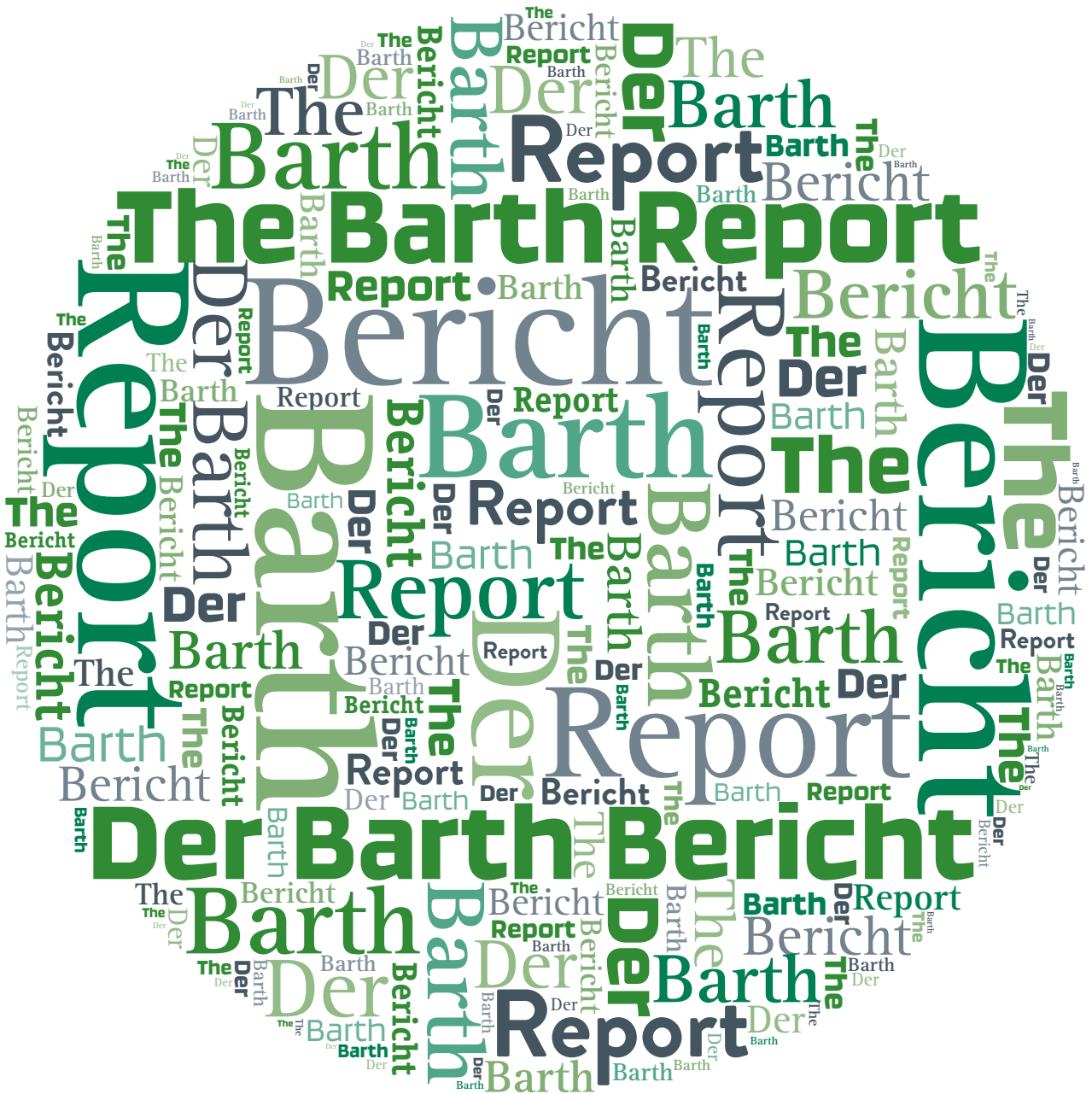




THE BARTH REPORT



HOPS 2013/2014

BARTH-HAAS GROUP
FOR YOUR SUCCESS

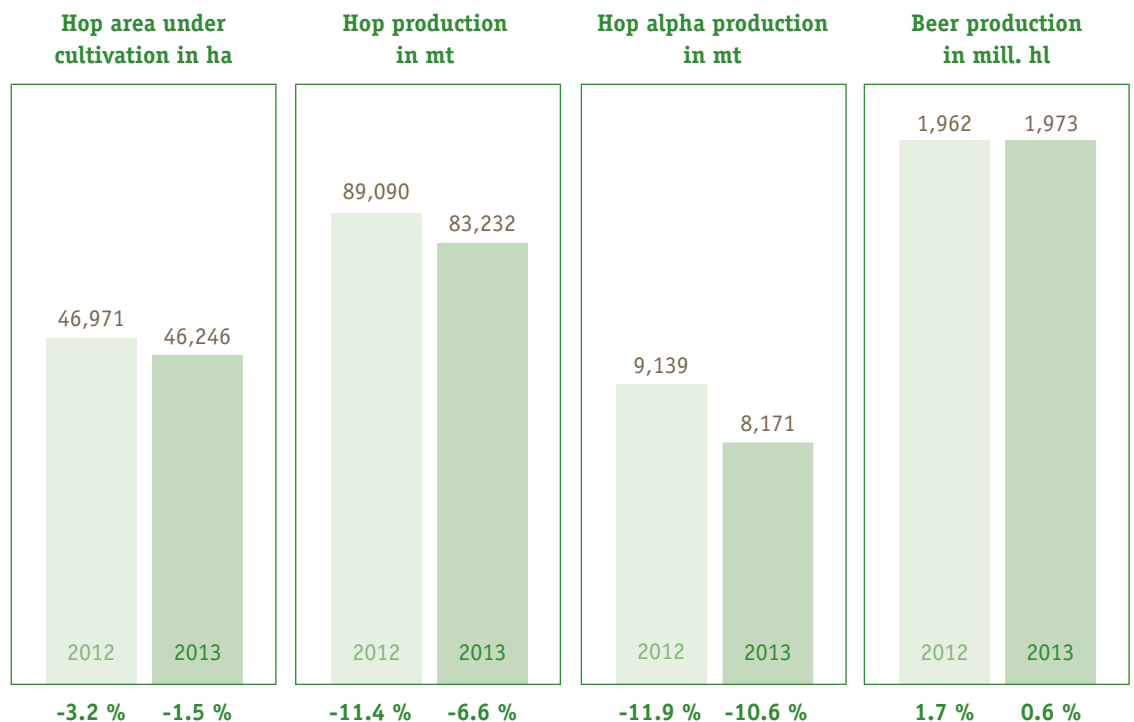


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WORLD MARKET KEY DATA





At a time when there were not yet any official hop and beer statistics, Joh. Barth & Sohn began to ascertain hop supply and demand in as objective a manner as possible and to make known the resulting figures to those in professional circles who were interested.

The oldest copy of the Barth Report in our company archives is dated 5 October 1878 and is titled "Second Report from Joh. Barth & Sohn". It can therefore be assumed that the first report was published one year previously, in 1877.

The world may have changed considerably since then, but the reporting on the events in the hop market following each crop year remains just as timely and objective as that of the many past generations of authors of the Barth Report.

In the course of time, our world-spanning information network has expanded and the Barth Report has become more elaborate. The extensiveness and meticulousness of the data research preceding each edition also remains unchanged to this day.

Nevertheless, "The Barth Report" has been continually adapted to the growing demands of the time. The quality of the paper has been improved again and again. In 1971, alpha demand and alpha production were compared for the first time. At the same time, a description of the global political and economic situation surrounding the hop market was

introduced and became a further permanent feature of each edition. The first colour edition appeared in 1995. The layout, too, has been repeatedly modernised.

Next year, another significant change will follow. Today, all the editions of this annual report, with some few exceptions, are already available for downloading in pdf format from the website of the Barth-Haas Group. **In line with this technological progress, from the 2014/2015 edition onwards, "The Barth Report" will be made available exclusively in digital form.**

First and foremost, we attach great importance to saving environmental resources, and this decision reflects our sustainability philosophy. Furthermore, the new media can be used in a practical way and guarantee access round the clock.

No other company in the hop industry has provided information about the hop market and published data on global hop production and world beer output over a longer period. It is not least for this reason that "The Barth Report" is recognised as the standard work by all concerned. This annual report is an important reference work containing reliable information on the hop world and the brewing industry. And nothing is going to change about that in the future either.

**Source material from all over the world was required to produce this report.
We would like to thank all those who provided us with information.**



POLITICAL SITUATION

Global politics continued to be shaped by the aftermath of the Arab Spring. Political attention was also focused on Eastern Europe due to developments in Ukraine.

In addition, the terrible civil war in **Syria** continued into its fourth year. More than 140,000 people have been killed and 2.5 million have fled abroad, destabilising the entire Middle East region in the process. Negotiations between the warring parties and with the government of President **Bashar al-Assad**, mediated by the United Nations, ended without result.

In **Egypt** the first and only freely elected state president in the country's history **Mohamed Morsi** was deposed by the army on 3 July 2013 after only one year in office following mass protests among the population and was placed under arrest with other Islamists. **Adly Mansour** was appointed interim president and Morsi's party, the Muslim Brotherhood, was banned. This was followed by bloody riots. In February 2014 the entire government resigned unexpectedly. **Ibrahim Mahlab**, a former associate of Hosni Mubarak, was then instructed by the president to form a new government. The former Head of Egypt's armed forces, **Abdul Fattah al-Sisi** came out as winner of the presidential election held in May 2014.

In February 2014, after weeks of protests, the opposition in **Ukraine** took power and filled all key posts. The parliament in Kiev dismissed **Victor Yanukovich** from office as state president on 22 February 2014. In March 2014, the regional government of the Ukrainian **Autonomous Republic of Crimea** initiated a controversial referendum on accession to **Russia**. Having received overwhelming approval from the population, the Crimean government officially declared independence and Russia, under President Vladimir Putin, annexed the peninsula. The EU and the UN condemned the annexation of the Crimea. Pro-Russian areas of Eastern Ukraine are now endeavouring to achieve independence from Kiev by the use of force. The EU and the seven leading industrial nations (G7) responded with sanctions against Russia. The presidential election, held in difficult circumstances on 25 May 2014, was won by the Ukrainian businessman and politician **Petro Poroshenko**.

In **Afghanistan** responsibility for security for the entire country was handed over to Afghan security forces in

June 2013. Since then, the NATO-led International Security Assistance Force (ISAF) has been acting solely in a supporting role. Their mission there is to finish at the end of 2014. Despite the threat of attacks, roughly 60 % of the electorate took part in the presidential election in April 2014.

In **Thailand**, the government and opposition were for months embroiled in a sometimes violent power struggle. On 22 May 2014 the army seized power in Bangkok for the second time in eight years. General **Prayuth Chan-Ocha** declared himself prime minister, annulled the constitution and dismissed the cabinet.

In **Iran**, following his election in June 2013, the new president **Hassan Rohani** succeeded **Mahmoud Ahmadinejad** in office in August. In November 2013 there was already a breakthrough in the international talks concerning the Iranian nuclear programme. The five UN veto-holding powers (USA, Russia, China, UK, France) and Germany hope to have negotiated a treaty with Iran on its controversial nuclear programme by July 2014.

In the general election in **Germany** on 22 September 2013, the Christian Democratic Union (CDU) and the Christian Social Union (CSU) were returned as the strongest parliamentary party, but required a coalition partner to form a government. In the end, the CDU/CSU formed a grand coalition with the Social Democratic Party (SPD). As in the previous two legislative periods, **Angela Merkel** was elected Federal Chancellor.

In **India**, the world's biggest democracy, the general election, which was held in several stages from April to May 2014, produced a change of government. The opposition party BJP, with **Narendra Modi** as its candidate for prime minister, ousted the ruling Congress Party and the incumbent prime minister, **Manmohan Singh**, from power.

Nelson Mandela, from 1994 to 1999 the first black president of **South Africa**, died on 5 December 2013. It was thanks to him that the transition from apartheid to an equality-oriented, democratic state in South Africa took place in a spirit of reconciliation.

Under the leadership of President **Jacob Zuma**, the ANC, which has governed **South Africa** since 1994, was re-elected to power for another five years in April 2014.



EUROPEAN UNION (EU)

EU enlargement

In July 2013 **Croatia** joined the EU as its 28th member state. Negotiations are in progress with the candidate countries **Montenegro**, **Serbia** and **Turkey**.

Iceland had also applied to join the EU in July 2009. In February 2014, however, the government coalition parties agreed to withdraw the application.



European Currency Union (ECU)

On 1 January 2014, the Baltic Republic of **Latvia** became the 18th country among the 28 EU member states to belong to the European economic and currency union.

Greece, Ireland, Portugal, Spain and **Cyprus**, the recipients of international assistance as a result of the sovereign debt crisis which began in 2010, were able to achieve some success in consolidating their budgets by adhering to the strict loan conditions. In December 2013, **Ireland** was the first euro crisis country to exit the rescue programme funded by the European Union (EU), the European Central Bank (ECB) and the International Monetary Fund (IMF), followed by **Spain** in January 2014 and **Portugal** in May. **Cyprus**, on the other hand, was granted an additional loan in September 2013. **Greece** also received further loan tranches. Nevertheless, for the first time in four years, Greece was once again able to place government bonds on the private capital market in April 2014. The sale of five-year certificates paying 4.75 % interest yielded 3 billion euros for the state coffers.

In April 2014, the **EU Parliament** passed a set of rules for winding up and reorganising banks. In future, the owners and creditors will be the first in line to bail out a bank. Savers with less than 100,000 euros in their accounts will be spared.

European elections

The European Parliament is the only organ of the European Union that is directly legitimised by the people of the member states and the European elections are therefore the instrument by means of which the citizens can directly influence EU policy. The members of parliament are elected in the member states according to different national procedures for five years. The elections took place once again between 22 and 25 May 2014. The European Parliament's largest party remains the European People's Party (EPP), followed by the Socialists and Democrats (S&D) and the Liberals and Democrats (ALDE).

The Common Agricultural Policy (CAP) – CAP reform after 2013

Since April 2013 the Council Presidency, the European Parliament and the European Commission have been working on European agricultural reform in a dialogue intended to give equal consideration to the interests of the EU institutions – and with them the respective agricultural sectors – in the further development of the CAP. Political agreement on the reform of the Common Agricultural Policy was reached on 26 June 2013. A formal vote was not held, however, because the decision regarding the future multi-year financial framework had still to be taken. The European Parliament voted in favour of the EU financial framework for the years 2014 to 2020 on 3 July 2013, with formal resolution on the financial framework to follow in the autumn.

The Agriculture Committee of the European Parliament voted in favour of the agricultural reform package on 30 September 2013. The reform defines how the EU will spend the billions in the agriculture budget up to the year 2020 and is intended to make the farmers work in a more environment-friendly way. Part of the payments they receive from Brussels, for example, will be tied to environmental requirements in the future.

The CAP reform will not essentially come into effect until 2015. On 18 October 2013, the European Parliament, the EU Commission and the Council Presidency agreed on the key points of transitional provisions for 2014.

After the European Parliament had passed the EU's multi-year financial framework in November, the way was clear for the agricultural reform. The EU Parliament voted in favour of the reform on 20 November 2013. All that was missing was the approval of the Agriculture Committee. This followed on 16 December 2013. The EU Council of Agriculture Ministers formally passed the four basic regulations for the reform of the CAP and the transitional provisions for 2014.

The four basic regulations define the rules concerning rural development, horizontal issues such as funding and controls, direct payments to farmers and market measures.

Regulation (EC) No. 1308/2013 of the European Parliament and Council regarding the common market organisation for agricultural produce contains provisions regarding hops.

On 11 March 2014, the EU Commission resolved rules for the implementation of the CAP reform. These rules will only assume legal character if the Council of Agriculture Ministers, as representatives of the member states, and the parliament raise no objections. The EU states and the European Parliament have two months in which to consider the rules. If neither institution raises any objections, the rules will be passed by the Commission, together with the corresponding implementing acts.

