brewing volume in both 2020 and 2021.

BEER OUTPUT DEVELOPMENT 2020/21

The **United Kingdom** (+6.2m hl), **Spain** (+3.3m hl) and **Russia** (+2.6m hl) were primarily responsible for stabilizing output in Europe. Total European output rose by 13m hl.

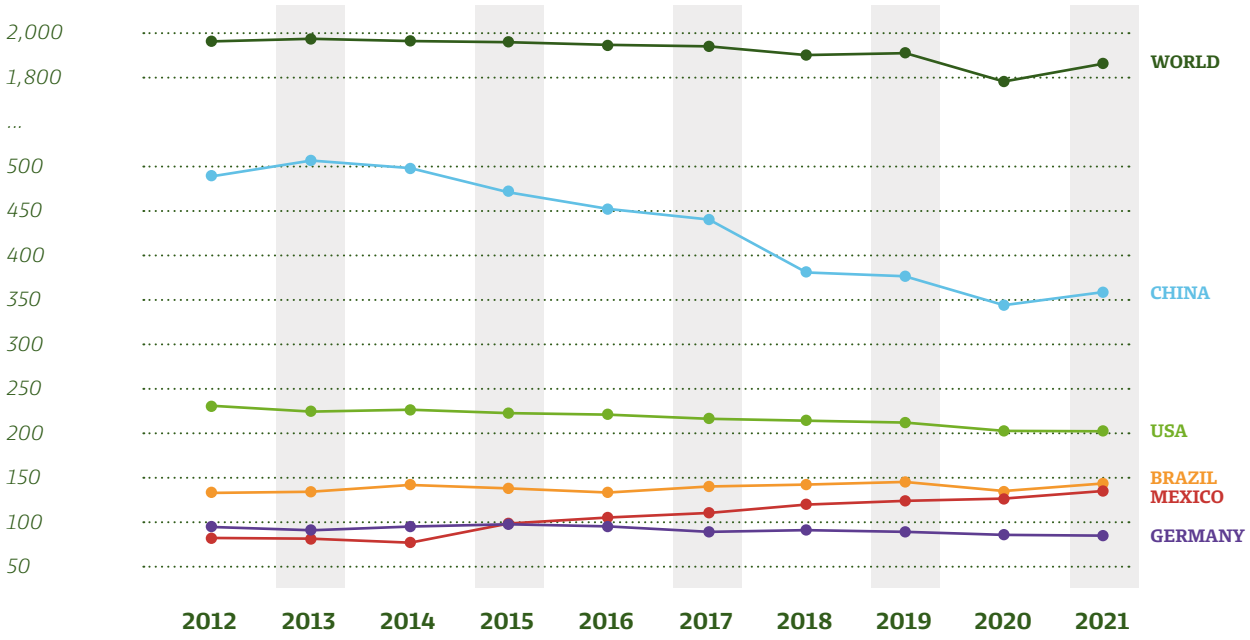
In the Americas, **Brazil** (+10.2m hl) and **Mexico** (+7.8m hl) were once again the growth markets. Overall, output in the Americas increased by 28m hl.

China (+15.6m hl) was the main contributor to the 20m hl of growth in Asia, whereas **Japan** (-2.3m hl) and **South Korea** (-1.1m hl) diminished the positive impact of other countries such as **Vietnam** and **Cambodia** (each +2m hl) on the result.

Beer output in Africa increased by 10m hl. The individual countries once again paint a varied picture. **South Africa** (+5m hl) and **Angola** (+2m hl) saw the largest growth, while **Ethiopia**, afflicted by civil war, continued to see a steep decline (-1.7m hl).

DEVELOPMENT 2012 – 2021

BEER PRODUCTION IN MILLION HL



TOP 40 BREWERS

The table showing the world's top 40 brewers hardly changed in 2021, but as every year there were winners and losers. Western Europe was one of the regions that continued to suffer under COVID-related restrictions and most breweries based there reported a decline in sales, while other regions mostly reported improvements compared with 2020. Overall, the combined output of the world's 40 biggest brewers increased by around 80 million hectoliters in 2021. Consequently, their total market share rose to 91.4 %.

Company mergers and acquisitions were primarily focused on consolidation of minority shareholdings. **Heineken** acquired a majority shareholding in **United Breweries** in India and gained control of **Namibia Breweries** by taking over the **Distell Group**. **Kirin/Lion** acquired **Bell's Brewing**, a pioneer in the American craft beer segment, and consolidated its position as the leader of this market segment by merging it with **New Belgium Brewing**, which is already owned by the group.

