

THE BARTH REPORT



HOPS 2011/2012

BARTH-HAAS GROUP

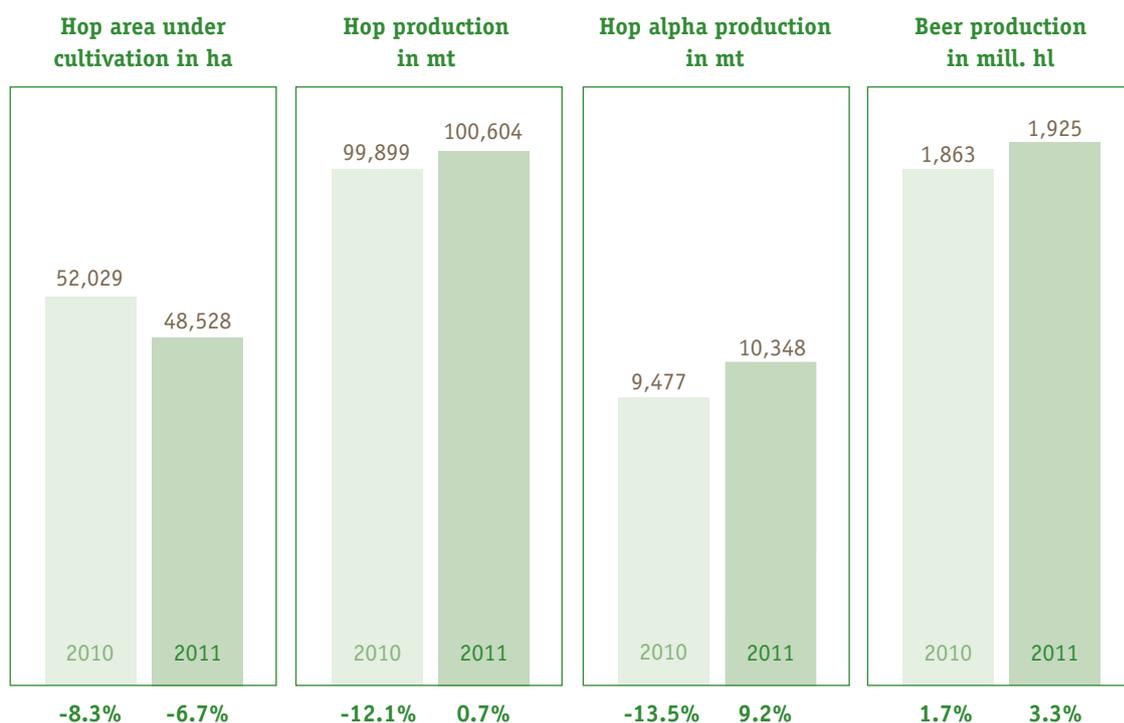


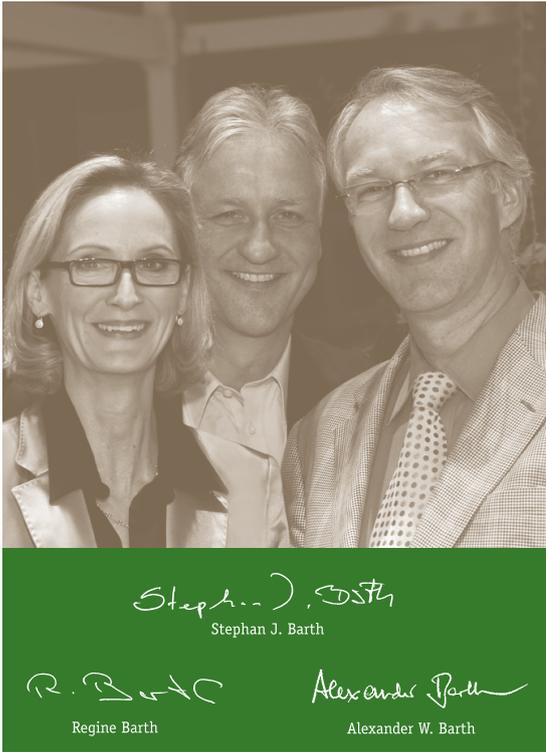
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WORLD MARKET KEY DATA





In our capacity as partners, we not only assume responsibility for our company and the people working there, but also for the environment and society. It is our strong belief that a sustainability report ideally contributes to the institutionalisation of sustainable thinking within the company itself. Last but not least, this sustainability report is intended ultimately to document our aspiration to assume a pioneering role within our industry and thus to set standards through sustainable business practices.

One example of sustainable action is the **Barth Report** – the latest edition of which you are now reading. The oldest Barth Report in our archives dates from 5 October 1878 and is entitled “Zweiter Bericht von Joh. Barth & Sohn” [Second report by Joh. Barth & Sohn]. It can therefore be assumed that the first report was published one year previously, in 1877. In light of this, the current edition allows us to look back over **135 years of Barth Report history**.

Originally intended as a report for the brewing industry containing information on hop cultivation and the hop market, it has developed into an internationally respected source of information with reports on the world’s hop and beer markets. Each edition entails extensive and meticulous data research.

We would like to take this opportunity to thank all those who have supported us with information.

135 years of the Barth Report – an anniversary which is a cause for pride and celebration.

Sustainability has become a familiar term to all of us in the 21st century. The original etymological root of the word comes from “sustain” meaning “to last or remain over a longer period of time”.

Thinking and acting sustainably has always been part of our corporate philosophy. For this reason we have decided to produce still in summer 2012 a **sustainability report** in order to demonstrate the sustainability and long-term viability of our actions, not only in purely economic terms, but also from a social and ecological perspective.

ABOUT THE FRONT COVER



New hop varieties for greater diversity in beer – as proved by Barth. The beers pictured on the cover were brewed exclusively for a tasting session at the Brau Bevale 2011 fair in Nuremberg. The hops used were varieties with special flavor characteristics, known as flavor hops. Find out more about them on page 32 of this report.





POLITICAL SITUATION

The upheaval witnessed in the power structures of the Middle East and the Arabian subcontinent which began in December 2010 continued to be the predominant theme in international politics.

NATO's presence in **Libya** contributed substantially to the rebel victory over the Gaddafi regime – a deployment which was concluded after the killing of **Muammar al-Gaddafi** in October 2011.

After **Hosni Mubarak** stepped down as president, power in **Egypt** was taken over by the high command of the armed forces and May 2012 saw the first free presidential elections in the country. The outcome of this will be ultimately determined in the second ballot in mid-June.

In **Syria**, President **Bashar al-Assad** continued to let the army demonstrate extreme aggression towards opponents to the regime following ongoing unrest and protests against his rule. Many thousands of people have been victims of the regime's violence. Despite the UNO-negotiated ceasefire of April 2012 and the deployment of military observers, fighting has continued unabated.

Almost nine years after the beginning of the **Iraq war**, the last US soldiers pulled out of the Gulf state in December 2011. However, even after the withdrawal of the US troops, **Iraq** has continued to be rocked by a series of bombings.

In Europe, overcoming the sovereign debt crisis and safeguarding the stability of the euro has had a great impact on the political landscape of several EU member states. The radical austerity programmes introduced by the governments have often been the cause of widespread protest among the populations.

In a number of **eurozone countries**, including **Ireland, Portugal, Cyprus, Spain, Greece, Italy, Slovakia** and the **Netherlands**, as well as two other **EU countries**, the **Czech Republic** and **Romania**, there have been changes in government in early elections in 2011/2012. The political situation in **Greece** has been particularly

problematic. Elections took place on 6 May following the resignation of Prime Minister **Giorgos Papandreou** in November 2011. These saw a strengthening in support for the radical left-wing Syriza party. Following the collapse of all coalition negotiations, new elections have been called for 17 June 2012.

In **Russia**, elections to the Duma were held in December 2011. With just under 50 %, the **United Russia** party led by head of government **Vladimir Putin** was declared the victor. Presidential elections took place in March 2012 in which **Vladimir Putin** achieved an absolute majority. Putin's predecessor **Dimitri Medvedev** succeeded him as prime minister.

In **Japan**, following months of criticism – amongst other things for his handling of the crisis following the Fukushima nuclear catastrophe – **Naoto Kan** resigned as prime minister in August 2011. Former finance minister **Yoshihiko Noda** was elected as his successor. Following the death of his father **Kim Jong Il**, **Kim Jong Un** was declared leader of the party, state and army in **North Korea** in December 2011. The **USA** continued discussions with **North Korea** regarding the suspension of uranium enrichment and cessation of nuclear testing.

In the **Federal Republic of Germany**, in July 2011 the Bundestag and the Bundesrat (the lower and upper houses of parliament) voted in favour of phasing out of nuclear power by 2022.

After less than 20 months in office, **Christian Wulff** announced that he was stepping down as head of state. On 18 March, the Federal Assembly voted for **Joachim Gauck** to become the eleventh president of the **Federal Republic of Germany** by a substantial majority.

In May 2012, the **French** voted in socialist **François Hollande** as their new president. He replaced **Nicolas Sarkozy** who had completed a five-year term in office.



EUROPEAN UNION (EU)

EU currency union (ECU)

The public debts of some eurozone members, predominantly in the Mediterranean belt, not only influenced the stability of the single currency during the reporting period, but also largely determined the action taken by all of the governments in the economic and monetary union. In the spotlight were, for example, bail-out measures for **Greece** whose level of debt had risen to 160 % of gross domestic product (GDP). The threat of a disordered state bankruptcy in this small country and the resulting spread to the world economy was to be prevented by all available means. With a further bail-out package from the European

Union (EU), the European Central Bank (ECB) and the International Monetary Fund (IMF) totalling over 130 billion euros and a haircut for private creditors (banks, insurance companies and hedge funds), it was initially possible to stave off state bankruptcy for Greece in March 2012. However, at time of going to press Greece's exit from the eurozone was still an option as a result of changes that had taken place in the political situation in the meantime.

Further ECB bail-out measures: The ECB helped relieve heavily indebted eurozone countries of soaring interest payments by buying government bonds from these financially stricken countries. In order to ensure



sufficient liquidity, the ECB flooded the markets with cheap money. Their measures helped to secure the national budgets of the countries concerned as well as stabilise the euro and the global economy.

In July 2010 the eurozone member states set up the **European Financial Stability Facility (EFSF)** with the aim of assisting financially-troubled member states with loans and thus averting adverse consequences for the common currency, the euro. **The European Stability Mechanism (ESM)** is a further measure intended to ensure the stability of the eurozone. It was signed by the 17 member states of the European economic and monetary union in July 2011. This permanent rescue fund has been furnished with a financial capacity of 500 billion euros. Following a transition phase, the ESM is to supersede the European Financial Stability Facility (EFSF). On 30 March 2012, the finance ministers agreed to temporarily combine the EFSF and ESM until mid-2013 and increase the total lending volume of all the rescue facilities to over 800 billion euros.

Fiscal pact for greater budgetary discipline

In March 2012, 25 EU states signed the **fiscal pact for greater budgetary discipline**. Commitment to a strict austerity plan is intended to stem the debt crisis and prevent states from running the risk of further debts mounting up. The European Court of Justice is to assume the role of regulatory body. Of the 27 EU countries, **Great Britain** and the **Czech Republic** opted not to sign the treaty. In **Ireland**, the only country in which the fiscal pact went to a referendum, the majority voted in favour at the beginning of June. Following ratification in all national parliaments, the agreement should come into force at the beginning of 2013 at the latest. Only eurozone countries which have signed the pact qualify to apply for help from the permanent ESM crisis fund in the future.