Effects on hops as a speciality crop

As part of the EU agricultural reform, there was a threat of subsidies to growers' cooperatives for hops in Germany being cancelled, of other significant changes being introduced in the areas of hop certification, minimum standards for hop imports and traceability of hops, and of funding for hop projects being cancelled. However, a special provision was made for hops which transferred all the core elements of the important sections in the existing hop market order to the future common market order from 2014 to 2020. The payment of subsidies to the hop growers' cooperatives therefore remains in place. For the sake of greater transparency, it would be desirable to receive a report from the individual growers' cooperatives on the use of the public subsidies.

ECONOMIC SITUATION

There was only a slight year-on-year improvement in the growth of the world economy in 2013. China, the South-East Asian nations and the countries belonging to the African Union posted significantly above-average growth, which other important economies, including the countries in the eurozone, are far from equalling.

Gross domestic product (GDP) worldwide grew by 3.0 % in 2013, compared with 2.6 % the year before. While GDP remained constant in **China**, it fell in the **USA** and in **Germany**. In **Japan**, a slight increase was registered (see key data). After a contraction of 0.3 % in GDP in 2012, the countries of the **European Union** managed an increase of 0.2 % in 2013.

The **European Central Bank (ECB)** reduced its benchmark interest rate to a record low of 0.25 % in November 2013. In spite of falling inflation in the eurozone, the European monetary authorities had left the interest rate at this historically low level until this report went to press at the end of May 2014. The **US Federal Reserve (Fed)** also stuck to its interest rate policy, leaving the Fed Rate unchanged at its sustained low of zero to 0.25 %. However, it did begin to gradually cut back its billion-dollar purchases of US government bonds and mortgage-backed securities. The **People's Bank of China (PBC)** left its benchmark interest rate unchanged at 6 %. In January 2014, the **Central Bank of Turkey (CBRT)** responded to the depreciation of the lira by raising its key interest rate from 4.5 % to 10.0 %.

The central banks around the world – above all the US Federal Reserve – are supporting the stock markets with their loose monetary policy. Germany's **DAX** share

index reached a new high of 9,970 on 30 May 2014 (31 May 2013: 8,348). The **Dow Jones** was also buoyed and reached an all-time high of 16,735 on 13 May 2014 (31 May 2013: 15,115). In mid-July 2013, the **euro** was for a short time trading at an exchange rate of 1.28 USD and closed on 30 May 2014 at 1.36 USD.

The price for Dated Brent FOB Sul. V **crude oil** rose sharply in the summer of 2013, reaching a price of 116 USD per barrel at the end of August. The price fell again as quickly as it had risen and levelled off at approx. 109 USD.

In 2013, the Chinese currency, the Yuan Renminbi (CNY), was the second-most frequently used means of payment in foreign trade after the US dollar, overtaking both the euro and the Japanese yen as standard currencies.

In December 2012, the 159 member states of the **World Trade Organisation (WTO)** agreed to liberalise world trade in order to strengthen it and to combat poverty.

In the **USA**, the long-running, fierce struggle between the Republicans and the Democrats in Congress prevented agreement from being reached on the budget. Therefore, plans for an emergency budget had to be implemented from 1 October 2013. Government offices were closed and civil servants were placed on mandatory leave. After 16 days, the active shutdown was ended by Congress. At the same time they averted the imminent insolvency of the USA by raising the country's debt ceiling.

KEY DATA

The figures for 2011 and 2012 have been revised according to the latest statistics

*) Interest rate for 10-year bonds. China: Lending rate for long-term loans.

		GDP growth (real) in %	Balance of payments in USD bn	Balance of trade in USD bn	Inflation rate Ø in %	Interest rate Ø in %*)	Unemployment (as of 31.12.) in %
USA	2011	1.8 %	-457.7	-727.4	3.2 %	2.76 %	9.0 %
	2012	2.8 %	-440.4	-727.9	2.1 %	1.78 %	8.1 %
	2013	1.9 %	-379.3	-688.4	1.5 %	2.35 %	7.4 %
China	2011	9.3 %	136.1	155.0	5.4 %	6.86 %	4.1 %
	2012	7.7 %	193.1	230.7	2.6 %	6.78 %	4.1 %
	2013	7.7 %	179.0	259.2	2.6 %	6.55 %	4.1 %
Japan	2011	-0.5 %	119.7	-32.1	-0.3 %	1.13 %	4.6 %
	2012	1.4 %	60.4	-87.0	0.0 %	0.86 %	4.4 %
	2013	1.5 %	33.1	-117.5	0.4 %	0.71 %	4.0 %
Germany	2011	3.3 %	248.4	220.9	2.1 %	2.65 %	7.1 %
	2012	0.7 %	255.1	243.9	2.0 %	1.56 %	6.8 %
	2013	0.4 %	273.5	262.5	1.5 %	1.59 %	6.9 %

TOP 40 BREWERIES



Mergers & acquisitions

There was continued activity on the mergers and acquisitions front. In Mexico, **Modelo** was taken over completely by **AB InBev**. In China, market consolidation increased sharply: **Carlsberg** won complete control of the brewery group **Chongqing**, and **China Resources Snow Breweries** (CRB) took over **Kingway**, while **AB InBev** acquired the **Siping Ginsber** brewery in spring 2014. As a result

of this takeover wave, the Chinese market is now also highly consolidated; together, five brewery groups (**CRB**, **Tsingtao**, **Ab Inbev China**, **Yanjing** and **Carlsberg**) have a combined market share of 68%. **Cervecería Regional** (Venezuela), **Warsteiner** (Germany) and **Lan Bei Beer Co., Ltd.** (China) have now entered the list of the world's top 40 breweries.

The world's 40 biggest brewery groups as at 31 December 2013

Ranking	Brewery	Country	Beer output 2013 in mill. hl	Share of world beer production
1	AB InBev	Belgium	399.0	20.2 %
2	SABMiller 1)	United Kingdom	187.4	9.5 %
3	Heineken	Netherlands	178.3	9.0 %
4	Carlsberg	Denmark	119.7	6.1 %
5	China Res. Snow Breweries (CRB)	China	117.1	5.9 %
6	Tsingtao Brewery Group	China	78.3	4.0 %
7	Molson-Coors	USA/Canada	59.7	3.0 %
8	Yanjing	China	57.1	2.9 %
9	Kirin	Japan	49.3	2.5 %
10	BGI/Groupe Castel	France	28.4	1.4 %
11	Efes Group	Turkey	25.5	1.3 %
12	Asahi	Japan	20.6	1.0 %
13	Gold Star	China	19.5	1.0 %
14	Diageo (Guinness)	Ireland	18.5	0.9 %
15	Polar	Venezuela	18.5	0.9 %
16	San Miguel Corporation	Philippines	16.3	0.8 %
17	Singha Corporation	Thailand	15.8	0.8 %
18	Petropolis	Brazil	15.0	0.8 %
19	Oriental Brewery	South Korea	13.4	0.7 %
20	Saigon Beverage Corp. (SABECO)	Vietnam	13.3	0.7 %
21	Grupo Mahou - San Miguel	Spain	12.0	0.6 %
22	Radeberger Gruppe	Germany	11.8	0.6 %
23	Pearl River	China	11.2	0.6 %
24	CCU	Chile	10.7	0.5 %
25	United Brewery	India	10.1	0.5 %
26	Oettinger	Germany	9.8	0.5 %
27	Damm	Spain	8.5	0.4 %
28	Hite	South Korea	8.1	0.4 %
29	Suntory	Japan	8.1	0.4 %
30	Obolon	Ukraine	7.8	0.4 %
31	Bitburger Braugruppe	Germany	7.5	0.4 %
32	Sapporo	Japan	6.6	0.3 %
33	Krombacher	Germany	6.6	0.3 %
34	Hanoi Beverage Corp. (HABECO)	Vietnam	6.2	0.3 %
35	Beer Thai (Chang)	Thailand	6.0	0.3 %
36	Brau Holding International	Germany	5.5	0.3 %
37	Cervecería Regional	Venezuela	5.2	0.3 %
38	SiPing Ginsber Brewery	China	4.9	0.2 %
39	Warsteiner	Germany	4.6	0.2 %
40	Lan Bei Beer Co., Ltd.	China	4.2	0.2 %
TOTAL			1,606.1	81.4 %
World beer production 2013			1,973.0	100.0 %

The data were taken from the brewers' own annual reports.

In other cases, the production volume had to be estimated after different sources had reported differing figures, or where no figures were available.

1) Not including the 57.4m hl from shareholding in China Resources Snow Breweries.



WORLD BEER PRODUCTION 2012/2013

figures in 1,000 hl

in italics: corrections for 2012
as stated in last year's report.

* estimate

Europe		
Country	2012	2013
Germany	94,618	94,365
Russia	97,600	88,600
United Kingdom	42,962	42,420
Poland	39,290	39,560
Spain	33,031	32,700
Ukraine	30,050	27,600
Netherlands	24,272	24,000 *
Czech Republic	18,703	18,605
France	19,732	18,500
Belgium	18,751	18,069
Romania	18,200	16,500
Italy	12,791	12,688
Turkey	11,013	10,000
Austria	8,924	9,045
Ireland	8,195	8,008
Portugal	7,986	8,000 *
Denmark	6,080	6,000 *
Hungary	6,159	5,978
Bulgaria	4,992	5,100 *
Serbia	5,418	5,022
Sweden	4,537	4,600 *
Belarus/ White Russia	4,285	4,260
Greece	4,059	4,100 *
Finland	4,030	4,020
Croatia	3,400 *	3,550 *
Switzerland	3,515	3,370
Slovakia	3,022	3,000 *
Lithuania	2,841	2,900 *
Norway	2,304	2,338
Slovenia	1,878	1,984
Latvia	1,408	1,470
Estonia	1,434	1,465
Moldavia	1,135 *	1,100 *
Georgia	825	880 *
Bosnia- Herzegovina	857	807
Macedonia	660	700 *
Albania	550 *	580 *
Montenegro	439	398
Cyprus	335	329
Luxembourg	292	281
Armenia	137	198
Iceland	192	192 *
Malta	147	143
TOTAL	551,049	533,425

Australia/Oceania		
Country	2012	2013
Australia	17,350	17,360
New Zealand	2,800	2,890
Papua New Guinea	800	840 *
Fiji Islands	185	190 *
Tahiti	187 *	187 *
New Caledonia	137 *	137 *
Solomon Islands	63 *	65 *
Samoa	60	61 *
Vanuatu	9 *	10 *
TOTAL	21,591	21,740

America		
Country	2012	2013
USA	230,065	224,093
Brazil	132,800 *	135,500 *
Mexico	82,500 *	82,500 *
Columbia	22,550 *	23,300 *
Venezuela	21,470 *	22,420 *
Canada	19,561	19,167
Argentina	16,700 *	18,600 *
Peru	13,200 *	14,350 *
Chile	6,000 *	6,200 *
Ecuador	5,925 *	6,000 *
Dominican Republic	3,400 *	3,500 *
Cuba	2,600 *	2,600 *
Panama	2,050 *	2,100 *
Costa Rica	1,660	1,700
Paraguay	1,500 *	1,500 *
Guatemala	1,400 *	1,450 *
Bolivia	1,300 *	1,300 *
El Salvador	1,100 *	1,200 *
Nicaragua	1,000 *	1,000 *
Jamaica	950 *	950 *
Uruguay	950 *	950 *
Honduras	845 *	850 *
Puerto Rico	750 *	700 *
Trinidad	430 *	430 *
Belize	320 *	330 *
Guyana	260 *	270 *
Haiti	158 *	180 *
Bahamas	140 *	145 *
Dutch Antilles	140 *	140 *
Suriname	90 *	90 *
Barbados	80 *	80 *
St. Lucia	70 *	70 *
Martinique	60 *	60 *
St. Vincent	45 *	45 *
Grenada	30 *	30 *
St. Kitts	23 *	23 *
Antigua	18 *	19 *
Aruba	16 *	16 *
Dominica	12 *	12 *
Cayman Islands	4 *	5 *
TOTAL	572,172	573,875

Asia		
Country	2012	2013
China	490,200	506,500 *
Japan	57,675	57,200
Vietnam	29,800	31,300
Thailand	23,700	23,100
South Korea	20,313	20,920 *
India	19,500 *	19,900 *
Philippines	15,800 *	14,600 *
Taiwan	5,460	5,163
Kazakhstan	4,801	4,500 *
Cambodia	4,000 *	4,400 *
Uzbekistan	3,325	3,650
Malaysia	2,840 *	2,990
Indonesia	2,650	2,800 *
Laos	2,196	2,662
Myanmar	1,100 *	2,500 *
Iran	2,000	1,980
Sri Lanka	1,200	1,250
Singapore	1,100	1,155 *
Israel	1,100 *	1,150 *
Mongolia	651	700 *
Azerbaijan	521	580 *
Nepal	508	550 *
Turkmenistan	300 *	450 *
Hong Kong	445	446
Tajikistan	310 *	350 *
Kirgistan	219	250 *
Lebanon	200 *	200 *
Jordan	85 *	90 *
Pakistan	90	75
Bangladesh	12	15 *
Syria	0	0
TOTAL	692,101	711,426

Africa		
Country	2012	2013
South Africa	31,500 *	31,500 *
Nigeria	24,000 *	26,500 *
Angola	9,500	10,500 *
Cameroon	6,900	7,500 *
Dem. Rep. of the Congo (Zaire)	5,000 *	6,000 *
Kenya	5,188	5,075
Ethiopia	4,400	4,655
Tanzania	4,000 *	4,000 *
Uganda	3,546	3,150 *
Mozambique	1,993	3,010
Congo (Brazzaville)	2,800 *	3,000 *
Namibia	2,500	2,500
Ghana	2,200 *	2,500 *
Zimbabwe	2,121	2,200 *
Burundi	1,900 *	2,100
Ivory Coast	1,800	1,900
Tunisia	1,500 *	1,550
Zambia	1,154	1,390
Gabon	1,200	1,250
Rwanda	1,100 *	1,200 *
Burkina Faso	1,100	1,200
Madagascar	1,147	1,120
Algeria	1,000 *	1,000 *
Egypt	1,000	1,000 *
Benin	960	930
Morocco	850	800
Botswana	517	653
Chad	500	550
Togo	440	500
Lesotho	372	415
Mauritius	400	389
Guinea Conakry	200	245
Swaziland	214	241
Réunion	240 *	240 *
Malawi	210 *	210 *
Eritrea	200	200 *
Equatorial Guinea	200	200 *
South Sudan	272	194
Sierra Leone	130 *	175
Liberia	154	160
Senegal	150	150
Mali	120	130
Central African Republic	170	120
Niger	60	60
Seychelles	60	51
Guinea Bissau	45 *	45 *
Gambia	40	40
Cape Verde	8 *	8 *
TOTAL	125,061	132,506

World total		
	2012	2013
TOTAL	1,961,974	1,972,972

BEER OUTPUT DEVELOPMENT



	2012 1,000 hl	2013 1,000 hl	2012 +/- % rel.	2013 +/- % rel.
European Union	388,669	383,830	0.5 %	-1.2 %
Rest of Europe	162,380	149,595	-0.3 %	-7.9 %
Europe total	551,049	533,425	0.3 %	-3.2 %
North America	332,126	325,760	1.4 %	-1.9 %
Central America/Caribbean	16,871	17,205	5.3 %	2.0 %
South America	223,175	230,910	0.6 %	3.5 %
America total	572,172	573,875	1.2 %	0.3 %
Asia	692,101	711,426	1.8 %	2.8 %
Africa	125,061	132,506	11.3 %	6.0 %
Australia/Oceania	21,591	21,740	-0.6 %	0.7 %
WORLD TOTAL	1,961,974	1,972,972	1.7 %	0.6 %

The output volumes for 2012 quoted in last year's report have been revised in some cases.

As a result of subsequent corrections to the beer output volume figures for 2012, production volume was in fact 10.7 million hectolitres higher than stated in last year's report. Year-on-year growth in output in 2012 therefore increased from 1.2 % to 1.7 %.

Based on the updated 2012 output figure, **beer production in 2013 rose by 11 million hectolitres, or 0.6 %, worldwide.**

Once again, the five most important beer-producing nations were China, the USA, Brazil, Germany and Russia. This time, however, in spite of a slight drop in production volume, Germany moved up into fourth place.

Europe saw its output fall by 17.6m hl. This was mainly due to developments in countries outside the European Union, in particular in Russia, Ukraine, Romania and Turkey.