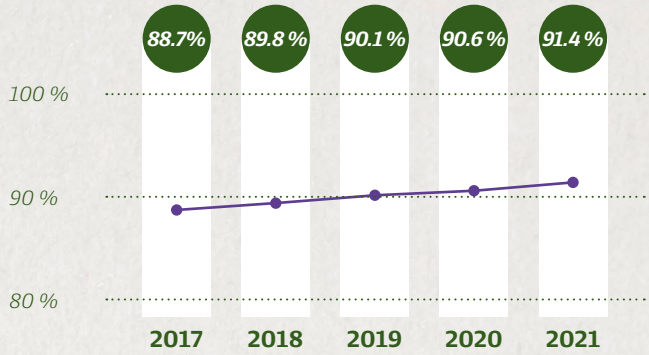
In March 2022, **Heineken** and **Carlsberg** announced their withdrawal from the Russian market as a result of Russia's invasion of Ukraine. For the same reason, **AB InBev** disclosed in April that it would be selling its share in a joint venture with the Turkish brewery **Anadolu Efes** which operates in Russia.

TOP 40 BREWERS

THE WORLD'S TOP 40 BREWING GROUPS

(as of 31 December 2021)

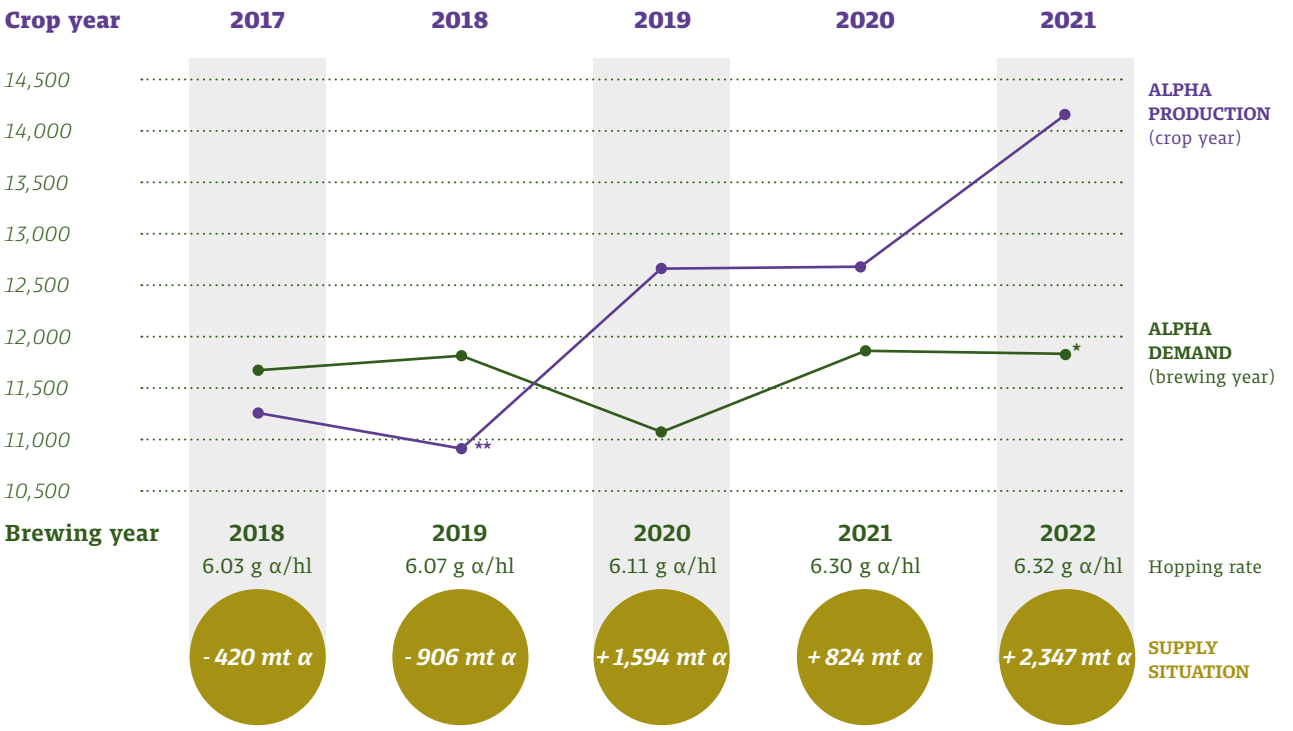
America
Europe
Asia



Ranking	Brewery	Country	Beer output 2020 in mill. hl	Share of world beer production
1	AB InBev	Belgium	581.7	31.3 %
2	Heineken	Netherlands	231.2	12.4 %
3	Carlsberg	Denmark	119.6	6.4 %
4	China Res. Snow Breweries	China	112.2	6.0 %
5	Molson Coors	USA/Canada	84.0	4.5 %
6	Tsingtao Brewery Group	China	76.0	4.1 %
7	Asahi Group	Japan	57.4	3.1 %
8	BGI / Groupe Castel	France	40.0	2.2 %
9	Efes Group	Turkey	37.9	2.0 %
10	Yanjing	China	33.5	1.8 %
11	Constellation Brands	USA	32.6	1.8 %
12	Grupo Petrópolis	Brasil	29.5	1.6 %
13	Kirin	Japan	26.1	1.4 %
14	Diageo (Guinness)	Ireland	21.0	1.1 %
15	CCU	Chile	19.2	1.0 %
16	San Miguel Corporation	Philippines	15.7	0.8 %
17	Saigon Beverage Corp. (SABECO)	Vietnam	14.5	0.8 %
18	Grupo Mahou - San Miguel	Spain	14.5	0.8 %
19	Singha Corporation	Thailand	12.9	0.7 %
20	Pearl River	China	12.8	0.7 %
21	Damm	Spain	11.9	0.6 %
22	Radeberger Gruppe	Germany	10.2	0.5 %
23	United Breweries Group	India	9.3	0.5 %
24	TCB Beteiligungsgesellschaft mbH	Germany	8.5	0.5 %
25	Oettinger Gruppe	Germany	8.5	0.5 %