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

The reform to the Common Agricultural Policy (CAP) should be concluded by 2013. Following a broad-ranging public debate, the Commission has submitted a paper which lays forth options for the future of the CAP and opens the debate with the other institutions and interest groups. On 12 October 2011, the Commission published a package of legislative proposals which aim to make the CAP more effective. The reform is intended to strengthen the competitiveness and sustainability of agriculture and secure its position throughout all rural areas in order to guarantee European citizens the provision of healthy, high-quality food, to preserve the environment and to develop rural areas.

With regard to the hops sector, the Commission proposes the hitherto existing requirement for an attestation of equivalence for the import of hops from non-EU countries to be dispensed with (Directive (EC) No. 1295/2008). Furthermore, Directive (EC) No. 1557/2006 regarding the registration of contracts and communication of data in the hop sector shall no longer be applicable. These measures are designed to reduce the administrative burden on member states and market participants.

The support scheme for hop growers' organisations is only applied in Germany. For this reason, the Commission is proposing to abolish the support scheme in order to adapt procedure within the hop sector to fall in line with that of other agricultural sectors. There should, however, be the possibility of supporting growers' organisations within the framework of development measures for rural areas.

Once the debate on the Commission proposals is concluded in the European Parliament and Council, it is expected that the various regulations and implementing provisions will be adopted by the end of 2013 with the objective of the CAP reform entering into force on 1 January 2014.

ECONOMIC SITUATION



2011 was characterised by mounting concern regarding the critical level of public debt in the western European countries of **Spain, Italy, Portugal, Ireland** and, most particularly, **Greece**. The continued large federal deficit in the **USA** was also a cause for concern.

Notwithstanding this burden, the **gross domestic product (GDP)** of the world economy increased by 3.9 %, compared to 4.7 % the previous year. Above-average growth in the major national economies of **China** (+9.1 %) and **India** (+7.3 %) was the driving force behind this figure. Although **Brazil** only achieved GDP growth of 2.7 % in 2011, it qualifies as one of the fastest-growing emerging economies in the past few years and supplanted the **UK** as the sixth largest economy in the world in 2011.

In Europe, the eurozone countries in particular have been affected by weakened economic development and continued high public debt. The threat of Greek bankruptcy in particular ceased to be a problem limited to the EU and began to threaten the stability of the global economy. Accordingly, GDP growth across all 27 **EU countries** only amounted to 1.6 % for 2011. A significant proportion of this figure can be attributed to growth of 3.0 % in **Germany**. Within Europe, **Turkey** posted a highly impressive growth rate of 8.5 %.

As a consequence of the earthquake and tsunami catastrophe of March 2011, **Japan** – the world's third-largest economy – suffered its first trade deficit since 1980. The GDP decrease amounted to 0.7 % in 2011.



ECONOMIC SITUATION

In order to combat weak economic conditions, central banks in the **EU** and the **USA** took measures to influence economic development. The **US central bank (FED)** kept its prime rate at 0 %. At the same time, the central bank decided to sell long-term government bonds to the tune of 400 billion USD. Short-term bonds were sold for financing purposes. In order to curb an increase in consumer prices, the **European Central Bank (ECB)** increased its key lending rate to 1.5 %, but in a policy U-turn brought it back down to 1.25 % in November 2011 and then to 1.0 % at the beginning of December. The central bank in China was also active, albeit in the opposite direction. Following several amendments in spring 2011, **China's central bank (PBC)** increased its rate further to 6.56 % in July 2011. At the beginning of February 2011, its key interest rate had still stood at 5.81 %.

High national debt, weak economic growth, insufficient austerity and reform measures and negative prospects for growth were justification enough for major **rating agencies** to downgrade the creditworthiness of various eurozone countries. For the first time since it was first awarded in 1941, the USA's top triple-A credit rating was downgraded to AA+ status by one of the three largest rating agencies.

Mounting uncertainty was manifest on the international stock markets in the form of sharp downturns at the end of July. Stock exchanges steadily recovered from the beginning of October, not least as a result of emerging political solutions. From April 2012 Germany's **Dax** index showed a downward trend, and from the beginning of May 2012, the **Dow-Jones** also turned negative. On 31 May 2012, the **Dax** was listing at 6,264 points against 7,294 at the same point the year previous; the **Dow-Jones** was at 12,393 points against 12,570.

The **euro** exchange rate steadily weakened. During the reporting period from June 2011, the highest value recorded was 1.47 USD on 8 June 2011, and the lowest, in light of the pressure of the euro crisis, was 1.24 USD on 31 May 2012 at time of going to press.

Crude oil prices have been running high for years – with far-reaching consequences for the global economy. Within the past 12 months the price for a barrel of Dated Brent FOB Sul. V crude oil reached its highest level of 128 USD on 8 March 2012. Subsequently the price fell, dipping below 103 USD at the end of May.



KEY DATA

USA, JAPAN, GERMANY AND CHINA

The figures for 2009 and 2010 have been revised according to the latest statistics

**) Interest rate for 10-year bonds. China: interest for long-term credits.*

		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	2009	-3.5%	-376.6	-503.6	-0.4%	3.24%	9.3%
	2010	3.0%	-470.9	-634.9	1.6%	3.19%	9.6%
	2011	1.7%	-473.4	-726.7	3.2%	2.76%	9.0%
Japan	2009	-5.5%	146.8	28.5	-1.3%	1.35%	5.1%
	2010	4.4%	203.8	75.6	-0.7%	1.18%	5.1%
	2011	-0.7%	119.7	-32.1	-0.3%	1.13%	4.6%
Germany	2009	-5.1%	195.3	192.7	0.3%	3.26%	8.2%
	2010	3.7%	199.5	205.1	1.1%	2.78%	7.7%
	2011	3.0%	205.3	219.8	2.3%	2.65%	7.1%
China	2009	9.1%	261.1	195.7	-0.7%	5.31%	4.3%
	2010	10.4%	305.4	181.5	3.3%	5.81%	4.1%
	2011	9.1%	201.2	155.0	5.4%	6.56%	4.1%

WORLD BEER PRODUCTION 2010/2011



Europe

Country	2010	2011
Russia	102,930	98,140
Germany	95,683	95,545
United Kingdom	44,997	45,701
Poland	36,000	37,850
Spain	33,375	33,600
Ukraine	31,000	30,510
Netherlands	23,936	23,600*
Czech Republic	17,661	18,191
Belgium	18,123	18,150*
France	15,600	17,100
Romania	17,000	17,000
Italy	12,370	12,510
Turkey	9,670	9,800
Austria	8,670	8,917
Portugal	8,312	8,250*
Ireland	8,249	8,100*
Denmark	6,335	6,300*
Hungary	6,000*	6,000*
Serbia	5,383	5,523
Bulgaria	5,020	5,020
Belarus/ White Russia	3,974	4,690
Sweden	4,319	4,491
Finland	4,235	4,220
Greece	4,050	4,000*
Croatia	3,455	3,589
Switzerland	3,539	3,546
Slovakia	3,110	3,200
Lithuania	2,955	3,000*
Norway	2,436	2,346
Slovenia	1,847	1,973
Latvia	1,460	1,533
Estonia	1,293	1,360
Moldavia	905	1,071
Georgia	825*	923
Bosnia- Herzegovina	837	807
Macedonia	620	630
Albania	450	575
Montenegro	454	437
Cyprus	342	321
Luxembourg	310	303
Iceland	162	167*
Armenia	154	147
Malta	134	136
TOTAL	548,180	549,272

Australia/Oceania

Country	2010	2011
Australia	17,420	17,380
New Zealand	2,995	3,000
Papua-New Guinea	600	700
Tahiti	187*	187*
Fiji Islands	190	181
New Caledonia	134*	137*
Solomon Islands	62	63*
Samoa	63	60
Tonga	9*	10*
Vanuatu	8*	9*
TOTAL	21,668	21,727

America

Country	2010	2011
USA	228,982	225,337
Brazil	128,700	133,000*
Mexico	79,889	81,500*
Venezuela	20,000*	23,500*
Columbia	20,500	21,000*
Canada	19,647	19,515
Argentina	17,500*	17,000*
Peru	11,000	11,500*
Ecuador	5,700*	5,500*
Chile	5,680	5,000*
Dominican Republic	3,200*	3,300*
Cuba	2,586	2,660*
Panama	1,800*	1,800*
Guatemala	1,500*	1,500*
Paraguay	1,500*	1,500*
Costa Rica	1,400*	1,500*
Bolivia	1,300*	1,300*
Nicaragua	950*	950*
Jamaica	930*	950*
Honduras	900*	900*
Uruguay	900*	900*
El Salvador	780*	800*
Puerto Rico	650*	700*
Trinidad	420*	420*
Belize	290*	300*
Guyana	250*	260*
Bahamas	140*	140*
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*
Haiti	30*	20*
Antigua	18	18*
Aruba	16*	16*
Dominica	12	12*
Cayman Islands	4*	4*
TOTAL	557,712	563,340

Asia

Country	2010	2011
China	448,304	489,880
Japan	58,100	56,000
Vietnam	26,500*	27,800*
Thailand	19,950	20,600
India	15,600	18,500
South Korea	18,173	18,497
Philippines	15,700	15,700
Taiwan	5,158	5,132
Kazakhstan	4,824	4,250
Iran	2,000	3,300
Uzbekistan	2,920	3,125
Malaysia	2,530	2,600
Indonesia	1,900	2,250
Laos	1,700	2,000
Cambodia	1,600*	1,800*
Singapore	1,000	1,100
Israel	980*	1,020
Myanmar (Burma)	720	1,000
Sri Lanka	714	875
Mongolia	449	571
Hongkong	470	540
Aserbaidjan	409	441
Nepal	456	425
Tadschikistan	225*	300*
Lebanon	210	202
Turkmenistan	130*	180*
Kirgisistan	120	150
Jordan	78*	80*
Syria	105	79
Pakistan	60	65
Bangladesh	12	12
TOTAL	631,097	678,474

Africa

Country	2010	2011
South Africa	29,600	30,870
Nigeria	17,600	19,596
Angola	7,362	8,200*
Cameroon	5,890	6,000
Kenya	5,100	4,900
Dem. Rep. of the Congo (Zaire)	4,140	4,800
Tanzania	3,373	3,500
Ethiopia	2,740	3,264
Uganda	2,635	3,020
Namibia	2,200	2,300
Zimbabwe	1,505	1,946
Congo (Brazzaville)	1,660	1,837
Ghana	1,721	1,834
Mozambique	1,665	1,830
Burundi	1,670	1,765
Ivory Coast	1,500	1,600
Tunisia	1,420	1,419
Madagascar	1,277	1,239
Gabon	1,100	1,100
Rwanda	960	1,100
Sambia	827	1,040
Algeria	1,050	1,015
Egypt	1,180	1,000*
Burkina Faso	750	900
Morocco	900	850
Benin	700	850
Chad	370	450
Botswana	384	429
Togo	480	400
Mauritius	400	400
Lesotho	373	382
Eritrea	260	260
Réunion	230	236
Sudan	164	221
Guinea (Conakry)	170	220
Malawi	210*	210*
Swaziland	199	209
Equatorial Guinea	250	200
Liberia	127	185
Senegal	150	170
Central African Republic	150	170
Mali	100	110
Sierra Leone	90	108
Niger	65	65
Seychelles	30	60
Guinea-Bissau	45*	45*
Gambia	30	30
Cape Verde	8*	8*
TOTAL	104,810	112,343

World total

	2010	2011
TOTAL	1,863,467	1,925,156

figures in 1,000 hl

in italics: corrections for 2010 as stated in last year's report.