In the **Americas**, beer production volume rose only marginally, with an increase of merely 1.7m hl. There were considerable differences within the continent, however. While output in South America rose by 7.7m hl, primarily in Brazil, Argentina and Peru, output in North America was dragged down by the downturn in the USA.

In 2013, China was not only the world's biggest beer producer, but also the country with the highest growth in output (+16.3m hl). **Asia** increased its beer output by a total of 19.3m hl.

Although **Africa** had lower growth than in the previous two years, it remained the continent with the highest growth rate. Foremost among the many countries contributing to the increase of 7.5m hl were Nigeria, Mozambique, Angola and the Democratic Republic of the Congo (Zaire).

MARKET ANALYSIS



Crop year 2012 marked the end of the structural supply surplus of hops and alpha acid in the world hop market for the time being. However, the surplus volume produced in crop years 2008 to 2011 continues to depress and influence the hop market today, particularly in the high alpha segment. These stocks have been sold almost entirely to the brewing industry and they have been run down only very gradually over the past twelve months. As a result of the poor harvest in crop year 2013, the depletion of these stocks should now accelerate in the course of 2014.

Crop year 2013 can be described as a noteworthy year in various respects. For weather-related reasons, only 83,232 mt (2012: 89,090 mt) was harvested on an area of 46,246 ha. This was almost entirely due to the poor harvest in Germany. At the same time, the trellised area in crop year 2013 was the smallest since 1955 (!), when it was 45,818 ha. With one minor difference: In 1955 beer output was 343m hl, in 2013 it was 1,973m hl.

A further peculiarity of crop year 2013: it marks the fifth consecutive year of decline in world hop acreage. Over this period, world acreage shrank by 11,051 ha. Had it not been for an increase in the hop area in the USA amounting to 2,200 ha since 2011 in response to demand from the US craft beer segment, the extent of the decline in this five-year period would have been even more dramatic.

The poor harvest in Germany and other EU hop-growing countries in 2013, combined with the reduction in acreage over a period of years, led to a noticeable improvement in price levels for all variety segments. For the first time in years, producers in all hop-growing countries were able to obtain prices above their production costs – in both the spot and forward contract markets – in the fine aroma and aroma hop segments. The prices for high alpha varieties also rose, but the spot market prices did not match the production costs for all varieties.

MARKET ANALYSIS

In the meantime, all fine aroma hops harvested in crop year 2013 are sold out worldwide, and only small quantities of the other aroma varieties in the 2013 crop are still available. The only hops in good to very good supply on the world market are the high alpha varieties. This is due to the stocks from previous crop years held by the brewing companies.

The forward contract rates bear out the view that the hop market is tightening. In most of the important hop-growing countries, the forward contract rates for the 2014 crop range between 85 and 100 %.

As in previous years, the flavour hop segment is another story. Flavour hops are not a separate variety. They include conventional aroma and bitter/high alpha varieties. It is the way the hops are used in the brewery – mainly for cold hopping – that determines whether an aroma or bitter/high alpha variety can be considered a flavour hop. Flavour hops give the beer a distinct, special, unusual and mostly fruity note that blends wonderfully with the hop bitterness that follows. Those varieties which are classed by the market as flavour hops have been in the ascendant for some

years, in terms of both acreage development and price. In the meantime they are commanding top prices. The decisive factor in this development is the astonishing fact that although the US craft beer segment accounts for only 1 % of world beer production, it requires more than 10 % of the world hop crop for it. As this segment has been growing at a rate of 15 % per annum for some years and within it the category of particularly strongly hopped India Pale Ales has been growing even faster, the price for flavour hops is currently of purely secondary importance. Availability and quality are the priorities. At the same time, no other section of the brewing industry is more generous in its use of hops. If the hop consumption of the craft beer movement, which is increasingly spreading around the world, continues to grow in this disproportionate manner, it could cause excitement in the world hop market. The rapid and sustained abandonment of high alpha varieties by hop farmers in the USA is already noticeable. Within the last five years they have cleared 3,900 ha of high alpha hop area while at the same time planting aroma hops on an area of 2,000 ha. This trend is likely to continue and thus increasingly change the world hop market.

HOP FORWARD CONTRACT RATES

Forward contract rates (as per spring 2014)

Due to insufficient availability of official data, the forward contracting rates are based on estimates and have been calculated on the basis of the acreage expected for 2014 and the long-term average yield.

Country	2014	2015	2016	2017
Germany	85 %	80 %	65 %	55 %
USA	100 %	80 %	65 %	50 %
Czech Republic	95 %	95 %	90 %	90 %
Poland	75 %	75 %	55 %	55 %
Slovenia	80 %	80 %	70 %	70 %
England	85 %	80 %	65 %	40 %

HOP ALPHA ACID PRODUCTION

Alpha acid production world-wide has been divided into variety groups:

Varieties with a long-term average alpha of up to 4.5 %

Varieties with a long-term average alpha of over 4.5 %

GROUP I: Fine aroma hops	such as Hallertau Mittelfrueh, Hersbruck Spaet, Klon 18, Lubliner, Saazer, SA-1, Spalt, Savinjski Golding, Styrian Golding (Celeia), Strisselspalt, Tettngang.
GROUP II: Aroma hops	such as Aurora, Bobek, Cascade, Cluster, First Gold, Fuggles, Golding, Hallertau Tradition, Mount Hood, Opal, Perle, Saphir, Smaragd, Spalt Select, Sterling, Wakatu, Willamette.
GROUP III: Bitter hops/ High Alpha hops	such as Admiral, Chelan, Chinook, Columbus/Tomahawk/Zeus (CTZ), Galena, Hallertau Magnum, Hallertau Merkur, Hallertau Taurus, Herkules, Kirin Flower, Marco Polo, Marynka, Millennium, Northern Brewer, Nugget, NZ Pacific Gem, Phoenix, Pride of Ringwood, Super Pride, Target, Tsingtao Flower, Victoria, Warrior.

HOP ALPHA ACID PRODUCTION

With the world hop crop divided into these groups, alpha acid production was as follows:

Group	2012					2013				
	Crop share	Crop mt	Alpha Ø	Alpha mt	Alpha share	Crop share	Crop mt	Alpha Ø	Alpha mt	Alpha share
I	10.4 %	9,310	3.5 %	324	3.6 %	11.6 %	9,645	2.7 %	263	3.2 %
II	30.2 %	26,898	7.0 %	1,893	20.7 %	31.5 %	26,253	6.6 %	1,738	21.3 %
III	59.4 %	52,882	13.1 %	6,922	75.7 %	56.9 %	47,334	13.0 %	6,170	75.5 %
TOTAL	100.0 %	89,090	10.3 %	9,139	100.0 %	100.0 %	83,232	9.8 %	8,171	100.0 %

Due to lower harvested volumes and lower alpha acid contents, mainly in the European hop-growing countries, world alpha production fell by nearly 1,000 mt year on year in 2013.

The yields per hectare of aroma varieties grown in Europe were particularly low. Nevertheless, a shift away from bitter/high alpha hops (Group III) to aroma hops (Groups I + II) is clearly recognisable from the world crop figures for 2013.

The **USA** were the world's biggest alpha producer with a share of 47.3 % of world alpha yield (2012: 38.2 %). It was followed by **Germany** with 32.4 % (2012: 40.2 %) and **China** with 5.9 % (2012: 7.6 %).

The alpha acid values upon which the calculations are based are recorded on the basis of % as is, EBC Analytica 7.4 ToP (Time of Processing).

Group I - Fine aroma hops
Czech Republic 44.7 %
(previous year 36.6 %),
Germany 30.7 %
(previous year 41.9 %)

Group II - Aroma hops
USA 56.2 %
(previous year 34.2 %),
Germany 26.7 %
(previous year 46.1 %)

**Group III - Bitter hops/
high alpha hops**
USA 46.6 %
(previous year 40.9 %),
Germany 34.1 %
(previous year 38.5 %)

Minor corrections have been made to the 2012 figures quoted in last year's report for crop and alpha volume within the variety groups.

ALPHA ACID BALANCE



Alpha supply

Brew year	Surplus / Deficit
2010	+2,845 t α
2011	+ 934 t α
2012	+1,409 t α
2013	- 235 t α
2014*	- 1,366 t α

● Alpha demand (Brew year)
▲ Alpha production (Crop year)
* Estimated demand

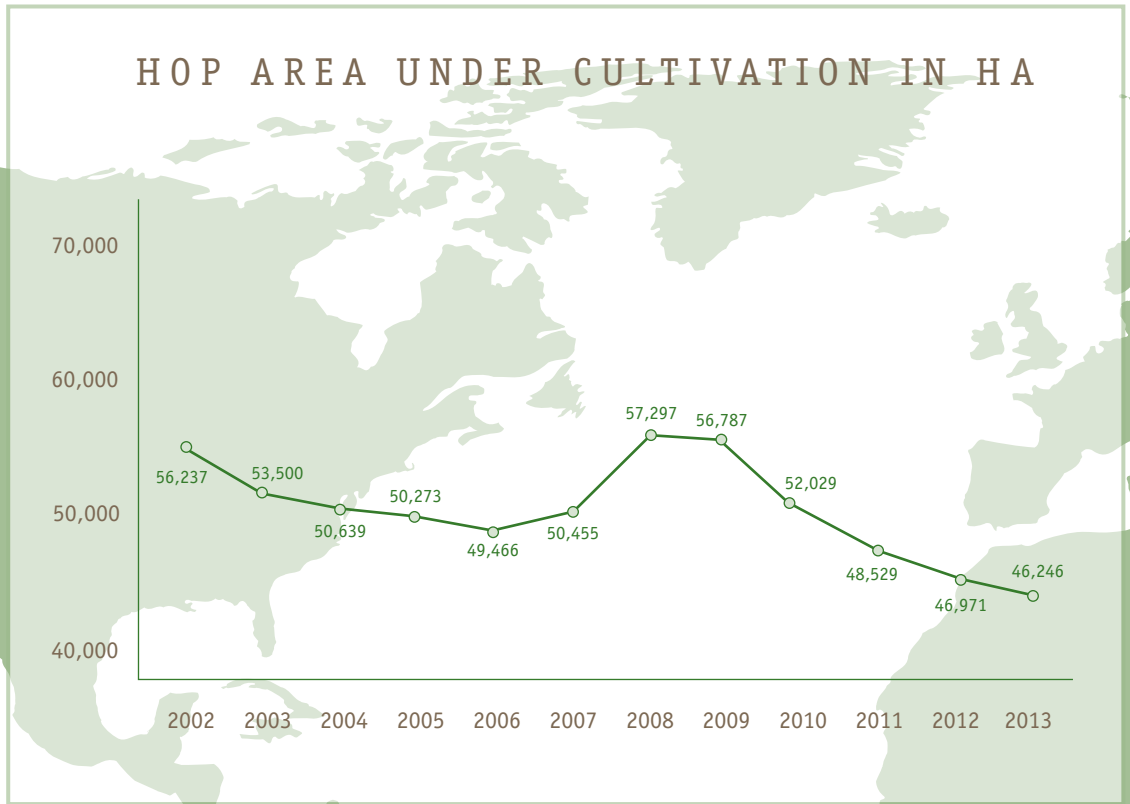
In order to allow the supply situation to be presented more clearly, the demand for hops for use beyond brewing has been taken into account in the calculation of the alpha surplus or alpha deficit. In this connection, an analysis of this segment has been carried out and the quantities required have been adjusted accordingly.

The alpha requirement for Mexican beers in recent years has been greater than had hitherto been assumed and the global demand from the craft sector has also grown more quickly than expected. This has implications for the alpha acid demand calculated in the past, making a correction necessary.

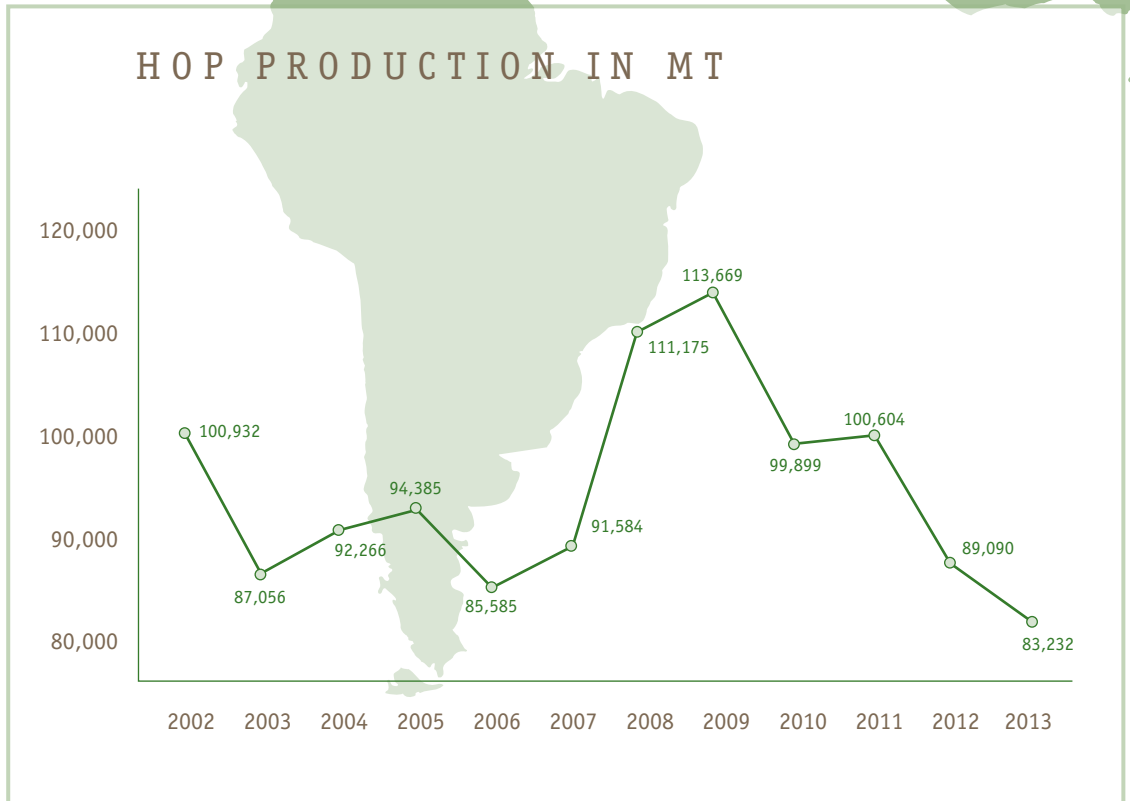
The table shows a slight deficit in the 2013 brewing year (2012 hop crop) after four years with large alpha surpluses. With respect to the market as a whole, a balance between demand and production thus seems to have been reached. The low alpha production in crop year 2013, due mainly to weather conditions, has led to a deficit in the 2014 brewing year. Nevertheless, the surpluses – mostly of high alpha hops – accumulated in crop years 2008 to 2011 continue to depress the market.

Estimated alpha demand for the 2014 brewing year is based on an increase in beer output volume of approx. 1.5 %.