26	Suntory	Japan	7.7	0.4 %
27	Sapporo	Japan	7.3	0.4 %
28	Beer Thai (Chang)	Thailand	7.2	0.4 %
29	Swinkels Family Brewers	Netherlands	7.0	0.4 %
30	Krombacher Gruppe	Germany	5.8	0.3 %
31	Paulaner Gruppe	Germany	5.7	0.3 %
32	HiteJinro	South Korea	5.4	0.3 %
33	Bitburger Braugruppe	Germany	5.0	0.3 %
34	Olvi Group	Finland	4.7	0.3 %
35	Estrella de Galicia	Spain	4.4	0.2 %
36	Obolon	Ukraine	4.2	0.2 %
37	Moscow Brewing Company	Russia	4.1	0.2 %
38	Royal Unibrew	Denmark	4.1	0.2 %
39	Hanoi Beverage Corp. (HABECO)	Vietnam	3.6	0.2 %
40	Veltins	Germany	3.1	0.2 %
TOTAL			1,699.9	91.4 %
WORLD BEER PRODUCTION 2021			1,860.0	100.0 %

The data were taken from the brewers' own annual reports. In other cases, after different sources had reported differing figures, or where no figures were available, the production volume had to be estimated.

ALPHA ACID BALANCE



** Estimate ** Allowing for shortfall due to a warehouse fire in Australia*

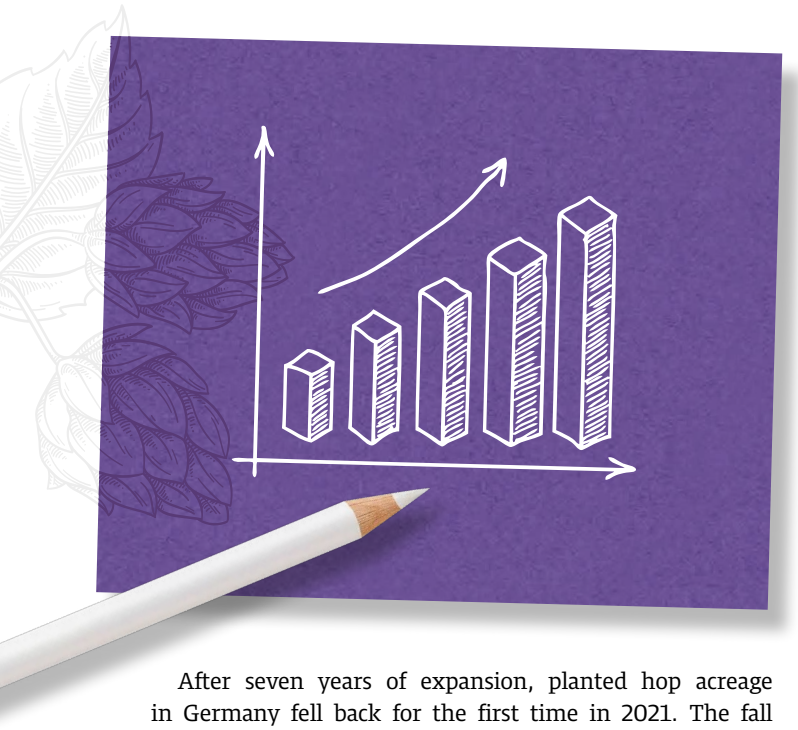
The parameters upon which our calculation of alpha demand is based are reviewed continuously. We established, for example, that the hop volume required for US craft beers was greater than initially assumed. Furthermore, there were changes within the range of hop varieties that are used for craft beers, which ultimately necessitated adjustment of the average alpha acid value. Beer output volume figures are also repeatedly subject to corrections because our sources revise their data retroactively, or because new information makes correction necessary.