* estimate

A list of the "Top 40 Countries" according to ranking can be found in the Beer Production Market Leaders Report.



BEER OUTPUT DEVELOPMENT

The output volumes for 2010 quoted in last year's report have been revised in some cases.

	2010 1.000 hl	2011 1.000 hl	2010 +/- % rel.	2011 +/- % rel.
European Union	381,386	386,371	-0.1%	1.3%
Rest of Europe	166,794	162,901	-2.8%	-2.3%
Europe total	548,180	549,272	-1.0%	0.2%
North America	328,518	326,352	-2.1%	-0.7%
Central America/Caribbean	15,654	16,018	1.0%	2.3%
South America	213,540	220,970	2.3%	3.5%
America total	557,712	563,340	-0.4%	1.0%
Asia	631,097	678,474	5.6%	7.5%
Africa	104,810	112,343	5.2%	7.2%
Australia/Oceania	21,668	21,727	0.4%	0.3%
WORLD TOTAL	1,863,467	1,925,156	1.7%	3.3%

The adjustments required for the 2010 output figures provided last year showed an increase in beer production that exceeded original calculations by a total of 17 million hl. The most significant correction was for Brazil with an increase of 14.7 million hl.

Taking the updated figures into account, the **total global beer output for 2011 increased by 61.7 million hectolitres** on the previous year – which represents **growth of 3.3 %**. Growth was recorded across every continent – albeit to markedly differing degrees.

China remains top of the table of the major beer producing countries, significantly ahead of the USA, followed by Brazil, Russia and Germany.

Within **Europe**, EU countries were able to compensate

for the decline in output among their European neighbours. The greatest decline recorded in any of the countries was in Russia, with almost 5m hl. Poland and France reported an increase of +1.9m hl and +1.5m hl respectively. Although the USA depressed the statistics for **America** with a decrease in output of 3.6 m hl, positive results in Brazil (+4.3m hl), Venezuela (+3.5m hl) and Mexico (+1.6m hl) contributed to an overall increase of 5.6m hl. The substantial growth in **Asia** of 47.4m hl can be accounted for by increases in China (+41.6m hl), India (+2.9m hl), Vietnam and Iran (+1.3m hl each) and a decrease in Japan (-2.1m hl).

Growth in **Africa** was distributed over many countries. Nigeria and South Africa had the greatest influence on the overall result, with +2m hl and +1.3m hl respectively.



MARKET ANALYSIS

The structural oversupply of the market continued with the 2011 harvest, having thus lasted since harvest 2008. The duration of this continuing surplus is all the more surprising as almost 9,000 ha have been taken out of production worldwide since the 2008 harvest, 3,500 ha of this between the 2010 and 2011 harvests alone.

With approx. 48,500 ha, the hop industry has the smallest acreage since 1955. The considerable over-production of a further approx. 2,500 t of alpha was primarily due to the favourable growing conditions in the two main producer countries the USA and Germany. However, replanting with high alpha and aroma varieties with higher yields and alpha levels, which took place after the 2006 harvest, added considerably to the calculated surpluses.

The calculated accumulated surplus of alpha acids reached almost 10,000 t after the 2011 harvest, which is far in excess of a year's requirement by the brewing industry.

The alpha surplus is not held by the growers or the

hop marketing companies in the form of raw hops. The situation is different for finished products. Products - primarily in the form of pellets and extracts - sold to breweries but not yet delivered are still in the possession of the marketing companies in stores throughout the various countries.

The American and German growers have taken different approaches to the rapidly changing market situation since 2008. Whilst the US acreage is now approx. 500 ha below the level of the 2007 crop, the German acreage has expanded by almost 600 ha over the same period. In the USA, extreme care is taken only to supply the lucrative contracted quantities. This way of operating is facilitated by the fast-growing demand from the hop-hungry domestic craft beer industry. The almost 2,000 breweries belonging to a niche which has grown by 10 – 15 % over the years demand an increasing volume of flavor hops and special varieties. Although this segment only accounts for 5 - 6 % of market share in the USA, it is very important for the US hop industry, as the hopping rate is several

MARKET ANALYSIS



times higher than in mainstream beers. In contrast, in Germany approx. 10 - 15 % of the total volume is automatically spot hops due to the system of unobjectionable forward contract volumes. Since 2009 these hops have only been able to be sold at rock-bottom prices via pools or discounts and sold on at correspondingly low prices to the brewing industry. In conclusion, it can be assumed that in recent years Germany has contributed more to the accumulated surplus than the USA.

What does the future hold? A glance at the contract rates for the 2012 crop reveals a bright picture for the American and German growers. The two countries have substantial forward contract rates of 100 % and 80 % respectively. In both hop-growing nations it can be assumed that some of the forward contracts concluded will not be required by the brewing industry within the next calendar year. In the USA and Germany the forward contract rates are therefore only of limited use as a

yardstick of the structural health of the hop market. In contrast, the low forward contract rates of 40 % in both Slovenia and Poland clearly show the plight of these historic growing regions. Notwithstanding a high forward contract rate of 95 % for the 2012 crop, hop growing in the Czech Republic has gone increasingly on the defensive. The acreage for the main variety Saaz has shown a downward trend for a long time, declining by 800 ha over the last 5 years. The prices achieved on the market are not adequate for the growers to make a reasonable living.

For the forthcoming 2012 harvest, the hop acreage worldwide is expected to fall further. However, clearing will not be sufficient to end the over-production in the high alpha segment. The struggle for market share amongst hop growing nations and growers is set to intensify. This does not bode well in the long term for the health and productivity of hops as an agricultural niche segment.

HOP FORWARD CONTRACT RATES



Forward contract rates (as per spring 2012)

Country	2012	2013	2014	2015
Germany	80%	75%	55%	35%
USA	100%	55%	45%	30%
Czech Republic	95%	90%	85%	75%
Poland	40%	40%	40%	40%
Slovenia	40%	30%	20%	10%
England	65%	45%	20%	10%

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 2012 and the long-term average yield.

For the fourth year in succession, farmers in the **USA** are going into the harvest with the forward contracting rate having already reached 100 % in the spring. Plants were trained only in those areas which were covered by forward contracts. By contrast, a steady decline in forward contracting rates can be observed in **Germany**.

In spring 2009, forward contracts still accounted for 95 % of that year's crop. But it is in **Poland** and **Slovenia** that the contract situation is particularly problematic.

If acreage is cleared, the forward contracting rate will increase correspondingly.

HOP ALPHA ACID PRODUCTION



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

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, NZ Hallertau, Opal, Perle, Saphir, Smaragd, Spalt Select, Sterling, 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.

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

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



HOP ALPHA ACID PRODUCTION

Group I - Fine aroma hops
Czech Republic 43.7 %
(previous year 47.5 %),
Germany 40.2 %
(previous year 35.1 %)

Group II - Aroma hops
Germany 55.1 %
(previous year 50.0 %),
USA 22.0 %
(previous year 23.2 %)

**Group III - Bitter hops/
high alpha hops**
USA 41.7 %
(previous year 43.6 %),
Germany 36.8 %
(previous year 33.0 %)

Minor corrections have been made to the 2010 figures for crop and alpha volume quoted in last year's report.

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

Group	2010					2011				
	Crop share	Crop mt	Alpha Ø	Alpha mt	Alpha share	Crop share	Crop mt	Alpha Ø	Alpha mt	Alpha share
I	12.6%	12,622	3.1%	391	4.1%	10.7%	10,805	3.9%	420	4.1%
II	26.0%	25,976	6.3%	1,649	17.4%	28.4%	28,555	7.2%	2,064	19.9%
III	61.4%	61,301	12.1%	7,437	78.5%	60.9%	61,244	12.8%	7,864	76.0%
TOTAL	100.0%	99,899	9.5%	9,477	100.0%	100.0%	100,604	10.3%	10,348	100.0%

Particularly high yields in **Germany** and exceptionally good alpha acid levels – specifically in **EU** countries and the **USA** – contributed to a global increase in alpha production of 871 mt on the previous year. The average alpha content measured for 2011 reached a record high of 10.3 %.

The results of the 2011 harvest propelled **Germany** into the leading position among the major alpha producers. Having produced 36.1% of world alpha volume in 2010,

it increased its share to 40.6 % in crop year 2011. In the **USA**, which still led with a share of 38.2 % in crop year 2010, the figure for 2011 was only 36.1 % despite increased alpha volume. **China** secured third position with 8.7 %, following a result of 10.2 % in 2010.

The alpha acid values upon which the calculations are based are recorded using the method of EBC analysis 7.4 % as is at the time of processing (ToP).

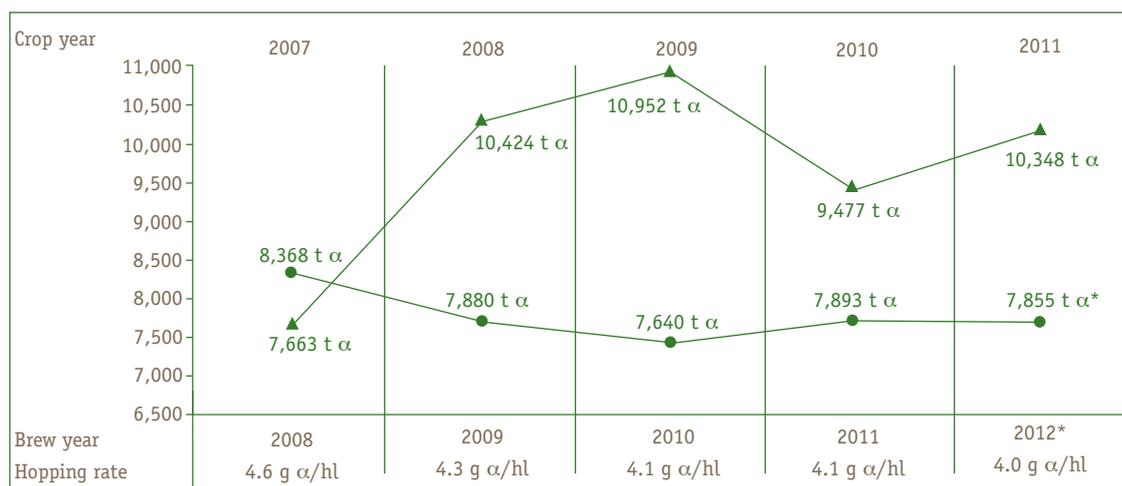


HOP ALPHA ACID BALANCE

Alpha supply

Brew year	Surplus/Deficit
2008	- / -705 t α
2009	+2,544 t α / -
2010	+3,312 t α / -
2011	+1,584 t α / -
2012*	+2,493 t α / -

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



The surplus of alpha produced in the past four crop years reached a total volume of almost 10,000 tonnes. Never before in its history has the hop industry recorded such high alpha acid stock levels. This surplus is attributable almost entirely to the high alpha hop segment.

Although the area under cultivation continues to shrink, the varieties being grown are delivering increasingly high yields in terms of both quantity and alpha.

Estimated alpha demand for the 2012 brewing year is based on an increase in beer output volume of 2 %.