HOP AREA UNDER CULTIVATION IN HA

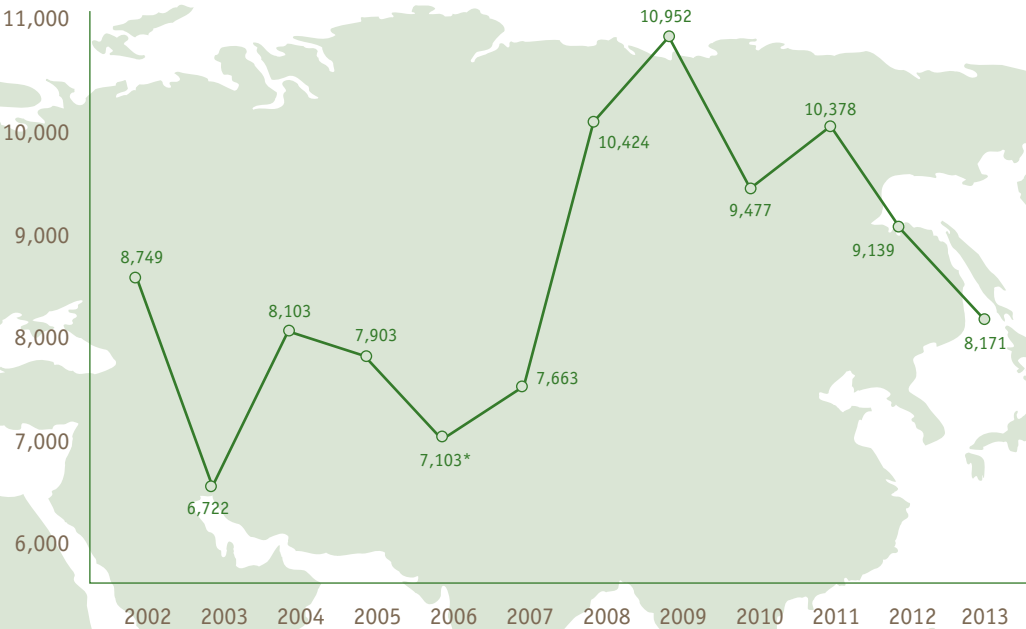


HOP PRODUCTION IN MT



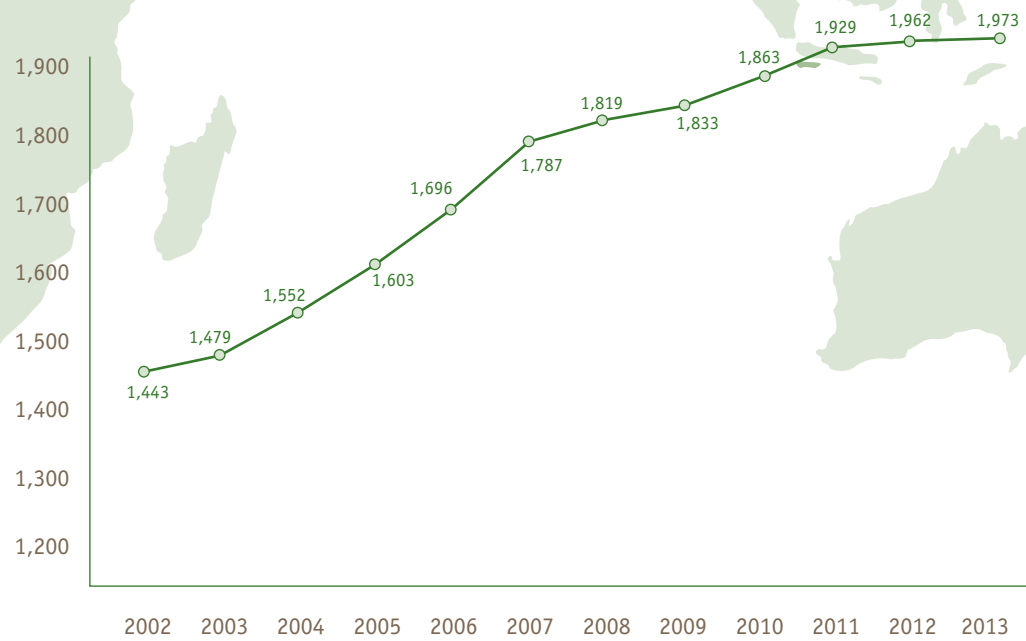


HOP ALPHA PRODUCTION IN MT



** not taking into consideration the quantities destroyed in warehouse fires*

BEER PRODUCTION IN MILLION HL





WORLD HOP ACREAGE AND CROP

* estimate

Rounding differences of the acreage may cause differences in addition.

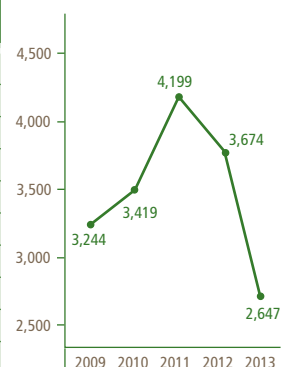
		2012				2013			
		Acreage ha	Production mt	Ø-Alpha %	Alpha mt	Acreage ha	Production mt	Ø-Alpha %	Alpha mt
Germany	Hallertau	14,258	29,794.1	10.9 %	3,238	14,086	23,077.7	9.8 %	2,264
	Tettwang	1,215	1,607.4	5.2 %	84	1,208	1,429.7	4.0 %	58
	Elbe-Saale	1,284	2,546.1	12.5 %	319	1,186	2,508.6	11.6 %	292
	Spalt	351	481.2	6.2 %	30	350	499.7	6.0 %	30
	Other	20	46.4	8.5 %	4	20	38.5	6.9 %	3
	Total	17,128	34,475.2	10.7 %	3,674	16,849	27,554.1	9.6 %	2,647
Czech Republic	Saaz	3,400	3,280.0	4.1 %	134	3,358	3,984.9	3.3 %	133
	Tirschitz	500	541.8	4.1 %	22	504	760.0	3.3 %	25
	Auscha	466	516.3	4.2 %	22	457	584.9	3.9 %	23
	Total	4,366	4,338.1	4.1 %	178	4,319	5,329.8	3.4 %	181
Poland		1,510	1,818.2	8.6 %	157	1,407	2,420.7	8.3 %	200
Slovenia		1,160	1,556.2	6.6 %	103	1,166	1,297.1	4.5 %	58
England		1,054	1,461.0	8.1 %	118	985	1,236.7	7.4 %	91
Spain		541	1,029.0	11.4 %	118	485	853.7	12.1 %	103
France		439	751.9	5.3 %	40	381	611.6	4.2 %	26
Romania		245	114.0	10.2 %	12	245	181.0	9.0 %	16
Austria		246	445.9	7.9 %	35	247	374.5	6.5 %	24
Slovakia		214	203.0	4.2 %	9	174	193.0	3.9 %	7
Belgium		158	234.4	9.7 %	23	148	212.6	8.8 %	19
Bulgaria		150*	160.0*	8.0 %	13	105*	130.0*	8.0 %	10
Portugal		12	19.5	9.5 %	2	12	16.2	10.5 %	2
Netherlands		3	3.6	9.6 %	0	4	3.3	8.6 %	0
	European Union	27,226	46,610.0	9.6 %	4,482	26,527	40,414.3	8.4 %	3,384
Ukraine		465	454.0	6.2 %	28	380*	310.0*	6.6 %	20
Turkey		348	322.0	9.2 %	30	346	326.0	9.5 %	31
Russia		220	160.0	4.7 %	7	160*	120.0	4.8 %	6
Belarus/White Russia		53	50.0	9.5 %	5	53	52.0	10.0 %	5
Switzerland		18	37.8	7.9 %	3	17	27.5	7.6 %	2
	Rest of Europe	1,104	1,023.8	7.1 %	73	956	835.5	7.7 %	64
	EUROPE	28,330	47,633.8	9.6 %	4,555	27,483	41,249.8	8.4 %	3,448
USA	Washington	10,133	22,042.8	13.0 %	2,857	10,951	24,910.7	12.7 %	3,163
	Oregon	1,809	3,821.7	10.0 %	384	1,937	3,877.9	9.9 %	385
	Idaho	981	1,917.7	13.0 %	249	1,366	2,665.4	11.9 %	316
		Total	12,923	27,782.2	12.6 %	3,490	14,254	31,454.0	12.3 %
Argentina		198	280.5	10.6 %	30	178	252.9	9.4 %	24
Canada		63*	55.0*	8.0 %	4	80*	75.0*	8.5 %	6
	AMERICA	13,184	28,117.7	12.5 %	3,524	14,512	31,781.9	12.3 %	3,895
China	Xinjiang	2,536	6,523.0	6.3 %	411	1,685	4,200.0	6.6 %	276
	Gansu	1,453	3,665.1	7.7 %	282	1,146	2,994.0	6.8 %	203
	Total	3,989	10,188.1	6.8 %	693	2,831	7,194.0	6.7 %	479
Japan		168	344.7	6.2 %	21	161	284.8	6.2 %	18
India		30	16.8	12.0 %	2	20	7.3	13.5 %	1
	ASIA	4,187	10,549.6	6.8 %	716	3,012	7,486.1	6.7 %	498
South Africa		458	1,002.7	13.8 %	138	412	886.0	13.6 %	120
	AFRICA	458	1,002.7	13.8 %	138	412	886.0	13.6 %	120
Australia		452	1,092.6	12.8 %	140	449	1,145.8	12.9 %	148
New Zealand		360	694.0	9.5 %	66	378	682.5	9.0 %	62
	AUSTRALIA/OCEANIA	812	1,786.6	11.5 %	206	827	1,828.3	11.5 %	210
	WORLD	46,971	89,090.4	10.3 %	9,139	46,246	83,232.1	9.8 %	8,171

GERMANY



Area	Variety	Development of acreage Acreage ha			Development of production Ø Yield mt/ha Production mt			
		2012	+/-	2013	2012	2013	2012	2013
Hallertau	Perle	2,965	-152	2,813	1.87	1.39	5,535.96	3,901.52
	Hallertau Tradition	2,624	-87	2,537	1.86	1.32	4,868.83	3,353.93
	Hersbruck Spaet	782	61	843	1.74	1.32	1,361.32	1,112.77
	Hallertau Mittelfrueh	716	-29	687	1.32	1.02	948.23	699.86
	Spalt Select	448	-40	408	1.97	1.57	883.01	638.54
	Saphir	237	71	308	2.00	1.17	474.11	359.71
	Other Aroma	74	46	120	1.63	1.08	120.48	129.78
	Total Aroma	7,845	-129	7,716	1.81	1.32	14,191.94	10,196.11
	Northern Brewer	190	-6	184	1.83	1.13	346.84	208.02
	Other Bitter	22	-3	19	2.12	1.58	46.64	30.02
	Total Bitter	212	-9	203	1.86	1.17	393.48	238.04
	Herkules	2,457	412	2,869	3.03	2.22	7,442.35	6,376.37
	Hallertau Magnum	2,696	-336	2,360	2.09	2.02	5,643.00	4,778.25
	Hallertau Taurus	795	-113	682	2.00	1.60	1,587.10	1,088.74
Nugget	179	-23	156	2.35	1.92	421.22	298.76	
Hallertau Merkur	33	-2	31	2.02	1.49	66.55	46.25	
Other High Alpha	2	37	39	4.88	0.65	9.75	25.18	
Total High Alpha	6,161	-23	6,138	2.46	2.05	15,169.97	12,613.55	
Other	39	-10	29	0.99	1.03	38.75	29.99	
Total Hallertau	14,258	-172	14,086	2.09	1.64	29,794.14	23,077.69	
Tettngang	Tettngang	790	-3	787	1.17	1.07	925.59	845.28
	Hallertau Mittelfrueh	238	-49	189	1.38	1.34	328.48	254.09
	Perle	71	-4	67	1.73	1.53	122.80	102.46
	Other Aroma	80	6	86	1.73	1.55	138.30	133.05
	Total Aroma	1,179	-50	1,129	1.29	1.18	1,515.17	1,334.88
	High Alpha	33	45	78	2.77	1.21	91.54	94.71
	Other	3	-3	0	0.24	0.00	0.72	0.11
Total Tettngang	1,215	-7	1,208	1.32	1.18	1,607.43	1,429.70	
Elbe-Saale	Perle	135	1	136	1.84	1.91	248.69	260.02
	Hallertau Tradition	33	1	34	1.02	1.29	33.74	43.84
	Other Aroma	8	2	10	1.28	1.52	10.25	15.15
	Total Aroma	176	4	180	1.66	1.77	292.68	319.01
	Northern Brewer	106	-10	96	1.56	1.89	165.37	181.11
	Total Bitter	106	-10	96	1.56	1.89	165.37	181.11
	Hallertau Magnum	808	-71	737	2.02	2.10	1,629.67	1,548.44
	Herkules	127	-12	115	2.75	3.05	348.62	350.22
	Other High Alpha	61	-5	56	1.73	1.94	105.68	108.86
	Total High Alpha	996	-88	908	2.09	2.21	2,083.97	2,007.52
Other	6	-4	2	0.68	0.49	4.10	0.97	
Total Elbe-Saale	1,284	-98	1,186	1.98	2.12	2,546.12	2,508.61	
Spalt	Spalt	106	7	113	0.94	0.98	99.40	111.14
	Spalt Select	84	-2	82	1.64	1.66	138.12	136.43
	Hallertau Mittelfrueh	57	-9	48	1.08	1.06	61.47	50.83
	Other Aroma	67	1	68	1.51	1.68	101.38	114.24
	Total Aroma	314	-3	311	1.28	1.33	400.37	412.64
	High Alpha	37	2	39	2.18	2.23	80.78	87.00
	Other	1	0	1	0.00	0.00	0.00	0.01
Total Spalt	351	-1	350	1.37	1.43	481.15	499.65	
Rhen.-P./	Aroma	16	0	16	2.10	1.74	33.57	27.83
Bitburg	High Alpha	4	0	4	3.20	2.67	12.80	10.66
Total Rhen.-P./Bitburg	20	0	20	2.32	1.92	46.37	38.49	
Total Aroma	9,530	-178	9,352	1.72	1.31	16,433.73	12,290.47	
Total Bitter	318	-19	299	1.76	1.40	558.85	419.15	
Total High Alpha	7,231	-65	7,166	2.41	2.07	17,439.06	14,813.44	
Total Others	49	-18	31	0.89	1.00	43.57	31.08	
GERMANY TOTAL	17,128	-279	16,849	2.01	1.64	34,475.21	27,554.14	

Alpha production in mt



Rounding differences of the acreage may cause differences in addition.



GERMANY

Farm structure

The decline in the number of farms cultivating hops continued. The number of hop growers remaining in Germany was 1,231, or 64 fewer than in crop year 2012. Of that number, 989 were in the Hallertau hop region, which represents a loss of 57 producers there. Taking the changes in land allocation into account, the average area of hops cultivated on each hop farm in Germany was 13.7 ha (2012: 13.2 ha). In the Hallertau hop region, the planted area per farm rose on average from 13.6 ha to 14.2 ha.

Growth, crop estimate and weights

The winter of 2012/2013 began with unusually warm and dull conditions. The temperatures in the months of February and March, on the other hand, were somewhat below the long-term average. The ground was repeatedly covered with snow until the middle of March. As a result, the spring work did not begin in most regions until the end of March. Despite the long winter, there was no appreciable frost action to loosen the soil to any great depth. The changeable weather conditions continued into early April, causing the trimming of the hop plants to be interrupted repeatedly due to the unsuitability of the ground in the hop gardens for vehicles. The nights remained cool until the end of April and, as a result, the hop plants developed only slowly. It was not until the final week of April that the day and night temperatures rose significantly, encouraging growth. Training of the hop plants could therefore only be started from early May, which was somewhat later than in previous

years. The wet weather until the end of May ensured adequate water supplies and the delay in growth due to the conditions in the spring was almost completely cancelled out.

Heavy rainfall in the Hallertau region in early June caused rivers to rise and led to flooding. Individual hop gardens in the vicinity of rivers and streams were flooded for a short time. On the evening of 20 June 2013 there was a heavy storm with severe hail in places in central and northern parts of the Hallertau region. The damage in the hop gardens affected ranged from 10 % to 100 % decapitation. In total, an area of approx. 5,000 ha was affected.

The cool and wet conditions in June delayed plant growth again and by the end of the month the hop plants were at a stage of development approx. 10 - 12 days behind the long-term average. A stable area of high pressure brought about a change in the weather in July, with warmer, above-average temperatures and sustained dry conditions. Vertical growth was completed in nearly all varieties and stands of hops in the last ten days of July. Most varieties were in full burr. In some cases cone development had begun among the early-maturing varieties. Apart from occasional local thundery showers, the rain-free period continued into August, which led to the appearance of first deficiency symptoms among hops on soils with low water storage capacity. Because of the dry conditions, there was virtually no incidence of disease in most of the hops. Pest infestation was also successfully kept under control in most of the hop gardens.