The above-average hop and alpha yields from the 2021 crop led to further oversupply of the market. In 2021, demand from the brewing industry recovered after the decline in 2020, and are in line with the pre COVID needs. The war in Ukraine and its effects in Russia and Belarus will lead to a fall in beer output and consequently also in the hop volume required by the breweries in 2022.

The volume required for use beyond brewing has been taken into consideration in our calculation of the alpha supply situation.

MARKET SITUATION

Crop year 2021 saw hop acreage increase for the eighth year in succession. However, the rise in acreage slowed further to 0.8 %. The total planted hop acreage worldwide was 62,886 ha. The crop volume harvested on that acreage was 130,803 mt. This equates to a good average for world crop volume. Moreover, the average alpha acid content of 10.8 % (ToP) for all varieties harvested was a new record high. Never before had such a high alpha average been reached. One significant reason for the rise in alpha acid volumes is the spread of alpha-rich flavor and aroma varieties in the USA for use in the craft beer segment. The combination of good average crop volume with record levels of alpha therefore produced a new all-time high in alpha volume. The volume of alpha acid harvested was 14,173 mt, a year-on-year increase of approx. 1,500 mt.



After seven years of expansion, planted hop acreage in Germany fell back for the first time in 2021. The fall amounted to 86 ha. In the USA (PNW), on the other hand, acreage grew by a further 903 ha. As a result, acreage in the USA is now nearly 4,600 ha greater than in Germany. In spite of the extreme heatwave in the PNW production region in the USA, the total yield was close to the long-term average. The hop yield was 2.1 mt per ha. In Germany, the average yield was 2.32 mt/ha, which was above the average of recent years. The picture was similar for the alpha acid values. While the alpha acid content of all varieties in the USA was solidly average, the alpha content of all the main varieties in Germany was above the multi-year averages for the last five and 10 years. This was the second year in succession in which at least average alpha levels were reached. However, this should not be allowed to disguise the fact that five of the last 10 crop years were weak in terms of both alpha content and yield. As a result of climate change, extreme weather events are increasing and the risks for hop production and marketing are growing further.

For more than two years now, the world has been living with the threat of the COVID-19 pandemic. In the meantime, restrictions have been eased or lifted entirely in many countries. World beer output recovered by 4 % in 2021, but failed to equal the level reached in 2019 before the pandemic. Russia's war of aggression in Ukraine presents the world with new, additional challenges. In Russia and Ukraine together, around 100m hl of beer is brewed and more than 2m hl imported. This is equivalent to 5 % of the volume of beer produced worldwide. The potential war-related decline in production is of a magnitude similar to that caused by the pandemic. At this moment it is impossible to provide a reliable forecast of the extent to which beer production will decline in the above-mentioned countries. The market will see a hop surplus for the third year in succession.

As a result of the good harvest in crop year 2021, the volume of unsold hops on the market was up year on year. Prices for spot hops fell for the third year in succession. However, the fall in prices was limited to those varieties which had already been overproduced for several years. The effects of this oversupply are most clearly apparent in the forward contract markets. Contract offers and inquiries are on the decrease. Contract durations are becoming shorter due to uncertain expectations. Increasing numbers of customers enquiring about contract restructuring and delayed call-offs of hop products already ordered are clear indications of lower demand and further inventory build-up. Demand is likely to remain weak for the next few years.