These statistics do not take into account the alpha degradation that occurs during the time between the processing of the hops and their actual use in the brewing industry or the approx. 200 mt of alpha required for use outside the brewing industry.

HOP ACREAGE AND CROP



		2010				2011			
		Acreage ha	Production mt	Ø-Alpha %	Alpha mt	Acreage ha	Production mt	Ø-Alpha %	Alpha mt
Germany	Hallertau	15,387	29,129.6	10.2%	2,982	15,229	32,757.3	11.3%	3,699
	Elbe-Saale	1,379	2,631.0	11.9%	312	1,392	2,882.6	12.0%	347
	Tettnang	1,226	1,798.9	4.9%	88	1,222	1,783.5	5.9%	106
	Spalt	376	641.1	5.4%	35	366	643.7	6.8%	44
	Others	20	33.1	7.2%	2	20	43.4	9.0%	4
	Total	18,386	34,233.8	10.0%	3,419	18,228	38,110.6	11.0%	4,199
Czech Republic	Saaz	3,831	5,620.4	3.5%	194	3,516	4,556.2	4.3%	196
	Tirschitz	742	1,248.1	3.2%	40	592	882.9	4.5%	39
	Auscha	637	903.2	3.5%	31	524	648.8	4.3%	28
	Total	5,210	7,771.7	3.4%	265	4,632	6,087.9	4.3%	263
Poland		1,867	1,866.8	7.5%	140	1,564	2,426.0	9.0%	219
Slovenia		1,391	2,461.7	7.1%	175	1,379	2,470.3	7.7%	190
England		1,070	1,608.2	7.1%	114	1,114	1,425.4	7.3%	104
Spain		508	1,038.6	12.5%	129	533	944.5	12.8%	121
France		580	791.5	4.2%	33	500	657.6	5.5%	36
Romania		245	214.0	8.1%	17	241	166.0	9.4%	16
Austria		234	368.0	8.4%	31	240	449.1	8.5%	38
Slovakia		229	205.0	3.5%	7	221	273.8	4.7%	13
Belgium		186	375.5	9.2%	34	181	254.7	9.4%	24
Bulgaria		160	200.0*	9.0%	18	150*	180.0*	8.8%	16
Portugal		17	22.8	10.5%	2	17	26.6	9.5%	3
Hungary		27	34.0	11.8%	4	6	11.4	11.7%	1
Netherlands		3	3.4	10.0%	0	3	2.6	10.0%	0
	European Union	30,113	51,195.0	8.6%	4,388	29,009	53,486.5	9.8%	5,243
Ukraine		1,184	785.8	5.5%	43	646	681.0	7.0%	48
Russia		274	66.0	6.1%	4	220	200.0	4.9%	10
Turkey		352	359.0	10.1%	36	358	251.7	9.6%	24
Belarus/White Russia		53	55.0	8.0%	4	53	55.0	10.0%	5
Switzerland		18	36.6	8.2%	3	18	37.4	8.8%	3
Croatia		16	21.8	10.6%	2	6	8.0	9.6%	1
Serbia		39	82.0	8.0%	7	0	0.0	0.0%	0
	Rest of Europe	1,936	1,406.2	7.0%	99	1,301	1,233.1	7.4%	91
	EUROPE	32,049	52,601.2	8.5%	4,487	30,310	54,719.6	9.7%	5,334
USA	Washington	9,848	23,701.4	12.6%	2,991	9,437	23,272.9	13.0%	3,022
	Oregon	1,870	3,754.7	9.1%	342	1,701	3,637.7	10.5%	383
	Idaho	943	2,251.0	12.9%	291	917	2,474.1	13.4%	331
		Total	12,662	29,707.1	12.2%	3,624	12,054	29,384.5	12.7%
Argentina		235	258.3	7.4%	19	188	226.1	9.2%	21
Canada		25	17.5	9.0%	2	42	37.8	8.5%	3
	AMERICA	12,922	29,982.9	12.2	3,645	12,284	29,648.4	12.7%	3,761
China	Xinjiang	3,303	8,316.0	6.4%	531	2,725	8,408.0	6.3%	526
	Gansu	2,199	5,805.0	7.5%	434	1,733	4,894.8	7.7%	374
		Total	5,502	14,121.0	6.8%	965	4,458	13,302.8	6.8%
Japan		192	362.9	6.7%	24	181	342.0	6.5%	22
India		45	26.0	12.5%	3	35	19.1	12.0%	2
	ASIA	5,739	14,509.9	6.8%	992	4,674	13,663.9	6.8%	924
South Africa		492	913.0	13.9%	126	456	955.0	15.4%	147
	AFRICA	492	913.0	13.9%	126	456	955.0	15.4%	147
Australia		448	1,098.7	13.1%	144	454	1,044.0	12.1%	126
New Zealand		379	793.0	10.5%	83	350	573.0	9.8%	56
	AUSTRALIA/OCEANIA	827	1,891.7	12.0%	227	854	1,617.0	11.3%	182
	WORLD	52,029	99,898.7	9.5%	9,477	48,528	100,603.9	10.3%	10,348

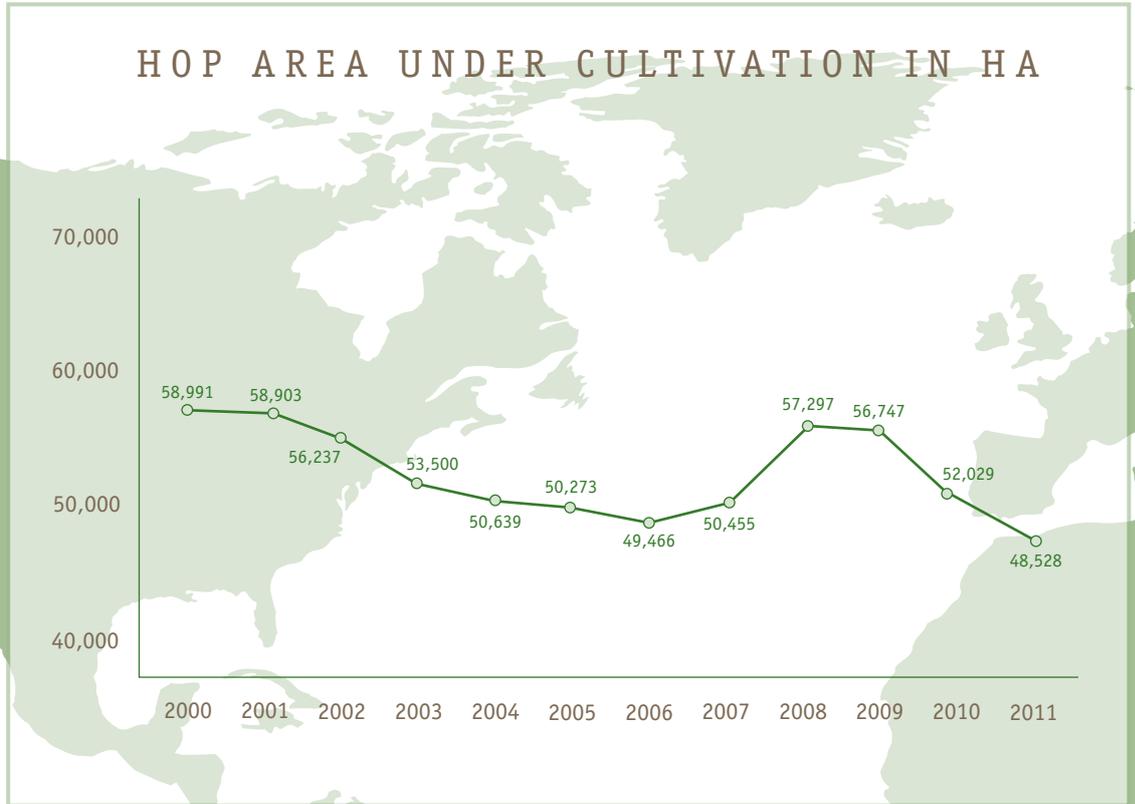
*in italics:
corrections for 2010 as stated
in last year's report.*

** estimate*

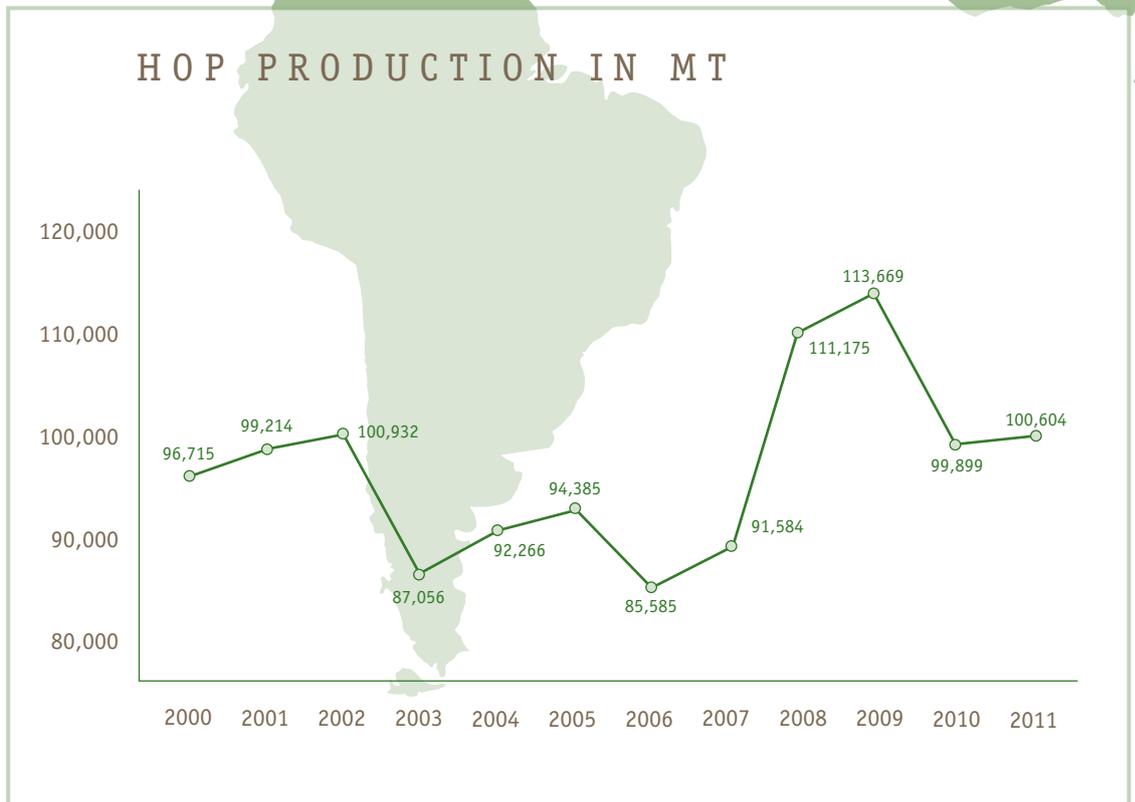
*Rounding differences of the
acreage may cause differences
in addition.*

*In Serbia, hop cultivation was
stopped after crop 2010.*

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 MILL. HL





GERMANY

Alpha production in mt



Rounding differences of the acreage may cause differences in addition.