In the last five years the acreage developed as follows:

Variety	2009 ha	2010 ha	2011 ha	2012 ha	2013 ha
Perle	3,380	3,403	3,396	3,203	3,048
Hallertau Tradition	2,605	2,624	2,757	2,748	2,661
Hallertau Mittelfrueh	1,150	1,069	1,065	1,012	925
Hersbruck Spaet	768	758	776	785	847
Tettngang	765	772	776	790	787
Spalt Select	841	801	719	538	496
Saphir	185	196	225	253	324
Spalt	84	91	91	106	112
Other Aroma	87	87	89	96	152 ¹⁾
Total Aroma	9,866	9,800	9,895	9,530	9,352
Northern Brewer	401	375	345	296	281
Other Bitter	27	27	25	22	19 ²⁾
Total Bitter	427	402	370	318	299
Hallertau Magnum	4,266	4,202	4,039	3,509	3,102
Herkules	2,388	2,542	2,614	2,642	3,086
Hallertau Taurus	1,106	1,054	953	821	709
Nugget	279	266	244	207	184
Other High Alpha	106	89	75	51	85 ³⁾
Total High Alpha	8,145	8,152	7,924	7,231	7,166
Other	34	33	39	49	31 ⁴⁾
GERMANY TOTAL	18,472	18,386	18,228	17,128	16,849

Shares of variety groups in 2013:

Aroma varieties 56 %

Bitter varieties 2 %

High alpha varieties 43 %

There may be differences in the sum totals due to figures being rounded up or down after the decimal point.

1) Other aroma varieties include: Cascade, Hallertau Blanc, Hersbruck Pure, Huell Melon, Mandarina Bavaria, Opal, Saaz, Smaragd

2) Other bitter varieties include: Brewers Gold

3) Other high alpha varieties include: Comet, Hallertau Merkur, Polaris, Target

4) Others include: Record, others/selections



The hop harvest began with the early-maturing varieties from early September, i.e. about one week later than usual. After a dry start to the harvest, most of the hops had to be picked in unfavourable weather conditions. Picking was hampered by almost daily rainfall which resulted in compaction of the softened soil.

On the whole, the aroma varieties proved to suffer more greatly from the given growing conditions than the later-maturing varieties. This had already been taken into account in the crop estimate in August 2013. However, the yield of the **Hersbruck**, **Hallertau Tradition** and **Perle** varieties turned out to be slightly lower than estimated. The high alpha varieties **Hallertau Magnum** and **Nugget**, on the other hand, produced a better yield. Compared with the previous year's harvest, there was a shortfall of 6,921 mt, or a decline in harvested volume of 20 %.

Acreage and variety development

Hop acreage in Germany decreased for the fifth year in succession. The difference from the previous year was 279 ha, which corresponds to a decline of 1.6 %. There were significant reductions of plantings of **Hallertau Magnum** (-407 ha), followed by **Perle** (-155 ha) and **Hallertau Taurus** (-112 ha). The area planted with the high alpha variety **Herkules**, on the other hand, was increased by 444 ha. In the aroma hop group, plantings of the varieties **Saphir** and **Hersbruck Spaet** were extended by 71 ha and 62 ha respectively.

Contract market - main varieties

From May 2013, the prices set in autumn 2012 for the

Hallertau Tradition and **Perle** varieties for crop years 2013 and 2014 were raised slightly and, additionally, new prices were offered on the basis of an adjusted alpha base. In addition to the existing alpha-neutral ranges of 5.3 % - 6.3 % (α base 1) for **Hallertau Tradition** and 6.4 % - 7.4 % (α base 1) for **Perle**, new alpha-neutral ranges were defined in accordance with the higher average values per crop year in the past years. These were 5.7 % - 6.7 % (α base 2) for **Hallertau Tradition** and 7.0 % - 8.0 % (α base 2) for **Perle**. The prices were adjusted in line with the higher alpha values. This alpha base variant was also added to the supply agreements for total harvested volume. The poor harvest in crop year 2013, with below-average alpha acid levels, particularly among the aroma varieties, was responsible for a marked price increase in the contracts offered by the hop marketers. At the beginning of October 2013, offers for contracts reached the psychologically important five-euro mark, which stimulated the contract market significantly. The price offered by hop marketers for contracts beginning in 2014 was a constant 5.00 EUR/kg across the board for **Hersbruck**, **Hallertau Tradition**, **Perle**, **Spalt Select** and **Saphir** hops up to crop year 2019 and 2020. For contracts with first delivery in 2015, the prices were slightly reduced. Unperturbed by market activities and the quantities potentially available, one hop marketing company offered 5.00 EUR/kg for the **Perle** and **Hallertau Tradition** varieties in particular, regardless of the start of delivery (2014, 2015, 2016 or 2017), for a short time. These conditions stimulated the growers' readiness to conclude contracts to such an extent that the purchasing activities stopped again after only three days.

Contractual offers – an overview

Area / Time	Variety	Alpha base	Price basis	2013	2014	2015	2016	2017	2018	2019	2020
Hallertau											
May 2013	HT	1	EUR/kg	3.10	3.10	3.50	3.70	3.80	4.00	4.00	4.00
	HT	2	EUR/kg	3.30	3.30	3.75	3.95	4.05	4.25	4.25	4.25
	PE	1	EUR/kg	2.60	3.05	3.50	3.80	4.00	4.00	4.00	4.00
	PE	2	EUR/kg	2.80	3.30	3.80	4.10	4.35	4.35	4.35	4.35
October 2013	HE		EUR/kg		5.00	5.00	5.00	5.00	5.00	5.00	
	HE		EUR/kg	Beg. 2015		4.70	4.70	4.80	4.90	5.00	
	HT + PE	2	EUR/kg		5.00	5.00	5.00	5.00	5.00	5.00	5.00
	HT + PE	2	EUR/kg	Beg. 2015		4.70	4.70	4.70	4.80	4.90	5.00
	HM		EUR/kg		3.50	3.70	3.80	3.90	4.00	4.00	4.00
	HM		EUR/kg α		25.00	26.50	27.50	28.50	29.00	29.00	29.00
	TU		EUR/kg α		22.00	23.00	24.00	24.50	25.00	25.00	25.00
April/May 2014	HS		EUR/kg α		21.00	21.50	21.50	22.00	22.50	23.00	23.00
	HE		EUR/kg		6.00	6.00	5.20	5.20	5.20	5.20	5.20
	HT + PE	2	EUR/kg		5.00	5.00	5.00	5.00	5.00	5.00	5.00
	HM		EUR/kg		3.50	3.70	3.80	3.90	4.00	4.20	4.20
	HM		EUR/kg α		25.40	27.00	28.00	28.50	29.00	30.50	30.50
End of May 2014	HS		EUR/kg α		21.00	22.00	22.50	23.00	23.50	24.00	24.00
	HM		EUR/kg		3.80	3.90	4.00	4.00	4.00	4.20	4.20
	HM		EUR/kg α		28.00	28.50	29.00	29.00	29.00	30.50	30.50
	TU		EUR/kg α		24.00	25.00	26.00	26.00	26.00	26.00	26.00
	HS		EUR/kg α		23.00	24.00	25.00	25.00	25.00	25.00	25.00

Variety names:

Hallertau Magnum (HM)

Hallertau Taurus (TU)

Hallertau Tradition (HT)

Herkules (HS)

Hersbruck (HE)

Perle (PE)

Alpha base 1:

HT 5.3 % - 6.3 %

PE 6.4 % - 7.4 %

Alpha base 2:

HT 5.7 % - 6.7 %

PE 7.0 % - 8.0 %



GERMANY

In the winter of 2013/2014 the Hallertau growers received offers of 6.00 EUR/kg for the **Hersbruck** variety for crop years 2014 and 2015. The contract market was reactivated in April 2014. By the end of May price adjustments were carried out at different varieties.

In the Tett nang hop region, growers were offered contracts at prices of 7.50 EUR/kg from crop year 2014 to 2022, in the longest case, for **Tett nang** hops, 6.20 to 6.40 EUR/kg from crop year 2015 to 2020 for the **Hallertau Mittelfrueh** variety and the same conditions as in the Hallertau region for **Herkules** hops.

Spot market 2013

The market for non-contracted hops in the Hallertau region opened in the last week of September. The prices offered to producers were as follows: 6.00 EUR/kg for **Hallertau Mittelfrueh**, 5.50 to 6.00 EUR/kg for **Saphir**, 5.00 to 5.50 EUR/kg for **Hersbruck** and **Spalt Select**, 5.00 EUR/kg for **Hallertau Tradition**, **Perle**, **Smaragd** and **Opal**, 4.00 EUR/kg for **Northern Brewer** and 3.50 EUR/kg for **Brewers Gold**. Offers for high alpha hops levelled off at the following fixed prices: 3.00 EUR/kg or 23.00 EUR per kg of alpha for **Hallertau Magnum**, 3.00 EUR/kg or 20.50 EUR per kg of alpha for **Nugget** and 20.50 EUR per kg of alpha for **Hallertau Merkur**,

Hallertau Taurus and **Herkules**. The advance payments offered in conjunction with the purchasing initiatives launched at the same time were 0.50 and 1.00 EUR below the fixed prices per kg of hops and between 3.50 and 4.00 EUR below the fixed prices per kg of alpha.

In the Tett nang region, from early September 7.50 EUR/kg, and occasionally as much as 8.50 EUR/kg, was paid for the **Tett nang** variety. Fixed prices of up to 6.50 EUR/kg were paid for **Hallertau Mittelfrueh**. Advance payment prices from the purchasing initiatives were about 0.50 EUR/kg below the fixed prices.

Within only a few weeks, the predominant share of the non-contracted hops had been absorbed by the pools or purchasing initiatives or had been marketed through various fixed price purchases at the first trading level.

Alpha acids

The 2013 harvest brought to the hop and brewing industries alpha acid levels that were well below average. Levels had not been as low as these in the last 10 years.

The alpha yield calculated for German hops amounted to 2,647 mt and was therefore 1,027 mt below the level of the previous year, which corresponds to a drop in alpha volume of 28 %.

Details of the alpha acid levels of the main German varieties

Alpha acid values 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).

The alpha acid values for the 2013 crop, and the aroma varieties in particular, were significantly below the long-term average.

Values in %

Area	Variety	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Ø 5 Years	Ø 10 Years
Hallertau	Hallertau Mfr.	4.3	4.4	2.4	3.9	4.4	4.2	3.8	5.0	4.6	3.3	4.2	4.0
	Hersbruck Spaet	3.0	3.5	2.2	2.6	2.9	3.4	3.5	4.5	3.0	1.9	3.3	3.1
	Saphir	3.4	4.1	3.2	4.6	5.1	4.5	4.5	5.3	4.4	2.6	4.3	4.2
	Perle	6.4	7.8	6.2	7.9	8.5	9.2	7.5	9.6	8.1	5.4	8.0	7.7
	Spalt Select	4.9	5.2	4.3	4.7	5.4	5.7	5.7	6.4	5.1	3.3	5.2	5.1
	Hallertau Tradition	6.3	6.3	4.8	6.0	7.5	6.8	6.5	7.1	6.7	5.0	6.4	6.3
	Northern Brewer	9.8	9.8	6.4	9.1	10.5	10.4	9.7	10.9	9.9	6.6	9.5	9.3
	Hallertau Magnum	14.8	13.8	12.8	12.6	15.7	14.6	13.3	14.9	14.3	12.6	13.9	13.9
	Nugget	10.6	11.3	10.2	10.7	12.0	12.8	11.5	13.0	12.2	9.3	11.8	11.4
	Hallertau Taurus	16.5	16.2	15.1	16.1	17.9	17.1	16.3	17.4	17.0	15.9	16.7	16.6
	Herkules	--	--	--	16.1	17.3	17.3	16.1	17.2	17.1	16.5	16.8	--
Elbe-Saale	Hallertau Magnum	14.0	14.4	12.4	13.3	12.2	13.7	13.1	13.7	14.1	12.6	13.4	13.4
Tett nang	Tett nang	4.7	4.5	2.2	4.0	4.2	4.2	4.0	5.1	4.3	2.6	4.0	4.0
	Hallertau Mfr.	5.0	4.8	2.6	4.3	4.7	4.5	4.2	5.1	4.7	3.3	4.4	4.3
Spalt	Spalt	4.4	4.3	2.8	4.6	4.1	4.4	3.7	4.8	4.1	2.8	4.0	4.0

The alpha acid table shows the average alpha acid values measured in freshly harvested hops by members of "Arbeitsgruppe Hopfenanalyse" (AHA) on the fixed date of 15 October. The members of AHA are the in-house laboratories of the German hop-processing plants, the Bavarian state institute of agriculture's hop department (Hüll), BLQ Weihestephan, VLB Berlin and Labor Veritas (Zurich).

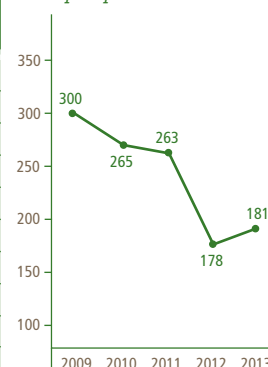
These values constitute the basis for any adjustments

of supply contracts containing "alpha clauses" between the brewing industry and the hop industry. The alpha clause was devised jointly by the German brewers' association and the hop industry association and was applied for the first time as a result of the 2003 harvest. It is a contractual provision used solely in forward contracts for aroma varieties. The average values serve as the basis for parties concluding new supply contracts containing an alpha clause.



Variety	Development of acreage			Development of production			
	Acreage ha			Ø Yield mt/ha		Production mt	
	2012	+/-	2013	2012	2013	2012	2013
Saaz	3,806	-20	3,786	0.92	1.15	3,493.6	4,365.6
Sládek	242	-2	240	1.66	1.95	402.2	467.5
Premiant	229	-28	201	1.51	1.78	344.7	357.0
Other Aroma	21	10	31	0.80	1.59	16.7	49.4
Total Aroma	4,298	-40	4,258	0.99	1.23	4,257.2	5,239.5
Agnus	53	-9	44	1.20	1.82	63.4	79.9
Other High Alpha	3	1	4	1.37	0.68	4.1	2.7
Total High Alpha	56	-8	48	1.21	1.72	67.5	82.6
Other	12	1	13	1.12	0.59	13.4	7.7
CZECH REPUBLIC TOTAL	4,366	-47	4,319	0.99	1.23	4,338.1	5,329.8

Alpha production in mt



Farm structure

For the first time since 2001, the number of hop producers has not decreased; on the contrary: the partition of a farm has in fact added one farm, statistically speaking. In crop year 2013, the 119 producers farmed a hop area with an average of 36 ha (2012: 37 ha) per farm.

Acreage/production/alpha content

The trellised area in the hop growing regions of **Saaz** and **Auscha** declined by 42 ha and 9 ha respectively, whereas there was a slight increase of 4 ha in the **Tirschitz** region. In total, the contraction in hop growing area in the Czech Republic amounted to only 1 %.

The hop gardens were covered with snow until March, which delayed the spring work. The weather in April and May was rainy and rather too cool. Heavy rainfall in the first half of June caused flooding along the rivers Elbe (**Auscha** region) and Eger (**Saaz** region). Hop gardens with a total area of approx. 500 to 600 ha were affected by the floods, with 300 to 350 ha suffering major damage, extending in some cases to total failure of the 2013 crop. From mid-June to the end of July, midsummer weather brought temperatures of up to 40 °C and drought. Rainfall subsequently brought the temperatures down, thus creating good conditions for ripening.

With the exception of the hops affected by the flooding the quality of the Czech hops was good. The alpha content was slightly below the long-term average: **Saaz** 2.7 % (2012: 3.4 %), **Sládek** 5.6 % (2012: 6.3 %) and **Premiant** 7.2 % (2012: 7.2 %).

Thanks to the better yields per hectare, there was a slight year-on-year improvement in alpha volume of 2 %.

Market situation

Calculated on the basis of an average yield, approx. 95 % of the volume produced in 2013 was committed by forward contract prior to harvesting. Partly as a consequence of the crop failure caused by the floods, which resulted in significant under-fulfilment of existing forward contract and delivery contract obligations, there were virtually no hops for sale on the open market.

The growers' contract prices ranged between 140 and 190 CZK/kg (5.50 to 7.40 EUR/kg) for **Saaz** hops and between 100 and 120 CZK/kg (3.90 to 4.70 EUR/kg) for **Premiant** and **Sládek** hops. The crop is completely sold out.

In October 2013, all marketers across the board offered contracts for the **Saaz**, **Sládek** and **Premiant** varieties which were well received by the growers. A large proportion of the entire crop volume has now been sold for several years to come; the proportion for crop year 2014 is 95 %.