The first effects of the war are already noticeable. It is becoming increasingly difficult to maintain payment and transportation channels. World trade is already suffering due to pandemic-related supply shortfalls. Containers are not in the right place at the right time. Consequently, goods are in short supply and prices are rising. This situation is being exacerbated by the war in Ukraine. The immediate consequence is reduced availability of operating supplies such as fertilizer or training wire for hop farming and packaging material for hop processing. The enormous increase in energy prices is placing an additional strain on hop production and processing. The hop industry worldwide is struggling with an unprecedented increase in production costs at all stages of the value chain.

Increases in production cost and overproduction are a dangerous combination, presenting the hop industry with huge challenges. The global hop industry can only counter excess production by adjusting acreage. This is essential if the market is to return to equilibrium.

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INSPIRED BY BREWING SOLUTIONS

From the selection of a new hop variety and a suitable hop product to tailored recipe development, from tips and instructions on hopping beers and other beverages to comprehensive technical advice on site – the BarthHaas Brewing Solutions team supports customers in all matters connected with the use of hops. The focus of this international team is not only on problem solving, but also primarily on inspiration. With the aim to be the "hop experts for the best flavor in beers and beverages worldwide", BarthHaas has made significant investments in this department: There are now 14 brewing and beverage technologists working in Nuremberg, Yakima and Beijing (China). All three locations are equipped with an experimental brewery, allowing them to offer extensive consulting services that are also inspiring. All the team's activities revolve around sensory experience.

Flavor is essential, for only a product that tastes and smells good and triggers positive emotions can make consumers and customers happy. In addition to sensory aspects, practical relevance plays an important part in the Brewing Solutions team's work. The breweries in Nuremberg, Yakima and Beijing are equipped with all the key features.

The service catalogue at all three locations is extensive. The advice provided by the Brewing Solutions team on hop selection is highly specific: For example, what varieties are recommended with different yeasts and malts; what hop product is ideal for a given purpose or under certain conditions; and, last but not least, what are the resulting aroma and flavor profiles in each of these cases. Additionally, the BarthHaas flavor experts can draw up sensory profiles of beers and other beverages and provide recommendations for the aroma or bitter yield or the physical and flavor stability, for example. All these services can be delivered within the framework of technical consultation on site or comprehensive project-related support.

One of the focal points is the continuous development of beer and beverage recipes. Each of these recipes can be based on a defined flavor target, such as a full-bodied session IPA with berry aromas and well-balanced bitterness. Alternatively, the focus may be on mastering certain technological challenges, such as changing the hop dosage from the storage cellar to the whirlpool without any loss of flavor or aroma. Other beverages are also receiving increasing attention.

The Brewing Solutions team engages in depth with questions such as:

- Which hop varieties, hop products and technological parameters help brewers to achieve a full-bodied taste in alcohol-free beers?
- Which hop varieties, hop products and technological parameters should be taken into account in order to produce a hoppy hard seltzer or a hop ice tea?
- What are the beverages of tomorrow?

In developing new and innovative drinks, the beverage technologists at BarthHaas can fall back on a growing network of external experts and manufacturers. There are therefore no limits to the variety of beverages possible.

Inspiration is the watchword in the BarthHaas Brewing Solutions team. It is embodied in the curiosity and passion with which they work, and they pass it on to their customers. The team has already improved numerous recipes and developed and launched new beers and beverages.

GOOD BEVERAGES MAKE PEOPLE HAPPY. – LET US INSPIRE YOU:
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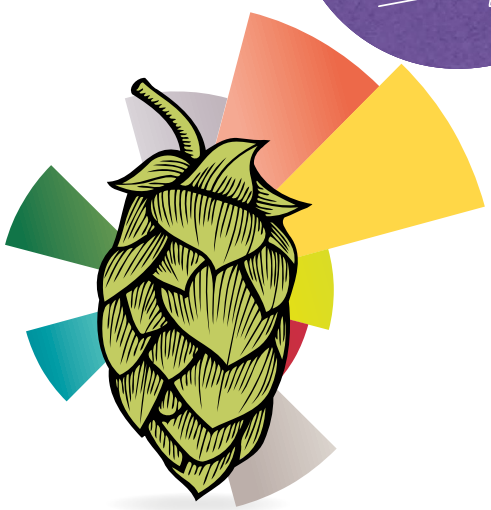

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