Area	Variety	Development of acreage			Development of production			
		Acreage ha			Ø Yield mt/ha		Production mt	
		2010	+/-	2011	2010	2011	2010	2011
Hallertau	Perle	3,139	-10	3,129	1.74	2.08	5,464.28	6,492.84
	Hallertau Tradition	2,513	121	2,634	1.69	2.05	4,253.93	5,386.56
	Hersbruck Spaet	755	18	773	1.56	1.90	1,178.46	1,470.03
	Hallertau Mittelfrueh	704	25	729	1.49	1.13	1,048.70	823.88
	Spalt Select	690	-76	614	1.87	2.24	1,287.12	1,376.86
	Saphir	195	25	220	1.91	2.11	372.88	464.35
	Other Aroma	75	-1	74	1.54	1.49	115.33	110.14
	Total Aroma	8,070	102	8,172	1.70	1.97	13,720.70	16,124.66
	Northern Brewer	248	-28	220	1.67	1.65	414.06	362.60
	Other Bitter	27	-2	25	2.15	2.21	57.94	55.14
	Total Bitter	275	-30	245	1.72	1.71	472.00	417.74
	Hallertau Magnum	3,340	-176	3,164	1.99	1.89	6,633.05	5,991.35
	Herkules	2,350	72	2,422	2.51	3.11	5,895.07	7,543.93
	Hallertau Taurus	1,025	-100	925	1.72	2.18	1,763.14	2,012.13
	Nugget	236	-23	213	2.10	2.40	495.14	511.75
Hallertau Merkur	63	-11	52	1.74	1.93	109.89	100.61	
Other High Alpha	4	0	4	1.68	1.58	6.50	6.30	
Total High Alpha	7,018	-238	6,780	2.12	2.38	14,902.79	16,166.07	
Other	24	7	31	1.42	1.58	34.15	48.87	
Total Hallertau	15,387	-158	15,229	1.89	2.15	29,129.64	32,757.34	
Elbe-Saale	Perle	152	1	153	1.76	2.06	267.84	314.56
	Hallertau Tradition	28	5	33	1.60	1.63	44.70	53.69
	Other Aroma	8	0	8	1.26	1.56	9.74	11.98
	Total Aroma	188	5	193	1.71	1.97	322.28	380.23
	Northern Brewer	127	-2	125	1.59	1.70	201.66	212.21
	Total Bitter	127	-2	125	1.59	1.70	201.66	212.21
	Hallertau Magnum	854	14	868	1.98	2.01	1,687.18	1,745.54
	Herkules	136	-2	134	2.14	2.97	291.44	398.48
	Other High Alpha	66	-3	63	1.85	2.18	121.99	137.48
	Total High Alpha	1,056	10	1,066	1.99	2.14	2,100.61	2,281.50
Other	8	0	8	0.80	1.07	6.46	8.68	
Total Elbe-Saale	1,379	13	1,392	1.91	2.07	2,631.01	2,882.62	
Tettngang	Tettngang	772	4	776	1.32	1.27	1,016.03	987.52
	Hallertau Mittelfrueh	284	-21	263	1.46	1.40	415.77	367.95
	Perle	78	2	80	2.06	2.14	160.95	171.09
	Other Aroma	57	11	68	1.94	2.08	110.76	141.71
	Total Aroma	1,191	-5	1,186	1.43	1.41	1,703.51	1,668.27
	High Alpha	34	0	34	2.77	3.38	94.09	114.95
	Other	1	0	1	1.95	0.52	1.31	0.28
Total Tettngang	1,226	-4	1,222	1.47	1.46	1,798.91	1,783.50	
Spalt	Spalt Select	104	-5	99	1.86	2.27	193.69	224.27
	Spalt	91	0	91	1.33	1.06	121.34	96.78
	Hallertau Mittelfrueh	80	-8	72	1.56	1.31	124.92	94.54
	Other Aroma	60	4	64	1.97	1.98	118.33	126.59
	Total Aroma	336	-10	326	1.66	1.66	558.28	542.18
	High Alpha	40	0	40	2.07	2.54	82.83	101.56
Total Spalt	376	-10	366	1.71	1.76	641.11	643.74	
Rheinp./ Bitburg	Aroma	16	0	16	1.71	1.95	27.17	30.84
	High Alpha	4	0	4	1.54	3.26	5.97	12.58
	Total Rheinp./Bitb.	20	0	20	1.68	2.20	33.14	43.42
Total Aroma		9,800	95	9,895	1.67	1.89	16,331.94	18,746.18
Total Bitter		402	-32	370	1.68	1.70	673.66	629.95
Total High Alpha		8,152	-228	7,924	2.11	2.36	17,186.29	18,676.66
Total Others		33	6	39	1.28	1.47	41.92	57.83
GERMANY TOTAL		18,386	-158	18,228	1.86	2.09	34,233.81	38,110.62



Farm Structure

The decline in the number of hop-growing farms continued. Of the 1,435 producers counted at the time of the 2010 harvest, only 1,377 remained in crop year 2011. This corresponds to a reduction of 58 farms in Germany. 1,119 growers remained in the Hallertau region (-45). At the same time, acreage decreased by one percent. Comparing the two crop years, the national average hop acreage per farm rose from 12.8 ha to 13.2 ha. In the Hallertau hop-growing region the average acreage per farm rose from 13.2 to 13.6 ha.

Growth, Crop Estimate and Weights

The 2010/2011 winter started with a very cold December with frequent snowfall. However, after the turn of the year there were only occasional frosty periods, and January and February were mainly characterised by mild thaw conditions. Towards the end of the winter the soil water storage was at capacity and the mainly good soil structure created optimum conditions for the start of the growing season. In March, mild and largely dry conditions produced an early start to growth. Soils dried out quickly and, from the middle of the month, the ground was suitable for vehicles for the customary spring work. The weather conditions in April remained sunny and were very dry and warm, with above-average temperatures. Although only about half of the normal rainfall fell during March and April, the hop plants grew quickly and in most hop gardens training was completed in the first week of May. Apart from some local thundery showers, the dry weather continued during May and led to the soil becoming increasingly dry. However, due to their deep root systems, the hop plants had adequate water supplies. The above-average temperatures accelerated plant growth, which resulted in growth being approximately 10 to 12 days ahead of the long-term average from about the middle of May.

On the evening of 6 June 2011 there was a severe storm with hail in the south-eastern Hallertau region. In some places, up to 100 % of plants had broken tops, with plants being completely destroyed in some cases. The hail was accompanied by heavy rain which also caused serious erosion damage. In total, a hop acreage of approx. 800 to 1,100 ha was affected to varying degrees.

After the prolonged dry period in the spring, changeable weather conditions with thundery showers brought the longed-for precipitation in June. With plant development still being ahead of normal, the varieties **Northern Brewer**, **Hallertau Mittelfrueh** and **Hallertau Magnum** showed signs of early flowering even in the first ten days of June. July was much too cool and very wet, which slowed the hop plants' development to such an extent that by the end

of the month growth was only about 4 to 5 days ahead of the long-term average. The weather also created optimum conditions for flower formation and, with the exception of the early-flowering stands of the variety **Hallertau Mittelfrueh**, the hops were able to develop well. On the other hand, the ongoing rainfall necessitated intensive plant protection measures which mostly had to be carried out in very short time slots.

From the start of July the first signs of wilt attack appeared in high-risk areas. After a few hot days in the middle of August the wilt attack worsened in the affected hop gardens and caused considerable reductions in yield in places, especially in susceptible varieties such as **Hallertau Mittelfrueh**. This also heightened expectations of a deterioration in visual quality.

However, the majority of hop stands were able to ripen under ideal conditions and develop good to very good alpha contents. By the time that the hops were harvested the advance in growth had completely disappeared and the early varieties were ready for picking from 25 August.

The 2011 harvest volume exceeded the previous year's by 3,876.81 mt despite the reduced acreage. Even in comparison with the estimate made in August 2011, the actual volume harvested reached a higher level, exceeding the estimate by 1,651.87 mt or 4.5 %, although in the smaller Tett nang and Spalt growing regions the yield was below the estimated quantity.

Acreage and Variety Development

The hop acreage in Germany fell by 158 ha in 2011. This change is based primarily on three varieties: an increase in area of **Hallertau Tradition** (+133 ha) and a reduction in area of **Hallertau Magnum** (-163 ha) and **Hallertau Taurus** (-101 ha). The changes for the individual variety groups were as follows: aroma +95 ha (1.0 %), bitter -32 ha (7.9 %), high alpha -228 ha (2.8 %).

Beside the varieties **Saphir** and **Hallertau Tradition** which exhibit distinctly fruity notes in the raw hops, four new hop varieties with special aroma components were released for cultivation in Germany in spring 2012. Specialists have described the aromas of these new varieties as menthol/coolmint aroma, a gooseberry wine-like aroma or a fruity aroma with mandarin orange notes. This should ensure that the growing demand from brewers for "flavor hops" will also be able to be met by Germany in future.



GERMANY

In the last five years acreage developed as follows:

Variety	2007 ha	2008 ha	2009 ha	2010 ha	2011 ha
Perle	3,246	3,297	3,380	3,403	3,396
Hallertau Tradition	2,457	2,503	2,605	2,624	2,757
Hallertau Mittelfrueh	2,082	2,034	1,150	1,069	1,065
Tettnang	725	731	765	772	776
Hersbruck Spaet	747	740	768	758	776
Spalt Select	846	842	841	801	719
Saphir	186	187	185	196	225
Spalt	92	90	84	91	91
Other Aroma	56	77	87	87	89 ¹⁾
Total Aroma	10,437	10,502	9,866	9,800	9,895
Northern Brewer	471	438	401	375	345
Other Bitter	31	32	27	27	25 ²⁾
Total Bitter	502	471	427	402	370
Hallertau Magnum	4,263	4,277	4,266	4,202	4,039
Herkules	868	1,868	2,388	2,542	2,614
Hallertau Taurus	1,146	1,140	1,106	1,054	953
Nugget	290	281	279	266	244
Other High Alpha	137	120	106	89	75 ³⁾
Total High Alpha	6,704	7,686	8,145	8,152	7,924
Other	28	37	34	33	39 ⁴⁾
GERMANY TOTAL	17,671	18,695	18,472	18,386	18,228

Share per variety group in 2011:

Aroma varieties 54 %

Bitter varieties 2 %

High alpha varieties 43 %

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

1) Other aroma varieties include: Hersbruck Pure, Opal, Saaz, Smaragd

2) Other bitter varieties include: Brewers Gold

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

4) Others include: Record, others/breeding selections

Market Development

There was no activity worth mentioning on the contract market after the finish of the 2010 harvest until the end of the year. From the start of 2011 one hop marketing company offered its growers follow-up and extension contracts for selected varieties. For example, contracts were offered for the variety **Hallertau Mittelfrueh** at 6.00 EUR/kg starting from 2011 until 2015 at the latest, for **Hallertau Tradition** at 3.20 EUR/kg starting from 2011, at 3.50 EUR/kg from 2012, at 3.60 EUR/kg from 2013 and at 3.70 EUR/kg from 2014 and 2015; and for **Perle** at 2.50 EUR/kg starting from 2011, at 3.40 EUR/kg from 2012, at 3.50 EUR/kg from 2013 and at 3.60 EUR/kg from 2014. In addition, producers were able to conclude long-term forward contracts for the high alpha variety **Herkules** at 15.00 EUR/kg alpha acid starting in 2013 and with an annual price increase of 0.50 EUR/kg alpha acid for each further contract year, i.e. 15.50 EUR in 2014, 16.00 EUR in 2015, etc. In summer a very limited amount of **Hallertau Mittelfrueh** was contracted at 6.50 EUR/kg on a short-term contract period. In September producers were able to conclude forward contracts for the variety **Herkules** for the following prices per kg alpha: 10.00 EUR for the 2012 crop, 12.50 EUR for 2013, 15.00 EUR for 2014 and a price increase of 0.50 EUR per kg alpha for each succeeding crop year up to 17.00 EUR per kg alpha acid for the 2018 crop.