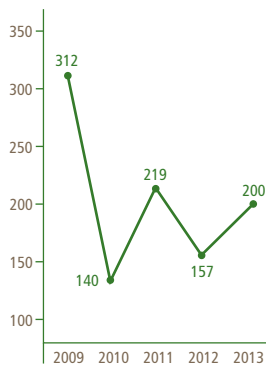
The Czech hop growers' association is calling on growers to conduct a replanting programme in order to achieve greater yield stability. In the opinion of the association, the total hop area in the Czech Republic could grow back to 5,000 ha in the medium term.

In 2014, it has grown by 153 ha, which represents an acreage increase of 3.5 %. The area increase was accounted for mainly by the internationally sought-after **Saaz** variety, with 118 ha of new plantings. The acreage planted with **Sládek** hops grew by 32 ha, while the area planted with the Czech flavour variety **Kazbek** increased by 15 ha and now stands at 18 ha. The acreage for **Premiant** hops, on the other hand, was reduced by 14 ha.



POLAND

Alpha production in mt



Variety	Development of acreage Acreage ha			Development of production			
	2012	+/-	2013	Ø Yield mt/ha		Production mt	
	2012	+/-	2013	2012	2013	2012	2013
Lubelski	297	33	330	1.24	1.37	368.1	452.7
Hallertau Tradition	79	-2	77	1.28	1.77	100.9	136.2
Perle	88	-21	67	0.95	1.61	83.6	108.1
Other Aroma	57	1	58	0.98	1.66	55.7	96.1
Total Aroma	521	11	532	1.17	1.49	608.3	793.1
Hallertau Magnum	510	8	518	1.49	2.02	762.2	1,047.6
Marynka	463	-116	347	0.95	1.65	439.1	570.9
Other Bitter/High Alpha	16	-6	10	0.54	0.91	8.6	9.1
Total Bitter/High Alpha	989	-114	875	1.22	1.86	1,209.9	1,627.6
POLAND TOTAL	1,510	-103	1,407	1.20	1.72	1,818.2	2,420.7

Farm structure

The number of hop growers in Poland has been falling since 2006. 631 farms remained in operation in crop year 2013 – 34 fewer than in 2012. As total acreage decreased at the same time, there was only a minor change in the average trellised area per farm which fell from 2.3 ha to 2.2 ha.

Acreage/production/alpha content

After growers failed to conclude any follow-up contracts to the forward contracts for **Marynka** hops expiring in crop year 2012, they cleared 25 % of the planted area. In total, hop acreage declined by 7 %, although it should be noted that an unknown number of trellis systems were not strung in 2012 and 2013, which means that the figure given does not refer solely to productive acreage.

The ground in the hop gardens was unsuitable for vehicles until mid-April. The plants were trained from mid-May. In May and June the weather was too cold and too wet. Although weather conditions in July and August were much too dry, the hop plants developed well and the total crop yield turned out to be slightly above average. Alpha acid levels, however, were very inconsistent. While the alpha acid content of **Lubelski** hops of 4.0 % was below that of the previous year (4.2 %), but exceeded the long-term average, the **Marynka** variety had a content of 7.6 %, which was better than in crop year 2012 and was in line with the long-term average. The alpha values for the **Hallertau Magnum** variety fluctuated within a wide range and averaged 11.3 %, which was below the five-year average (2012: 12.4 %). Thanks to significantly improved yields per hectare, the alpha acid yield rose by 27 % year on year despite low alpha content.

Market situation

75 % of the volume produced in 2013 had already been sold by forward contract, with **Lubelski** hops accounting for the lion's share of the contracted volume. This also includes the supply arrangements made between the Polish dealers and the growers without fixed price agreements.

The market for spot hops in Poland did not get under way until late October, which was very late in comparison with other European countries. Growers were paid the following prices: approx. 4.55 EUR/kg for **Lubelski**, approx. 2.75 EUR/kg for **Hallertau Magnum** and approx. 3.60 EUR/kg for all other varieties. All the hops harvested in 2013 were sold. The only stocks remaining were unknown quantities from crop years 2010 to 2012 held by merchants. The market and the demand for hops in Poland are driven almost exclusively by four large brewing groups.

Polish hops are unable to compete on the international market and therefore hardly any are exported today. As a result, there will be a further decline in hop acreage of approx. 50 ha. Further acreage reduction is to be expected for the **Marynka** variety in particular. There will probably be an increase in acreage for the **Lubelski** variety, however. Hop plantings with below-average yield per hectare and alpha yield will also be cleared.

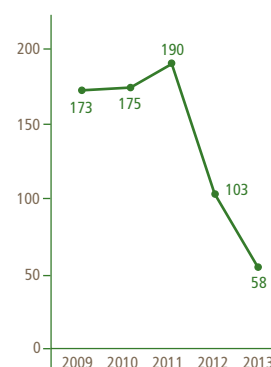
Growers had been pinning their hopes on receiving delivery of planting material of the new high alpha variety **Magnat**. However, the Polish breeding institute IUNG has postponed delivery to late early summer 2014 or next year. This has robbed the growers of the perspective of greater success in hop production in the near future. Due to the lack of a strong high alpha variety, each delay causes further loss of acreage in this segment of Polish farming.

The forward contract rate, including delivery agreements, for this year's crop amounts to approx. 75 %.



Variety	Development of acreage			Development of production			
	Acreage ha			Ø Yield mt/ha		Production mt	
	2012	+/-	2013	2012	2013	2012	2013
Aurora	654	-71	583	1.38	1.12	901.1	650.0
Styrian Golding (Celeia)	230	83	313	1.46	1.18	335.2	369.2
Savinjski Golding	133	-5	128	0.97	0.96	128.8	123.2
Bobek	84	6	90	1.59	1.24	133.4	111.9
Other Aroma	15	10	25	0.46	0.53	6.9	13.1
Total Aroma	1,116	23	1,139	1.35	1.11	1,505.4	1,267.4
Hallertau Magnum	25	-8	17	1.17	1.09	29.2	18.5
Other High Alpha	19	-9	10	1.14	1.10	21.6	11.3
Total High Alpha	44	-17	27	1.15	1.09	50.8	29.8
SLOVENIA TOTAL	1,160	6	1,166	1.34	1.11	1,556.2	1,297.1

Alpha production in mt



The addition of rounded acreage figures leads to differences in the total amount.

Farm structure

The number of hop growers decreased once again year on year. Three farms gave up hop growing, leaving 126 production entities in operation. Due to the resulting decline in total acreage, the average hop-growing area per production entity remained constant at 9 ha. However, this arithmetical average is only partly correct, because it includes growers with empty trellises who are keeping open the option of resuming hop production.

Acreage/production/alpha content

The total hop growing area was virtually unchanged. However, as in the previous year, the area planted with **Aurora** hops decreased (-11 %). Conversely, the acreage planted with the **Styrian Golding (Celeia)** variety increased by 36 %. In addition to the areas strung with hops, there was also a trellised area totalling 627 ha on which no hops were grown, however, in 2013.

The spring was cool and wet. A severe hail shower in the western part of the Savinja Valley on 4 May 2013 caused considerable damage among hop plants that had already been trained. The persistently cool weather conditions led to a delay in growth, in particular among the plants damaged by hail. There was an extreme drought from mid-July to harvest time. In places where no irrigation was possible, the burrs withered on the vine. The yields per hectare were the lowest in the last 10 years and were 17 % below the already below-average results recorded the previous year.

The alpha acid contents measured were also significantly below those of the previous year and far below the long-term average (average of the previous five crop years given in brackets): **Savinjski Golding** 2.1 % (3.4 %), **Styrian Golding (Celeia)** 2.3 % (4.0 %), **Aurora** 6.2 % (8.5 %), **Bobek** 2.3 % (5.1 %). The result was a drop of 44 % in alpha yield in comparison to crop year 2012 in which there had already been a year-on-year decline of 46 %.

Market situation

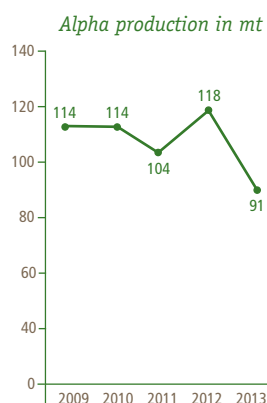
Due to the extremely low harvested yields, the aroma varieties **Savinjski Golding** (5.20 EUR/kg), **Celeia** (4.20 EUR/kg) and **Bobek** (2.20 EUR/kg) were almost completely sold out (average producer contract prices in brackets). The growers were not able to supply the full quantities specified in existing forward contracts. The available quantities of non-contracted hops were even too low for a spot market to develop. Prices of up to 6.50 or 7.00 EUR/kg were paid for **Savinjski Golding**. Approx. 60 % of the harvested volume of the **Aurora** hops had been bought up by forward contract at an average price of 3.20 EUR/kg.

Immediately after the harvest a market developed for the non-contracted hops, with prices rising to 4.20 or 4.50 EUR/kg, depending on the alpha content of the lots. Because of the rise in demand, many growers tried to sell their old stock in conjunction with the newly harvested hops, which caused demand to fall again. Nevertheless, some were able to sell part of their processed stock and also some cone hops from previous crop years. However, there remained a total quantity of unsold hops of approx. 250 mt from crop years 2008 to 2012. All the hops harvested in 2013 were sold. In addition to the spot market, a brisk forward contract market developed, although the volume on offer was limited.

Slovenia is profiting from strong demand for fine aroma hops. The trend to cut back hop acreage had ended by crop year 2013. In fact, for 2014 the hop growing acreage is expected to be increased by nearly 90 ha for the **Celeia** variety alone and by 130 ha in total. The forward contract rate is estimated to average 80 % for all varieties, with as much as 90 % of **Savinjski Golding, Celeia** and **Bobek** already under contract.

For the size of the hop growing area, there are a remarkably large number of merchants companies operating in the Slovenian hop market.

ENGLAND



Variety	Development of acreage			Development of production			
	Acreage ha			Ø Yield mt/ha		Production mt	
	2012	+/-	2013	2012	2013	2012	2013
Golding	175	-13	162	1.32	0.98	231.3	159.4
First Gold	141	-25	116	0.88	0.89	124.3	103.0
Fuggle	95	3	98	1.57	1.27	148.8	124.5
EK Golding	76	16	92	1.87	1.64	142.4	150.8
Challenger	62	-1	61	1.99	1.56	123.2	95.1
Other Aroma	253	-26	227	1.23	1.25	312.2	282.9
Total Aroma	802	-46	756	1.35	1.21	1,082.2	915.7
Target	98	-4	94	1.53	1.36	150.2	128.2
Pilgrim	86	-8	78	1.46	1.66	125.5	129.7
Other High Alpha	68	-11	57	1.52	1.11	103.1	63.1
Total High Alpha	252	-23	229	1.50	1.40	378.8	321.0
ENGLAND TOTAL	1,054	-69	985	1.39	1.26	1,461.0	1,236.7

Farm structure

In crop year 2013, the number of hop farmers declined from 56 to 52. Due to the fact that the hop yards concerned were cleared, the average acreage of 19 ha per hop farm remained unchanged.

Acreage/production/alpha content

Total acreage decreased by 6.5 %. Against this trend, the acreage planted with the varieties **East Kent Golding** and **Fuggle** increased by 21 % and 3 % respectively.

Growing conditions in the spring were characterised by incessantly cold weather. When temperatures finally rose in early June, it quickly became very hot. During the vegetation phase, the cold had robbed the plants of their energy, and the subsequent heat wave also affected production volume according to variety and location due to limited irrigation options. The production volume per hectare for both the aroma varieties and the high alpha varieties fell short of the long-term average.

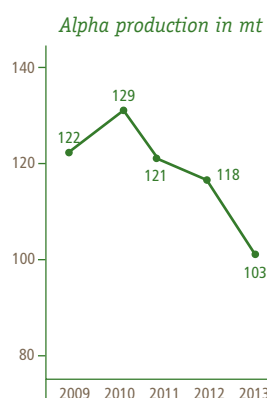
Despite the erratic weather conditions, alpha acid

values more or less equalled the long-term average. Alpha acid content for the individual varieties was as follows (results for 2012 in brackets): **Golding** 4.8 % (5.6 %), **First Gold** 8.2 % (7.9 %), **Fuggle** 4.8 % (5.0 %), **EK Golding** 5.4 % (6.4 %), **Challenger** 8.4 % (9.0 %), **Target** 10.7 % (11.8 %). The alpha acid yield fell by 23 %, however.

Market situation

More than 80 % of the volume produced was sold under forward contracts. The farmers were paid average prices of approx. 6.90 GBP/kg (8.10 EUR) for aroma varieties and approx. 5.40 GBP/kg (6.35 EUR) for bitter/high alpha hops. Spot hops sold at average prices of approx. 7.00 GBP/kg (8.25 EUR) for aroma varieties and approx. 5.00 GBP/kg (5.90 EUR) for bitter/high alpha hops. The entire crop was sold, apart from a very small quantity of alpha hops. Hop acreage in 2014 will be at least 5 % smaller than in 2013. In April, the forward contract rate for crop 2014 was 85 %.

SPAIN



Variety	Development of acreage			Development of production			
	Acreage ha			Ø Yield mt/ha		Production mt	
	2012	+/-	2013	2012	2013	2012	2013
Aroma	1	-1	0	0.40	1.00	0.4	0.2
Nugget	488	-56	432	1.96	1.79	957.8	772.3
Columbus	46	1	47	1.38	1.61	63.7	75.7
Hallertau Magnum	4	-2	2	1.45	1.17	5.8	2.1
Total High Alpha	538	-57	481	1.91	1.77	1,027.3	850.1
Test Varieties	2	2	4	0.65	0.97	1.3	3.4
SPAIN TOTAL	541	-56	485	1.90	1.76	1,029.0	853.7



Farm structure

The number of producers fell once again. In 2013 there were 228 active hop growers – nine fewer than in the previous year. The average hop area cultivated per farm declined slightly from 2.3 ha to 2.1 ha.

Acreage/production/alpha content

The year-on-year reduction in hop acreage of 10 % can be attributed exclusively to farmland reallocation measures. The area planted with **Perle** hops decreased to a mere 0.2 ha. The **Summit** and **Millennium** varieties are still at the on-farm test stage.

The weather conditions were unfavourable for plant development and resulted in irregular growth phases. Picking began approx. 10 days later than usual, but was completed earlier than expected because of the below-average yields. The only variety whose yield rose was **Columbus**, as the areas replanted in 2011

and 2012 produced a full yield for the first time. The harvested yield averaged 1.76 mt/ha, which was significantly below the long-term average. In spite of the generally unfavourable growing conditions, the alpha acid content of the **Nugget** variety at 11.9 % was unexpectedly higher than the level of 11.2 % recorded in 2012. However, total alpha volume was 12.3 % lower than in the previous year.

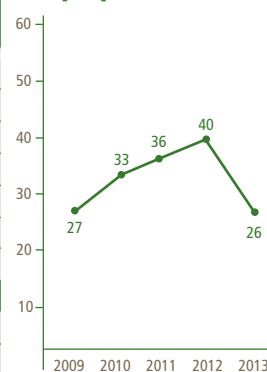
Market situation

The 2013 crop is sold out. The growers were able to sell their hops at prices of 4.19 EUR/kg for **Nugget** and 5.13 EUR/kg for **Columbus**. The small quantity of residual stocks from crop year 2012 also found a buyer. Hop acreage is expected to increase by approx. 35 ha in crop year 2014.



Area	Variety	Development of acreage			Development of production			
		Acreage ha			Ø Yield mt/ha		Production mt	
		2012	+/-	2013	2012	2013	2012	2013
Alsace	Strisselspalt	93	22	115	1.73	1.24	161.0	143.0
	Aramis	52	-3	49	1.20	1.86	62.5	91.0
	Hallertau Tradition	107	-65	42	1.93	1.83	207.0	77.0
	Other Aroma	109	-4	105	1.64	1.63	178.5	171.0
	Total Aroma	361	-50	311	1.69	1.55	609.0	482.0
	Bitter/High Alpha	53	-8	45	2.12	2.18	112.1	98.0
	Total Alsace	414	-58	356	1.74	1.63	721.1	580.0
Nord	Aroma	11	0	11	1.12	1.23	11.8	13.5
	Bitter/High Alpha	14	0	14	1.31	1.29	19.0	18.1
	Total Nord	25	0	25	1.23	1.26	30.8	31.6
FRANCE TOTAL		439	-58	381	1.71	1.61	751.9	611.6

Alpha production in mt



Farm structure

The number of hop growers in France remained unchanged. Of the 58 farms producing hops, 51 were in the Alsace hop region and 7 were in the North. As a result of acreage reduction measures, the average hop growing acreage decreased to 6.6 ha per farm from 7.6 ha the previous year.