Just before the 2011 harvest, one hop merchant offered selected producers purchase contracts for their total harvested volume of the varieties **Hallertau Tradition** and **Perle** with a price guarantee of a minimum of

2.00 EUR/kg in the corresponding crop year.

The first activity on the 2011 spot market started at the end of September. 7.50 EUR/kg alpha acid was offered for high alpha varieties. The hop growers' cooperative (HVG) followed with their annual hop pool and the remaining hop traders also purchased spot hops in pools or offered incentives, in some cases with restrictions in terms of varieties and quantities. Beside the 7.50 EUR/kg alpha acid offered for bitter and high alpha varieties, the only fixed purchase prices offered were for **Hallertau Mittelfrueh** at 6.00 EUR/kg and for **Perle** at 1.00 EUR/kg. The bids for purchasing non-contracted hops were rounded off with initiatives offering advance payment prices of 0.30 EUR/kg for the varieties **Hersbruck Spaet**, **Spalt Select**, **Northern Brewer**, **Brewers Gold**, **Nugget** and **Target**, 0.80 EUR/kg for **Perle**, **Hallertau Merkur** and **Hallertau Magnum** and 1.00 EUR/kg for **Hallertau Tradition**, **Saphir**, **Herkules** and **Hallertau Taurus**.

In Tettnang all non-contracted hops of the variety **Tettnang** were sold at a fixed price of 6.20 EUR/kg. There were no fixed-price offers for **Hallertau Mittelfrueh** spots. However the hops were purchased at advance payment prices of 2.00 to 3.00 EUR/kg. Within only a few weeks, a large proportion of the spot hops had been sold via pools or initiatives or various fixed-price offers at the first trading level.

In March 2012 one marketing company offered contracts for the variety **Hersbruck Spaet** with the



following conditions: 3.60 EUR/kg for the 2013 crop year, 3.70 EUR/kg for 2014, 3.80 EUR/kg for 2015, 3.90 EUR/kg for 2016 and 4.00 EUR/kg for 2017. In addition the producers also received contract offers for the high alpha variety **Herkules** starting at 10.00 EUR/kg alpha acid for the 2012 crop year, 12.50 EUR for 2013, 15.00 EUR for 2014, 15.50 EUR for 2015 and 16.00 EUR for 2016 and an annual price increase of 1.00 EUR/kg alpha acid for each subsequent year, i.e. 17.00 EUR for 2017, 18.00 EUR for 2018, 19.00 EUR for 2019 and 20.00 EUR for 2020.

The prices for non-contracted hops and the contracts offered on the hop market clearly indicate that the market continues to be under pressure due to unprecedented overproduction, with no sign of the market recovering in the near future. The fact that there has been some demand for and trade in limited

amounts of particular varieties, albeit at relatively low prices, cannot disguise the necessity that only the systematic clearance of all hop acreage that is not under contract will result in an improvement in market conditions.

Alpha Acids

The average crop yields and alpha acid levels achieved in the 2011 crop year were not only higher than those of the previous years for all variety groups, but also above the average of the last 10 years and the last 5 years respectively. This resulted in an alpha yield which was 780 mt, or 23 %, higher than in the previous year.

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).

Area	Variety	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Ø 5 Years	Ø 10 Years
Hallertau	Hallertau Mittelfrueh	4.6	3.1	4.3	4.4	2.4	3.9	4.4	4.2	3.8	5.0	4.3	4.0
	Hersbruck Spaet	3.2	2.1	3.0	3.5	2.2	2.6	2.9	3.4	3.5	4.5	3.4	3.1
	Saphir	-	-	3.4	4.1	3.2	4.6	5.1	4.5	4.5	5.3	4.8	-
	Opal	-	-	-	-	-	7.4	9.4	9.0	8.6	9.7	8.8	-
	Smaragd	-	-	-	-	-	6.1	6.7	6.4	7.4	8.0	6.9	-
	Perle	8.6	3.9	6.4	7.8	6.2	7.9	8.5	9.2	7.5	9.6	8.5	7.6
	Spalt Select	6.0	3.2	4.9	5.2	4.3	4.7	5.4	5.7	5.7	6.4	5.6	5.2
	Hallertau Tradition	7.2	4.1	6.3	6.3	4.8	6.0	7.5	6.8	6.5	7.1	6.8	6.3
	Northern Brewer	10.1	6.0	9.8	9.8	6.4	9.1	10.5	10.4	9.7	10.9	10.1	9.3
	Hallertau Magnum	14.6	11.7	14.8	13.8	12.8	12.6	15.7	14.6	13.3	14.9	14.2	13.9
Elbe-Saale	Nugget	12.4	8.5	10.6	11.3	10.2	10.7	12.0	12.8	11.5	13.0	12.0	11.3
	Hallertau Taurus	16.5	12.3	16.5	16.2	15.1	16.1	17.9	17.1	16.3	17.4	17.0	16.1
	Hallertau Merkur	-	-	13.5	13.3	10.3	13.0	15.0	14.8	12.6	15.2	14.1	-
	Herkules	-	-	-	-	-	16.1	17.3	17.3	16.1	17.2	16.8	-
	Hallertau Magnum	13.9	10.2	14.0	14.4	12.4	13.3	12.2	13.7	13.1	13.7	13.2	13.1
Tett nang	Tett nang	4.6	2.6	4.7	4.5	2.2	4.0	4.2	4.2	4.0	5.1	4.3	4.0
	Hallertau Mittelfrueh	4.8	3.1	5.0	4.8	2.6	4.3	4.7	4.5	4.2	5.1	4.6	4.3
Spalt	Spalt	4.6	3.1	4.4	4.3	2.8	4.6	4.1	4.4	3.7	4.8	4.3	4.1

The alpha acid values in 2011 were very good. Some varieties achieved record levels.

values in %

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 Weihenstephan, 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 as a result of the 2003 harvest. It is a contractual provision used solely in forward contracts for aroma hops. The average values serve as the basis for parties concluding new supply contracts containing an alpha clause.



CZECH REPUBLIC

Alpha production in mt



Variety	Development of acreage Acreage ha			Development of production Ø Yield mt/ha Production mt			
	2010	+/-	2011	2010	2011	2010	2011
Saazer	4,557	-518	4,039	1.44	1.24	6,568.5	5,020.2
Premiant	277	-21	256	1.81	1.83	502.0	467.2
Sládek	277	-27	250	1.94	1.95	538.2	487.8
Other Aroma	7	4	11	1.06	1.34	7.4	14.7
Total Aroma	5,118	-562	4,556	1.49	1.31	7,616.1	5,989.9
Agnus	61	-9	52	2.08	1.63	127.0	84.7
Other High Alpha	9	-6	3	1.19	1.07	10.7	3.2
Total High Alpha	70	-15	55	1.97	1.60	137.7	87.9
Other	22	-1	21	0.81	0.48	17.9	10.1
CZECH REPUBLIC TOTAL	5,210	-578	4,632	1.49	1.31	7,771.7	6,087.9

Farm Structure

The strained market situation led both to a decline in the number of hop farms and to a reduction in hop acreage. After the 2010 harvest 10 farms ceased production. The remaining 123 farmers cultivated a hop area averaging 37.7 ha per farm, compared to 39.2 ha the previous year.

Acreage/Production/Alpha Content

The reduction in acreage affected all the Czech Republic's growing regions and varieties: **Saaz** -315 ha, **Tirschitz** -150 ha and **Auscha** -113 ha. The **Saaz** variety saw a dramatic reduction in acreage of over 11 %.

Spring was very dry, with above-average temperatures. Very heavy rainfall in July and August created problems for crop protection. Over-ripening due to early flowering of the **Saaz** hops and serious infestation by downy mildew had widespread adverse effects on visual quality. Nevertheless, following above-average yields in 2010, the 2011 crop year also brought good per-hectare yields.

In addition, the alpha levels were above the long-term average. The 2011 values in comparison to the previous year were: **Saaz** 3.7 % (2.8 %), **Sládek** 6.5 % (5.8 %) and **Premiant** 7.9 % (6.6 %). However, the alpha yield fell by 1 % in comparison to the previous year due to the reduced acreage and lower yields.

Market Situation

Despite the difficult marketing situation at the time of the 2011 harvest, especially for the **Saaz** variety, most of the expected crop was sold on the basis of forward contracts. The above-average yields led to an unexpectedly large volume of spot hops. In addition,

the market was burdened with hundreds of tonnes of unsold hop products from the 2010 crop. Some growers therefore decided to leave approx. 100 ha of **Saaz** hops unharvested.

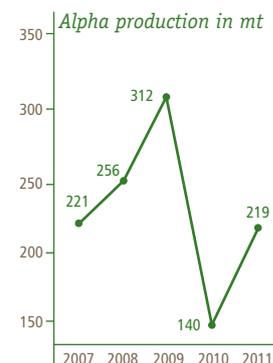
In September 2011, under pressure from the hop growers, the producers' organisation Chmelarstvi decided to take their members' non-contracted hops into a pool: however without any advance payment. The spot market situation was worsened by the fact that most large buyers have an oversupply of hops of the **Saaz** variety. Due to less than acceptable visual quality in many lots, these buyers were only reluctantly willing to accept the agreed forward-contracted quantities, despite high alpha levels. The outcome of this was that the price for one of the finest aroma varieties in the world fell to an all-time low. As a result, increasing numbers of enquiries were received from breweries who showed an interest in the now very low-priced **Saaz** variety and stocked up on hop products.

The stocks from the 2010 harvest were thus cleared and those from the 2011 harvest were all but sold out. A bitter after-taste remains for the farmers as they were not in a position to sell their hops at prices that covered their costs.

The future development of the hop-growing area will depend on whether the producers obtain offers of long-term contracts at economically viable prices. Hop acreage is expected to be approx. 200 ha smaller in the 2012 crop year.



Variety	Development of acreage Acreage ha			Development of production Ø Yield mt/ha Production mt			
	2010	+/-	2011	2010	2011	2010	2011
Lubelski	385	-137	248	0.52	1.11	200.9	276.2
Perle	98	-2	96	1.15	1.54	112.8	147.4
Hallertau Tradition	66	2	68	1.03	1.56	68.3	105.9
Other Aroma	10	-3	7	0.35	0.74	3.5	5.2
Total Aroma	559	-140	419	0.69	1.28	385.5	534.7
Marynka	698	-141	557	1.07	1.62	745.0	902.4
Other Bitter	41	2	43	0.69	1.14	28.1	49.1
Total Bitter	739	-139	600	1.05	1.59	773.1	951.5
Hallertau Magnum	533	-11	522	1.29	1.73	688.2	904.3
Other High Alpha	36	-13	23	0.56	1.54	20.0	35.5
Total High Alpha	569	-24	545	1.24	1.72	708.2	939.8
POLAND TOTAL	1,867	-303	1,564	1.00	1.55	1,866.8	2,426.0



Rounding differences of the acreage may cause differences in addition.

Farm Structure

The number of hop growers fell sharply for the second year in succession. In crop year 2011 there were 689 active producers, 179 fewer than in 2010, which means 32 % of farms abandoned hop growing within the space of two years. With acreage declining in parallel, there was only a slight increase in average farm size from 2.1 to 2.3 ha.

Acreage/Production/Alpha Content

The aroma variety **Lubelski** (-36 %) and the bitter variety **Marynka** (-20 %) were the main ones affected by hop clearance. Some of the areas in the Wilkow region affected by flooding in 2010 were replanted. In total the hop-growing area in Poland declined by 16 %. The spring work got off to a later start than in Western Europe. A severe frost in the smaller growing region in Western Poland on 3 and 4 May caused varying degrees of damage, ranging from the shoot tips to the entire shoots. Weather conditions thereafter permitted the plants to grow almost normally. Cool temperatures and above-average precipitation in August led to the spread of downy mildew. It was often almost impossible to treat the plants, as many hop gardens were unsuitable for vehicles due to the weather conditions. This caused a drop in quality in the **Lubelski** variety in some cases.

Whilst yields were around average, the alpha acid contents reached above-average levels: aroma varieties 4.9 % (2010: 3.7 %), bitter/high alpha varieties 10.2 % (2010: 8.5 %). With normal yields and good alpha content levels, the alpha volume rose by 57 % in comparison with the previous harvest which had been affected by floods.

Market Situation

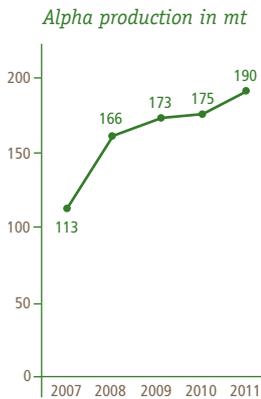
Approx. 60 % of the volume harvested was sold under forward contracts. Growers received 14.00 PLN/kg (3.20 EUR) for **Lubelski** and between 12.00 and 13.00 PLN/kg (2.75 - 3.00 EUR) for **Marynka** and **Hallertau Magnum** and 13.00 PLN/kg for **Hallertau Tradition** and **Perle**. In addition, hops were sold under agreements made between the farmers and Polish traders and also with the smaller breweries for the supply of hops in specific quantities but without fixed price agreements. The price paid for these hops averaged 10.00 to 11.00 PLN/kg (2.30 - 2.50 EUR) across all varieties. On the spot market, the growers made 2.00 PLN/kg (0.45 EUR) for **aroma varieties** and for **Marynka** hops. The spot price for **Hallertau Magnum** was 4.00 PLN/kg (0.90 EUR). The entire crop volume is more or less cleared.

In an attempt to improve the marketing prospects for their hops, the hop growers tried to persuade the Polish brewing industry to purchase Polish hops with the involvement of the government. The political pressure combined with the forthcoming 2012 European football championships in Poland obviously prompted some breweries to use Polish hop products to meet their hop requirements. However, the price level achieved corresponds to the current international market situation. Particularly when it comes to bitter/high alpha hops, Poland does not have any varieties that can compete with German or American varieties. In addition, the sharp rise in production costs has made economically viable hop production particularly difficult.

Hop acreage is likely to decline by at least another 10%. In spring 2012 the forward contract rate was approx. 40 %.



SLOVENIA



Variety	Development of acreage Acreage ha			Development of production			
	2010	+/-	2011	Ø Yield mt/ha		Production mt	
Aurora	845	-33	812	1.79	1.92	1,516.7	1,558.2
Styrian Golding (Celeia)	140	39	179	2.54	2.25	355.6	402.8
Savinjski Golding	186	-17	169	1.25	1.08	232.1	182.7
Bobek	132	-16	116	1.85	1.87	244.4	216.9
Other Aroma	16	4	20	1.23	0.99	19.6	19.7
Total Aroma	1,319	-23	1,296	1.80	1.84	2,368.4	2,380.3
Magnum	64	-5	59	1.10	1.19	70.1	70.0
Other High Alpha	8	16	24	2.90	0.83	23.2	20.0
Total High Alpha	72	11	83	1.30	1.08	93.3	90.0
SLOVENIA TOTAL	1,391	-12	1,379	1.77	1.79	2,461.7	2,470.3

Farm Structure

The number of farmers involved in hop growing remained unchanged at 133 producers for the third year in a row. The average trellised area per farm fell marginally from 10.5 to 10.4 ha following a minor reduction in total acreage in the 2011 crop year compared to 2010.

Acreage/Production/Alpha Content

Total hop-growing acreage changed only slightly. Changes took place in the varietal mix, with the acreage of aroma varieties being reduced and that of the high alpha varieties being slightly increased.

Slovenia had higher rainfall in spring than the rest of Europe, leading to excellent plant development. As the year progressed, beside periods with mid-summer temperatures, well distributed precipitation repeatedly ensured adequate cooling and a good supply of water for the soil. Hops of the main variety **Aurora** produced even better yield and alpha content results than the already exceptional values recorded in the previous crop year. Yield was up 35 % and alpha content up 19 % on the long-term average. The **Bobek** and **Styrian Golding (Celeia)** varieties also achieved above-average yields and alpha contents. The **Savinjski Golding**, **Cerera** and **Magnum** varieties again yielded below-average production volumes.

The alpha contents of the important varieties in detail (2010 values in brackets): **Aurora** 9.1 % (8.6 %), **Savinjski Golding** 3.8 % (3.3 %), **Styrian Golding (Celeia)** 4.1 % (4.1 %), **Bobek** 5.7 % (4.3 %). The improved alpha contents resulted in an 8 % higher alpha yield in comparison to 2010.

Market Situation

At harvest around 40 % of the crop had already been sold by the producers under forward contracts at prices of 3.50 EUR/kg for **Aurora**, 4.50 EUR/kg for **Styrian Golding**, 6.00 EUR/kg for **Savinjski Golding** and 2.20 EUR/kg for **Bobek**.

Amongst buyers the main variety **Aurora** faced strong competition from the German variety **Perle**. The wide availability of the **Perle** variety and its extremely high alpha values brought demand for **Aurora** to a complete standstill. The price for spot hops fell to 1.00 EUR/kg. Even at this price it was not possible to place the whole quantity on the market. The hopeless market situation for **Aurora** prompted some growers to leave their harvested hops uncertified in order to save on this cost. Some Slovenian marketers were unable to meet their contractual obligations and reduced their contracts with the growers in terms of both quantity and price. In contrast, the **Styrian Golding** variety was very popular. The spot prices ranged from 4.00 to 4.70 EUR/kg. However, this variety was often bought by the breweries as a substitute for the Slovenian regional variety **Savinjski Golding**. This in turn led to a surplus of the actually more expensive **Savinjski Golding** variety which then became available on the spot market at prices below those of the **Styrian Golding** variety. The price for hops of the **Bobek** variety was 1.00 EUR/kg.

In spring 2012 unsold stocks from the 2011 crop totalled approx. 250 mt, mostly of **Aurora**. Producers also have stocks of approx. 100 mt of hops from 2009 and earlier crops.

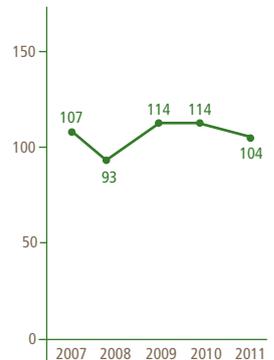
The Slovenian hop growers' production methods are state-of-the-art and hops of very good quality are produced. However, farmers are faced with extremely difficult conditions due to the low forward contract rate of approx. 40 % and its declining trend over the coming years, the interchangeability of the Slovenian hop varieties and the situation on the world market. Acreage is therefore set to be reduced to approx. 1,170 ha in 2012.

ENGLAND



Variety	Development of acreage Acreage ha			Development of production Ø Yield mt/ha Production mt			
	2010	+/-	2011	2010	2011	2009	2011
Golding	276	-9	267	1.69	1.38	466.5	369.5
First Gold	135	14	149	0.96	0.74	129.4	109.7
Fuggle	92	-3	89	1.85	1.53	169.9	136.4
Challenger	82	-3	79	1.80	1.52	147.6	119.7
Other Aroma	229	27	256	1.12	1.28	255.4	326.6
Total Aroma	814	26	840	1.44	1.26	1,168.8	1,061.9
Target	108	-6	102	1.67	1.34	180.3	136.6
Pilgrim	75	13	88	1.79	1.42	134.4	125.4
Other High Alpha	73	11	84	1.71	1.21	124.7	101.5
Total High Alpha	256	18	274	1.72	1.33	439.4	363.5
ENGLAND TOTAL	1,070	44	1,114	1.50	1.28	1,608.2	1,425.4

Alpha production in mt



Farm Structure

In 2011, one farm stopped growing hops. At the same time, hop-growing acreage in England increased by 4%. The 55 farms operating in harvest 2011 had an average hop-growing acreage of 20 ha. In the preceding year this figure was one hectare less per farm.

Acreage/Production/Alpha Content

In addition to new plantings there were changes in the variety mix, both in the aroma variety group and in the high alpha segment. The biggest increase was in the acreage planted with the aroma varieties **Progress** (17 ha) and **First Gold** (14 ha) and the high alpha variety **Pilgrim** (13 ha).

The lack of precipitation from early March to early June, combined with extremely hot conditions, caused growers to doubt the likelihood of a good harvest. In the end, the crop volume harvested was almost up to the average, with generally good aroma and good quality. The alpha acid levels in the hops were above the long-term average, the only exception being the variety **First Gold**. Details of the average values for

2011 (2010 results in brackets): **Golding** 5.1 % (4.8 %), **First Gold** 7.4 % (8.2 %), **Fuggle** 4.8 % (4.5 %), **Challenger** 7.3 % (7.4 %), **Target** 10.3 % (10.5 %). The alpha yield in 2011 was 9 % lower than in the previous year.

Market Situation

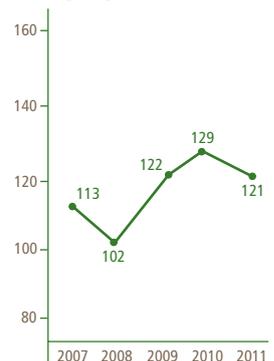
At the start of the harvest 80 % of the 2011 crop was under forward contract. Domestic demand for spot hops was relatively low, whereas the export market was more lively. Although the prices declined slightly, they were still above those of comparable European varieties. At the end of March around 65 % of the new 2012 crop had been sold under contract. The planted acreage remains unchanged. However, to keep overproduction in check, the number of strings per hectare will be reduced. Some farmers want to return to planting varieties which were grown in England in the past but in the meantime are no longer cultivated. These are varieties such as **Bullion** and **Cascade** which are thought to belong to the "flavor hops" category.

SPAIN



Variety	Development of acreage Acreage ha			Development of production Ø Yield mt/ha Production mt			
	2010	+/-	2011	2010	2011	2010	2011
Aroma	1	0	1	0.40	0.40	0.4	0.4
Nugget	492	11	503	2.05	1.78	1,010.7	894.1
Columbus	11	15	26	1.95	1.74	21.4	45.3
Magnum	4	-1	3	1.53	1.57	6.1	4.7
Total High Alpha	507	25	532	2.05	1.77	1,038.2	944.1
SPAIN TOTAL	508	25	533	2.04	1.77	1,038.6	944.5

Alpha production in mt





SPAIN

Farm Structure

240 growers were involved in hop growing, 7 fewer than in the previous year. The average acreage per farm rose from 2.2 ha in 2010 to 2.4 ha in the 2011 crop year.