Acreage/production/alpha content

Varietal change continues. Hop acreage declined by 13 %. After two years in second place, the traditional variety **Strisselspalt** was once again the most widely grown hop variety in France.

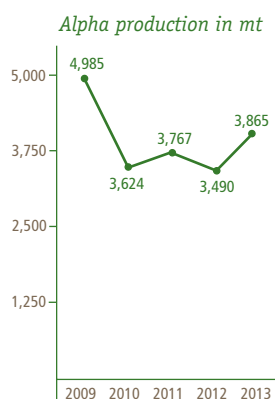
The spring was very cold and rainy. Plant growth was soon delayed by two weeks. Excessive precipitation and lack of sunshine in May and June did nothing to improve the situation. Although weather conditions returned to normal in July and August, this failed to compensate for the delay in plant development. Picking began 10 days later than usual and yields were in line with the long-term average.

The alpha content, however, was below average. The average alpha acid level was 1.3 % (2012: 2.3 %) for **Strisselspalt** hops and 6.2 % (2012: 6.9 %) for **Aramis**. The alpha yield fell by 35 % compared with the previous two crop years.

Market situation

Forward contracts accounted for approx. 50 % of production volume at an average price of approx. 4.50 EUR/kg; virtually all of the remainder sold by April 2014. Growers obtained prices averaging approx. 4.00 EUR/kg for spot hops. The area in Alsace that had been cleared of hops of the **Hallertau Tradition** variety in 2012 was replanted with **Strisselspalt** hops. Acreage is expected to be increased in 2014 by a total of 50 ha compared with 2013. The hop sector in Alsace is continuing its research to develop its own hop varieties. About 70 % of the production volume expected in crop year 2014 had already been sold in the spring.

USA



The conversion of acres to ha and lbs to mt results in slight statistical variance and rounding differences in the figures.

Area	Variety	Development of acreage			Development of production				
		Acreage ha			Ø Yield mt/ha		Production mt		
		2012	+/-	2013	2012	2013	2012	2013	
Washington	Cascade	1,090	625	1,715	2.08	1.93	2,264.7	3,311.4	
	Centennial	598	158	756	1.52	1.74	907.7	1,317.4	
	Simcoe®	380	145	525	1.88	1.89	715.9	990.3	
	Citra®	218	306	524	1.50	1.58	327.5	825.9	
	Amarillo®	308	24	332	1.44	2.25	443.0	745.8	
	Cluster	221	104	325	2.20	2.18	486.7	708.6	
	Willamette	280	-69	211	1.52	1.39	426.6	293.0	
	Mosaic®	36	119	155	1.91	1.91	68.8	296.1	
	Mount Hood	49	19	68	1.40	1.30	68.8	88.5	
	Palisade®	107	-54	53	2.64	3.15	282.1	167.0	
	Other Aroma	469	128	597	1.23	1.56	578.6	930.7	
	Total Aroma		3,756	1,505	5,261	1.75	1.84	6,570.4	9,674.7
	CTZ		2,338	-66	2,272	2.63	3.12	6,138.5	7,095.7
	Summit®		1,101	50	1,151	2.34	2.10	2,572.1	2,416.2
	Chinook		492	81	573	1.90	2.23	936.4	1,275.3
	Super Galena		388	-73	315	2.97	3.15	1,150.6	993.6
	Apollo		354	-77	277	2.97	3.36	1,052.6	930.0
	Bravo		214	-25	189	2.96	3.44	634.0	650.2
	Galena		386	-208	178	1.95	2.21	753.8	393.0
Millennium		161	9	170	2.26	2.54	363.2	431.7	
Nugget		354	-194	160	1.88	2.16	666.4	346.0	
Warrior®		79	-6	73	2.20	2.43	174.1	177.1	
Other High Alpha		510	-178	332	2.02	1.59	1,030.7	527.2	
Total High Alpha		6,377	-687	5,690	2.43	2.68	15,472.4	15,236.0	
Total Washington		10,133	818	10,951	2.18	2.27	22,042.8	24,910.7	
Oregon	Willamette	366	-142	224	1.86	1.67	682.5	374.0	
	Cascade	140	31	171	2.02	1.66	282.8	284.5	
	Centennial	84	17	101	2.00	1.77	167.8	179.0	
	Mount Hood	91	-2	89	1.96	1.77	178.1	157.1	
	Golding	75	4	79	1.71	1.28	128.1	101.0	
	Tettnang	25	25	50	1.65	1.11	41.3	55.7	
	Perle	34	-12	22	1.72	1.34	58.4	29.4	
	Palisade®	4	0	4	2.15	2.15	8.6	8.6	
	Other Aroma	182	190	372	1.84	2.11	334.7	785.0	
	Total Aroma		1,001	111	1,112	1.88	1.78	1,882.3	1,974.3
	Nugget		655	20	675	2.32	2.30	1,521.0	1,552.4
	Super Galena		71	-8	63	3.09	2.85	219.4	179.8
	Millennium		47	-20	27	2.79	2.70	131.1	72.8
	Other High Alpha		35	25	60	1.94	1.64	67.9	98.6
	Total High Alpha		808	17	825	2.40	2.31	1,939.4	1,903.6
Total Oregon		1,809	128	1,937	2.11	2.00	3,821.7	3,877.9	
Idaho*	Total Aroma*	366	323	689	0.85	1.23	311.2	850.2	
	Total High Alpha*	615	62	677	2.61	2.68	1,606.5	1,815.2	
	Total Idaho	981	385	1,366	1.95	1.95	1,917.7	2,665.4	
Total Aroma*		5,123	1,939	7,062	1.71	1.77	8,763.9	12,499.2	
Total High Alpha*		7,800	-608	7,192	2.44	2.64	19,018.3	18,954.8	
USA TOTAL		12,923	1,331	14,254	2.15	2.21	27,782.2	31,454.0	

* As growers in the Idaho region have only been registering total acreage and total crop volume since 2002, varietal group distribution has been estimated.



Farm structure

The number of growers (decision making entities) in the US for crop 2013 decreased from 76 the year before to 71 this year. This reduction is a result of restructuring and consolidation of corporate entities on some of the larger US farms. With this consolidation of entities, the average US farm size has increased from 170 ha in 2012 to 210 ha in 2013. The management structure on many of the US farms is shifting toward an increased participation level and decision making from next generation growers.

Acreage/production/alpha content

The USDA acreage survey for crop 2013 showed a continued expansion trend developing in the US with an increase of 1,331 ha (10 %) for crop 2013 following a 7 % expansion for crop 2012. The varietal mix also

continued to shift dramatically from high alpha to craft oriented aroma/flavour varieties as demand in the US craft segment remained strong. Over 600 ha (8 %) of high alpha producing varieties were removed and replaced with aroma/flavour varieties, putting the total increase of aroma/flavour varieties at 1,939 ha for crop 2013, a 38 % increase over the previous year for this category.

The total US acreage is now equally split 50/50 between aroma/flavour varieties and high alpha, whereas only four years ago (crop 2010) the split was 30/70. Comparatively, production volume of the aroma/flavour varieties represented 40 % of the total US crop 2013 production compared to 60 % for higher yielding alpha. Likewise, this compares to a 22/78 ratio only four years earlier from crop 2010.

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

Variety	2009 ha	2010 ha	2011 ha	2012 ha	2013 ha
Cascade	900	799	1,002	1,343	2,140
Centennial	121	177	308	720	880
Amarillo®	49	115	185	308	558
Citra®	-	46	97	218	533
Simcoe®	74	96	200	382	527
Willamette	2,100	1,349	677	646	435
Cluster	207	159	195	221	325
Crystal	-	-	54	118	169
Mount Hood	103	101	125	140	157
Mosaic®	-	-	-	36	155
Golding	-	93	94	111	121
Palisade®	-	151	129	111	57
Other Aroma	1,476	668	670	769	1,005
Total Aroma	5,030	3,754	3,736	5,123	7,062
Columbus-Tomahawk-Zeus (CTZ)	5,004	3,510	3,203	2,512	2,493
Summit®	1,310	1,261	1,004	1,102	1,151
Nugget	1,134	1,003	999	1,009	834
Chinook	245	254	308	619	722
Chelan/Super Galena	887	946	953	928	608
Apollo	302	334	463	445	404
Bravo	135	168	283	237	241
Galena	1,083	841	614	427	210
Millennium	365	253	210	208	197
Warrior®	122	120	105	79	73
Other High Alpha	500	219	177	234	259
Total High Alpha	11,087	8,909	8,319	7,800	7,192
USA TOTAL	16,117	12,663	12,055	12,923	14,254

Acreage for individual varieties has been estimated in part as Idaho only registered total acreage figures.

The addition of rounded acreage figures can lead to differences in some cases.



The most significant reduction in high alpha acreage in crop 2013 comes from the **Galena/Chelan/SuperGalena®** variety grouping which dropped by 537 ha and **Nugget** which was reduced by 175 ha. Conversely, the craft oriented varieties of **Amarillo®**, **Cascade**, **Citra®**, **Centennial**, **Mosaic®** and **Simcoe®** expanded by a combined total of 1,786 ha. Of this group, approximately 45 % of the increase came from proprietary varieties developed by private breeding programme. Furthermore, **Cascade** acreage stood at 2,140 ha which represented 15 % of the total US acreage, second only to **CTZ** at 2,493 ha (17 % US). Conversely, **Willamette**, the once dominant aroma variety in the US, continued its slide with a reduction of 211 ha (33 %) to a total of 435 ha grown, falling to sixth place in the aroma/flavour category.

Crop 2013 overall average yields were close to long term averages and 3 % greater than the below-average yields experienced from crop 2012. Although high alpha acreage decreased by 8 %, high alpha production was

virtually unchanged from the previous year because of the poorer crop 2012 yields. However, the production of aroma/flavour varieties increased by 3,735 mt (43 %) due to the acreage expansion of these varieties. As a result, overall US production volume from crop 2013 increased by 3,672 mt (13 %) over last season, which represents the largest US crop since crop 2009 (42,945 mt).

The US still produced 3,865 mt of alpha despite the shift away from high alpha varieties into aroma/flavour varieties. This is about 375 mt more than last year and still significantly more than produced prior to the large US expansion in 2008. However, alpha produced from traditional high alpha varieties increased by only 40 mt from the previous year, whereas alpha from aroma/flavour varieties increased by nearly 335 mt. The alpha produced from aroma/flavour hops now represents approximately 25 % of the total US alpha production, although such alpha is not used in the traditional manner as with high alpha varieties.

Alpha acid table

Variety	2009	2010	2011	2012	2013	Average
Willamette	4.3 %	4.8 %	5.6 %	4.9 %	4.8 %	4.9 %
Cascade	5.6 %	6.5 %	6.9 %	6.7 %	7.1 %	6.6 %
Cluster	7.0 %	6.8 %	7.3 %	6.7 %	7.0 %	7.0 %
Galena	11.6 %	11.5 %	12.5 %	12.6 %	13.0 %	12.2 %
Nugget	12.2 %	12.3 %	13.2 %	13.8 %	14.4 %	13.2 %
Columbus-Tomahawk-Zeus (CTZ)	13.5 %	14.1 %	14.7 %	15.3 %	15.5 %	14.6 %
Summit®	14.8 %	16.3 %	16.1 %	15.9 %	16.7 %	16.0 %
Bravo	15.0 %	15.0 %	15.0 %	15.0 %	15.2 %	15.0 %
Apollo	16.5 %	16.7 %	16.7 %	17.5 %	17.9 %	17.1 %

Crop development

Washington: Snowpack near the mountain reservoirs was slightly below normal at start of the season 2013 but increased to normal levels by early spring. This assured adequate irrigation water supply throughout the growing season. Early spring weather conditions were favourable for new plantings and temperatures were slightly above normal during the months of May through September while rainfall remained relatively light. This allowed for good plant growth that resulted in slightly above average yields overall. Growth development on the new "baby" yards planted earlier in the spring appeared variable throughout the growing season, however, most yards improved significantly in the latter weeks of the season.

Oregon: Temperatures during the autumn/winter of 2012/2013 were cooler than the previous three years. Snowpack in the mountains ranged from 86 % to 98 % of normal which provided adequate water resources for irrigation. The months of March and April produced moderate weather allowing good conditions for completion of the spring field work. May included two weeks of unseasonably warm weather which retarded plant development in some aroma varieties which caused some early bloom issues. Temperatures continued to be variable throughout June and July. September precipitation was very disruptive to harvest operations and caused approximately 70 ha of downed hop yards. Yields overall were slightly below normal due to these weather related issues.



Idaho: Although winter snowpack levels in Idaho were minimal, water resources were sufficient for growing the 2013 crop. Spring weather conditions were favourable, allowing growers to erect new hop trellis and plant rootstock in the proper timeframe for crop 2013 acreage expansions. The hop plants had very few problems with insects or powdery mildew throughout the growing season. During harvest a severe storm damaged some trellis and brought down about 6 ha of hops. Average yields were virtually identical to the prior year despite a large percentage of the production coming from first year plantings. Hop acreage in Idaho expanded by 39 % over the prior year, a significant expansion that put this growing region at 10 % of the total US crop 2013 acreage.

Quality: US growers continue to place a greater level of attention on hop quality, which is evidenced by their collaboration with hop marketers and customers in developing and improving growing/harvesting practices and quality systems at the farm level. The visual quality of the 2013 crop generally lacked disease and insect damage, and overall was comparable to the previous crop with exception to some cone colour being slightly off. Although up slightly from the previous year, the average seed count was reasonably low at 0.68 %, which compares to 0.66 % in crop 2012. Average leaf and stem content also remained low and was virtually unchanged at 0.28 % for crop 2013 compared to 0.29 % last season.

Contract market

Contract activity for crop 2013 and forward years was fairly active in early spring and throughout the summer of 2013 for aroma/flavour varieties, with market activity continuing to be driven primarily by the growth of the US craft industry. Most of the contracting was for **Cascade**, **Centennial** and proprietary varieties including **Citra**[®] and **Simcoe**[®]. Many of the contracts were written for crop 2013 through 2016 at prices ranging from 6.85 to 10.05 USD/kg plus premiums, for public varieties inclusive of smaller volumes purchased of **Mt. Hood**, **Golding**, **Sterling** and others. Contract pricing for proprietary varieties ranged from 10.15 to 13.20 USD/kg plus premiums, although a number of such varieties were expanded under a pool or other non-traditional pricing arrangements that focus more on generating optimal revenues per hectare for the grower. The expansion of many of the proprietary varieties has been agronomically challenged to keep up with the growing appetite of the US craft industry, causing supply to remain limited and prices high.

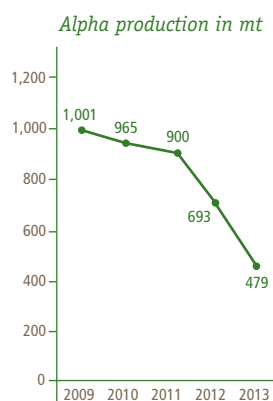
High alpha contract activity during the year was much more limited than with aroma/flavour varieties, although contracting did occur on a somewhat sporadic basis. Early in the year moderate quantities of **CTZ** were sold in the range of 26.45 to 28.65 USD/kg alpha for crops 2013 to 2015. However, by late summer/early autumn the alpha market had increased slightly with some larger volumes sold at 28.65 to 33.05 USD/kg alpha for crops 2014 through 2016. **Nugget** was also sold early/mid-year at prices in the range of 36.40 to 40.80 USD/kg alpha for crops 2013 through 2016, although some year-end activity was sold in the 50.50 to 52.05 USD/kg alpha range for crops 2014 through 2015 as supply tightened.

Once crop 2013 harvest was over, market activity quickly resumed with a focus on 2014 - 2016 crop contracting. **Cascade**, **Centennial**, **Citra**[®], and **Simcoe**[®] continued to lead the activity with **Cascade** being sold late in the year at 9.35 to 9.80 USD/kg plus premiums and **Centennial** at approximately 11.00 USD/kg plus premiums for crops 2014 through 2016. Pricing for the proprietary varieties also increased to levels ranging from approximately 10.90 to 14.35 USD/kg plus premiums and higher. By end of the calendar year the contract market for aroma/flavour varieties had moved from earlier prices returning growers approximately 17,000 USD/ha to levels near 22,000 USD/ha or more. The US aroma/flavour market has remained strong going into 2014, with additional expansion of the leading varieties beginning to compete for a limited quantity of available open acreage.

Spot market 2013

Crop 2013 spot hop volumes consisted primarily of **Cascade**, **Chinook**, **Centennial**, and smaller quantities of miscellaneous aroma varieties, as well as high alpha spots of **CTZ** and **Nugget**. Demand was very high for **Cascade** and **Centennial** spots, which quickly shot prices up to around 17.65 USD/kg and 22.05 USD/kg flat, respectively. Despite the high pricing, 100 % of the spot volume from these two varieties was quickly picked up during or shortly after harvest. **Chinook** spots were slower to sell and pricing settled around 8.80 USD/kg flat, while the small quantities of other varieties fell somewhere in between. As result of a good **CTZ** crop, several spots were available and virtually all were sold in the months following harvest at around 28.65 USD/kg alpha. **Nugget** spots were sold in the range of 40.80 to 44.10 USD/kg alpha.

CHINA



Area	Variety	Development of acreage			Development of production			
		Acreage ha			Ø Yield mt/ha		Production mt	
		2012	+/-	2013	2012	2013	2012	2013
Xinjiang	Tsingtao Flower	1,573	-584	989	2.38	2.59	3,740.0	2,560.0
	Kirin Flower	363	-123	240	2.92	1.65	1,060.0	395.0
	Marco Polo	247	0	247	3.20	3.00	790.0	740.0
	SA-1	233	-33	200	2.58	2.50	600.0	500.0
	Other Aroma	120	-111	9	2.78	0.56	333.0	5.0
	Total Xinjiang	2,536	-851	1,685	2.57	2.49	6,523.0	4,200.0
Gansu	Tsingtao Flower	863	-11	852	2.89	2.82	2,490.6	2,404.0
	Nugget	175	-73	102	0.89	1.19	156.0	121.0
	High Alpha	397	-222	175	2.46	2.50	974.9	437.0
	Aroma	18	-1	17	2.42	1.88	43.6	32.0
		Total Gansu	1,453	-307	1,146	2.52	2.61	3,665.1
	Total Aroma	371	-145	226	2.63	2.38	976.6	537.0
	Total Bitter	2,799	-718	2,081	2.60	2.58	7,290.6	5,359.0
	Total High Alpha	819	-295	524	2.35	2.48	1,920.9	1,298.0
	CHINA TOTAL	3,989	-1,158	2,831	2.55	2.54	10,188.1	7,194.0

There are no reliable statistics on acreage and production volume in China. The figures presented here which, due to the size of the Chinese hop-growing regions, are often based on estimates, have been gathered using our own sources.

Farm structure

Because too little income could be earned from hop farming, many producers have switched from hops to other agricultural produce.

In the **Xinjiang** hop region, nine of the 33 farms discontinued hop production in 2013. On average, the remaining 24 producers cultivated 70 ha of hops per farm; in 2012 the average area per farm was 77 ha.

In the **Gansu** hop region, one farm cleared its hop yards. On the remaining 18 farms, hops were grown on an average area of 64 ha, as opposed to 76 ha per farm in crop year 2012.

Acreage/production/alpha content

As the number of hop farms in China fell, hop acreage likewise decreased by 29 %. The **Xinjiang** hop region lost 34 % of its hop growing acreage and **Gansu** lost 21 %.

In both regions the hops affected had mostly been exposed to unfavourable weather conditions. It was either too cold or too hot. In the **Xinjiang** region, red mite infestation additionally reduced the volume harvested. Nevertheless, as in the previous year, the yields almost equalled the long-term average.

Alpha acid content was virtually unchanged from crop year 2012 both for all varieties, with an average of

6.7 %, and for the main variety **Tsingtao Flower**, with an average of 5.6 %. The year-on-year fall in alpha yield of 31 % is almost solely attributable to acreage reduction.

Market situation

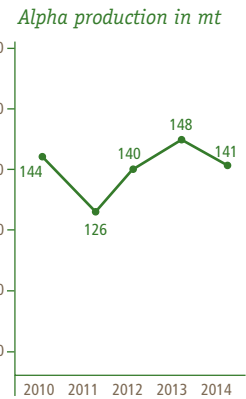
In China there is nothing comparable to the forward contract market in Europe or the USA. Instead, it is customary for farms and buyers to conclude purchase agreements. These agreements only contain specifically defined quantities and qualities. The actual price is negotiated at a later date.

Xinjiang hop region: Only about 30 % of the 2013 crop was committed under purchase agreements. The settling prices varied according to variety and quality and averaged only 25.00 CNY/kg (3.00 EUR). No stocks were left over from the 2013 crop, but approx. 1,000 mt from crop year 2012 is still available. A further reduction in acreage of 10 to 15 % can be expected. At the same time, the proportion of production volume tied to purchase agreements is set to rise for 2014 and subsequent years.

Gansu growing region: 95 % of the 2013 crop was committed under purchase agreements. The hop prices were settled at 23.00 CNY/kg (2.75 EUR) for the **Tsingtao Flower** variety and up to 25.00 CNY/kg (3.00 EUR) for the other varieties. The 2013 crop sold out quickly. Unsold stocks still remain from previous crop years. The quantity available, which is mainly from crop years 2010 and 2011, is estimated at about 1,100 mt. Acreage is expected to remain unchanged.

CROP 2014: AUSTRALIA

Area	Variety	Development of acreage			Development of production			
		Acreage ha			Ø Yield mt/ha		Production mt	
		2013	+/-	2014	2013	2014	2013	2014
Tasmania	Super Pride	63	-15	48	2.41	2.23	151.8	106.9
	Pride of Ringwood	47	-26	21	2.98	2.99	135.0	63.6
	Other	77	28	105	1.77	2.21	136.0	231.2
	Total Tasmania	187	-13	174	2.26	2.31	422.8	401.7
Victoria	Super Pride	70	-22	48	2.43	2.67	170.0	129.0
	Topaz	71	-24	47	3.76	3.55	267.0	168.4
	Pride of Ringwood	47	0	47	2.02	2.02	95.0	95.0
	Other	74	17	91	2.58	3.13	191.0	284.7
	Total Victoria	262	-28	234	2.76	2.90	723.0	677.1
AUSTRALIA TOTAL		449	-41	408	2.55	2.65	1,145.8	1,078.8



Farm structure

The number of hop farmers in Australia remained unchanged. As a result of a year-on-year reduction in total acreage, the average trellised area per farm of the eight hop producers fell from 56 to 51 ha in crop year 2014.

Acreage/production/alpha content

The change-over to the new varieties **Galaxy™**, **Ella™**, **Summer™**, **Vic Secret™** and **Enigma™** is in full swing. Acreage decreased by 9 %.

An unusually warm winter was followed by a cold spring and a long, hot and windy summer which had some adverse effects on the development of the hops. Yields fluctuated widely, depending on the variety, with some varieties exceeding expectations significantly. Other varieties produced many cones, but their specific weight was below the long-term average.

In total, however, the harvested yield per hectare was above average.

The average alpha acid values in crop year 2014 followed a similarly inconsistent pattern (previous year's figures in brackets): **Pride of Ringwood** 8.9 % (9.1 %), **Super Pride** 13.9 % (14.7 %), **Topaz** 15.6 % (14.8 %). The alpha yield decreased by 5 %.

Market situation

At the time of picking, approx. 80 % of the 2014 crop was already sold under contract. As a result of replanting on a considerable area in the last two years, a significant increase in production volume can be expected in the next two years. Further replanting with new varieties is planned for the coming Australian spring. The forward contract rate for the 2015 crop is already approx. 70 %.

The addition of rounded acreage figures leads to differences in totals in some cases.

HOP PLANT DEVELOPMENT 2014



Germany

The winter of 2013/2014 began with conditions in December that were dry and very warm for the time of year. The mild, dry weather continued throughout the months of January and February. As a result of the above-average, warm temperatures in this mild winter, there was no appreciable frost action in the soil.

The dry weather continued in March, too, allowing the spring work in the hop gardens to be completed early in ideal conditions. The warm temperatures stimulated plant growth. Most farms began training the hop shoots on around 18 April, which was approximately one week earlier than usual. As the night temperatures were relatively low and occasional frosts occurred at this time, plant development was delayed and training extended over a comparatively long period. Plant growth was held back again by a period of cool weather in mid-May, with the result that the hop plants are now at a stage of development in keeping with the long-term average.

USA

Snowfall in the Washington and Oregon Cascade mountain ranges arrived in mid-January and continued through March, slightly later than normal. While precipitation remained light earlier in the winter, the mid-to-late winter storms delivered plentiful snowfall. As a result, sufficient water supply will be available for the 2014 crop growing season. Temperatures were normal throughout the winter with the exception of below normal temperatures during short periods in November and February. These short cold snaps may have caused some moderate amounts of winter damage to the hop plants, although any weak spots in hop yards could quickly recover during the warmer months. In early March temperatures were above normal and provided favorable conditions for growers to begin work in the hop yards slightly earlier than normal. As with last season, farm activity during the spring months again included construction of new trellis and significant plantings of new hop yards consisting entirely of aroma/flavour varieties.



Germany

For the first time since 2008, hop acreage in Germany did not decline, but grew. Total acreage increased by 459 ha, or 2.7 %, to 17,308 ha. The results were unevenly distributed across the variety groups: aroma varieties +524 ha (of which **Hallertauer Tradition** +164 ha, **Perle** +106 ha), bitter/high alpha -62 ha (of which **Hallertau Magnum** -460 ha, **Hallertau Taurus** -115 ha, **Herkules** +536 ha). Although acreage is set to decrease, alpha production is expected to rise as a result of changes in the variety mix within this group. Planting of the four flavour hop selections from the Huell Hop Research Center, **Hallertau Blanc**, **Huell Melon**, **Mandarina Bavaria** and **Polaris**, increased by 152 ha, or 146 %.

USA

As reported by the US Department of Agriculture (USDA) on 11 June 2014, the total hop acreage in the USA increased by 1,283 ha to 15,537 ha. This increase is nearly identical to last year's expansion, both in terms of new plantings (ha) and in the advancement of craft-oriented flavour varieties. For the first time in a generation, a non-alpha variety has become the lead variety in the USA, with **Cascade** now totalling

nearly 2,700 ha, or approximately 350 ha more than the variety complex **CTZ** that dropped to about 2,350 ha. After expanding by nearly 500 ha, the variety **Centennial** has become the third-largest variety, with nearly 1,400 ha, topping **Summit**® that has decreased slightly to under 1,100 ha. The varieties **Citra**® and **Simcoe**® which both added a little over 200 ha are now grown on 735 and 744 ha respectively. Collectively, flavour varieties have increased by approximately 1,600 ha, while super high alpha varieties have declined by approximately 300 ha.

World

Changes in hop acreage reflect the market situation. Planting of aroma/flavour varieties is increasing and is more than compensating for the clearance of bitter/high alpha varieties. Following five years of decline, world hop acreage has risen by about 1,700 ha in crop year 2014 and now stands at approximately 48,000 ha. The market is still well supplied with high alpha varieties, mainly due to the existence of considerable quantities of old stock. The great interest shown by the breweries in flavour hops is responsible for a particularly marked expansion of acreage in this segment.

Currency exchange rates

1 EUR equals (reference by ECB):

	on 30 May 2013	on 30 May 2014		on 30 May 2013	on 30 May 2014
USA	1.2944 USD	1.3607 USD	Canada	1.3433 CAD	1.4745 CAD
Australia	1.3493 AUD	1.4635 AUD	Poland	4.2667 PLN	4.1411 PLN
China	7.9428 CNY	8.5025 CNY	Switzerland	1.2487 CHF	1.2204 CHF
United Kingdom	0.8557 GBP	0.8131 GBP	Russia	41.1161 RUB	47.3097 RUB
Japan	131.7000 JPY	138.3600 JPY	Czech Republic	25.7950 CZK	27.4710 CZK

These exchange rates can only serve as an indication. They vary from bank to bank and are not binding.

Conversion table

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 (USA)
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 (mt) = 1,000 kg	= 20 cwt (D) = 2,204.6 lbs
1 Zentner cwt (D) = 50 kg	= 110.23 lbs = 1.102 cwt (USA)
	= 110.23 lbs = 0.984 cwt (GB)
1 hundredweight (cwt/USA)	= 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



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BARTH-HAAS GRANTS

More than 40 research projects on the subject of hops at more than 20 universities and research institutions in nine countries, sponsored with a financial volume of approx. 90,000 euros – that is the interim balance of the Barth-Haas Grants programme since 2007. The Barth-Haas Group awards these grants for hop research projects. What is particularly gratifying: in many cases they have served as start-up financing, because several of these projects have been continued with more than three million euros of public funding. Why does the Barth-Haas Group award these grants? There are numerous reasons: to arouse enthusiasm for hops through hop research, to support research concepts and, last but not least, to establish and intensify contacts with young, promising research scientists.

Much has happened in hop research in recent years. Hops have now become one of the most exciting objects of research. The Barth-Haas Grants and also not least the global craft beer movement have played their part in this development.

The importance of hops for creative brewers and their beers can be seen, for example, in hop aroma research. Here, in particular, the sponsored projects have led to completely new discoveries. A total of eleven grants have been awarded by the Barth-Haas Group for the topic area of hop aroma in beer. As a result, not only numerous hop aroma compounds, but also the complex interaction of the hop aroma compounds in the beer with other beer aroma compounds has been identified as being sensorially relevant. This topic area is currently being investigated at five universities of brewing science with European research funding.

Other grants were awarded for research into the potential and modes of action of dry hopping. Up to 2009 only empirical findings had been gathered on dry hopping. It is thanks to the Barth-Haas Grants programme that projects have been conducted since 2010 – on the one hand to identify the sensorially dominant aroma substances that are introduced through dry hopping; on the other, to investigate technologies for the purpose of optimising dry hopping in terms of efficiency (i.e. with high aroma extraction) and of process technology (i.e. without oxygenation, etc.).

Without the Barth-Haas Grants, it is possible that the discovery would not have been made that the lipids and waxes in hops are suited as natural anti-foaming agents that not only suppress foaming during fermentation, but also increase brewing capacity. The result of the sponsorship: in the meantime, several products have been developed and are now being used in breweries around the world.

For more than 30 years, considerable sums of money had been invested in research into gushing (spontaneous foaming escape of beer), without the actual causes being found. Here, too, the finding of one of the projects supported with a Barth-Haas Grant was that hops can in fact contribute partly to solving this phenomenon. Many of the different hop fractions, such as beta acids, alpha acids, hop oil, specific oil substances and certain fatty acids, act to suppress gushing. Investigations are now continuing into how these findings can be put to practical use.

Another topic is flavour stability. One project is investigating the anti-radical behaviour of certain bitter acids. In this context, the alpha acid has shown particularly positive features due to its multiple action (chelate formation, radical scavenging). This project has spawned several follow-on projects, the results of which can now find practical application.

Back in 2007 the Barth-Haas Grants were an experiment with an uncertain outcome. Would hops provide sufficient grounds for research? Would the research uncover sufficient potential applications for creative brewing and resourceful brewers? Would a sufficient number of students worldwide be willing to approach the topic of hops? Today we can answer all three questions with a resounding “Yes”. And there has been another finding: the more we find out about hops, the more new questions are thrown up. Hop research will go on – and the Barth-Haas Group is proud to have provided a decisive stimulus for it in the form of the grants.

The winners of the 2014 Barth-Haas Grants will be announced at the beginning of July in the Hop Science Newsletter and also on our website www.barthhaasgroup.com.



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