Acreage/Production/Alpha Content

The acreage planted with the main variety **Nugget** expanded slightly while that of the variety **Columbus** more than doubled. Overall, acreage increased by 5 %. Very variable weather conditions, especially towards the end of the growing season, led to significantly below-average yields.

Following the very good alpha acid result in crop year

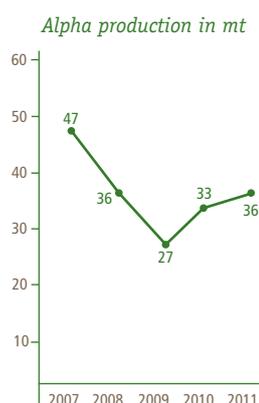
2010, with content in **Nugget** hops reaching 12.4 %, crop year 2011 produced an even higher average value of 12.7 %. However, due to the poor yield per hectare, the alpha volume produced remained 7 % below that of the previous year.

Market Situation

The total yield for crop year 2011 had already been sold to the domestic brewing industry before harvest. The growers netted an average of 4.01 EUR/kg. No further increase in acreage is anticipated. Based on average yields and a constant area under cultivation, the total crop volume for the years up to and including 2015 is under forward contract.



FRANCE



Rounding differences of the acreage may cause differences in addition.

Area	Variety	Development of acreage			Development of production			
		Acreage ha			Ø Yield mt/ha		Production mt	
		2010	+/-	2011	2010	2011	2010	2011
Alsace	Hallertau Tradition	196	-47	149	1.42	1.68	278.0	250.5
	Strisselspalt	218	-102	116	1.49	1.63	325.0	189.6
	Other Aroma	85	59	144	0.80	0.70	68.1	100.5
	Total Aroma	499	-90	409	1.34	1.32	671.1	540.6
	Bitter	11	0	11	1.80	1.35	19.8	14.6
	High Alpha	39	10	49	1.34	1.24	52.3	60.9
	Total Alsace	549	-80	469	1.35	1.31	743.2	616.1
Nord	Aroma	13	-1	12	1.65	1.28	21.4	15.4
	Bitter	4	0	4	1.69	1.41	7.4	6.2
	High Alpha	14	0	14	1.44	1.47	19.5	19.9
	Total Nord	31	0	31	1.56	1.35	48.3	41.5
	FRANCE TOTAL	580	-80	500	1.36	1.32	791.5	657.6

Farm Structure

After three years with the number of producers remaining constant, three growers in the Alsace region discontinued hop production with the 2011 harvest. The remaining 83 farms in France managed a hop acreage averaging 6 ha per farm compared to 6.7 ha in the previous year.

Acreage/Production/Alpha Content

Since 2011 the traditional variety **Strisselspalt** is no longer the most widely grown variety in France. Despite a reduction in acreage planted with the **Hallertau Tradition** variety, the massive decline in the acreage of **Strisselspalt** hops led to a change in the variety rankings. Producers are placing their hopes in the new aroma variety **Aramis** which was planted on 20 ha in 2011.

The varieties **Columbus**, **Fuggle**, **Golding** and **Hallertau Magnum** flowered early due to a lack of precipitation. Many of the cones died off. A second

flowering failed to produce the normal yield. In contrast, the aroma varieties **Strisselspalt**, **Hallertau Tradition** and **Aramis** coped better with the weather conditions.

The overall very high alpha levels, which averaged 4.5% in the **aroma varieties** and 10.8 % in the **bitter/high alpha varieties**, led to an increase of 9 % in alpha yield despite the smaller area and lower volume harvested.

Market Situation

60 % of the 2011 harvest had been forward-contracted. In March 2012 there was still approx. 250 mt of unsold hops in storage, including stocks from previous years. The difficult market situation will lead to a decline in the number of hop-growing farms in Alsace of around 15 producers plus approx. 85 ha of farmed growing area at the next harvest. Around 36 % of the 2012 crop is under forward contract.

UKRAINE



Variety Group	Development of acreage Acreage ha			Development of production Ø Yield mt/ha Production mt			
	2010	+/-	2011	2010	2011	2010	2011
Aroma	850	-335	515	0.71	1.07	599.6	550.0
Bitter/High Alpha	334	-203	131	0.56	1.00	186.2	131.0
UKRAINE TOTAL	1,184	-538	646	0.66	1.05	785.8	681.0

Farm Structure

Producers have had problems selling their hops in recent years and several farms have been forced to give up growing hops. How many of the original 62 farms in the 2011 crop year remain could not be determined with certainty.

Acreage/Production/Alpha Content

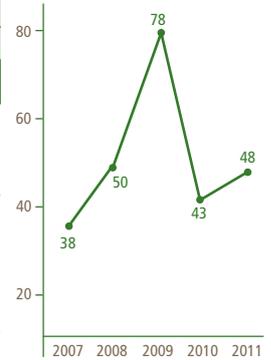
The area under hops was almost halved. Almost all varieties of hops were affected by the decline in acreage. In contrast to the 2010 harvest, the 2011 crop volume in the Ukraine was in the upper range of the long-term average. The prevailing weather conditions also stimulated alpha acid production. In comparison with the previous year, the **aroma varieties** achieved an average value of 6.4 % in 2011 compared to 4.9 % and the **bitter/high alpha**

varieties an average value of 9.8 % compared to 7.1 %. The alpha yield rose by 11 % despite the lower production volume.

Market Situation

Due to the problems in selling their hops, the growers requested support from the ministry of agriculture. In March 2012 the ministry announced the intended signing of a memorandum of cooperation between hop growers and breweries. According to the memorandum, the breweries undertake to order part of the hop volume they require from the Ukrainian growers, but only on condition that the quality of home-grown hop products corresponds to that of imported hop products. The acreage for 2012 is not expected to change significantly.

Alpha production in mt



COUNTRY SPECIAL - AUSTRIA



Variety Group	Development of acreage Acreage ha			Development of production Ø Yield mt/ha Production mt			
	2010	+/-	2011	2010	2011	2010	2011
Aroma	198	4	202	1.52	1.89	300.4	382.0
Bitter/High Alpha	36	2	38	1.88	1.77	67.6	67.1
AUSTRIA TOTAL	234	6	240	1.57	1.87	368.0	449.1

General

Until the dissolution of the Austro-Hungarian monarchy in 1918 at the end of the First World War, this state had the third-largest hop acreage in Europe after Germany and England. Today, hop growing in Austria is concentrated in the growing regions of Mühlviertel (Upper Austria), Waldviertel (Lower Austria) and Leutschach (Styria).

Consumers are attaching increasing importance to local and sustainable products. This means that Austrian breweries can afford to pay a slightly higher price for home-grown hops. In addition, the breweries association promotes hop growing in Austria through effective advertising campaigns.

Farm Structure

In crop year 2011 there were 60 hop growers in total. The average area under hops was 4 ha per farm. Hop growing in Austria is clearly structured, not only because of its size, but also due to being organised in growers' associations.

Acreage/Production/Alpha Content

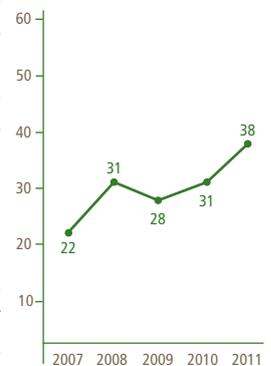
Most hops are cultivated in the Mühlviertel growing region (133 ha), followed by Leutschach (89 ha) and the Waldviertel region (18 ha). The 2011 harvest produced above-average yields of very good quality. The alpha acid levels in the **aroma varieties** reached an average value of 7.4 %, while the average content measured in the **high alpha varieties** was 15.5 %.

Varietal Range

As Austria does not undertake any hop research itself, the range is limited to tried-and-tested varieties and new hop breeds from the adjacent countries of Germany and Slovenia. The following varieties were grown in crop year 2011: the aroma varieties **Celeja** (53.2 ha), **Perle** (40 ha), **Aurora** (30.5 ha), **Malling** (25.6 ha), **Cicero** (16.7 ha), **Spalt Select** (14.5 ha) and **Hallertau Tradition** (12.9 ha) as well as **Hersbruck Spaet**, **Golding** and **Saphir** (8.7 ha in total). Varieties in the high alpha group were **Hallertau Magnum** (35.6 ha) and **Hallertau Taurus** (2.6 ha).

In the Country Special report we feature every year a hop-growing country to which we would not normally devote a separate country report due to its small size.

Alpha production in mt





COUNTRY SPECIAL - AUSTRIA

Market Situation

Most of the hops were sold through long-term contracts. For hops produced in the 2011 harvest growers were paid between 6.00 EUR/kg and 6.30 EUR/kg. There was scarcely any demand for spot hops after the

harvest. In addition, growers were not willing to sell hops at spot-market prices, as they did not cover the production costs. Around 1.2 mt of alpha of **Hallertau Magnum** hops therefore remained unsold. No increases in acreage are being made without contracts.



USA

Farm Structure

The number of growers (decision-making entities) in 2011 increased by one to 74 entities. The entry of an additional grower is part of a normal transfer of portions of the farms to the next generation. As a result of this new entry and the overall lower acreage for crop 2011, the US average farm size dropped to 163 ha compared to 174 ha in 2010.

Acreage/Production/Alpha Content

The USDA acreage survey for crop 2011 showed a reduction of 608 ha, or 5 %, compared to crop 2010. Perhaps more importantly, the acreage grown for harvest of crop 2011 has now fallen below the level of crop 2007, the year of the great hop shortage. Since the acreage peaked in 2008, US growers have taken out approx. 4,500 ha, or more than the acreage planted in response to the shortage of 2007.

Varietal Development

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

Variety	2007 ha	2008 ha	2009 ha	2010 ha	2011 ha
Cascade	559	891	900	799	1,002
Willamette	2,824	2,985	2,100	1,349	677
Centennial	86	102	121	177	272
Simcoe®	-	52	74	96	200
Amarillo®	-	-	49	115	196
Cluster	152	174	207	159	195
Mount Hood	89	87	103	101	125
Other Aroma	1,431	1,451	1,476	958	983
Total Aroma	5,141	5,742	5,030	3,754	3,650
Columbus-Tomahawk-Zeus (CTZ)	3,448	5,213	5,004	3,510	3,203
Summit®	256	972	1,310	1,261	1,108
Nugget	1,135	1,318	1,134	1,003	930
Galena	1,418	1,207	1,083	841	614
Super Galena	-	320	411	413	498
Apollo	-	282	302	334	358
Chinook	153	167	245	254	306
Bravo	-	90	135	168	240
Millennium	414	429	365	253	163
Warrior®	137	159	122	120	105
Other High Alpha	409	652	936	753	879
Total High Alpha	7,369	10,809	11,047	8,909	8,404
USA TOTAL	12,510	16,551	16,077	12,662	12,054

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.

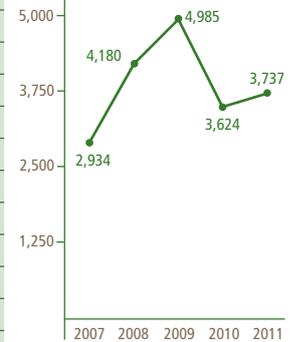
The overall acreage reduction from crop 2010 to 2011 was the net result of about 1,500 ha being taken out and only approx. 900 ha re-planted. The variety most removed was **Willamette** of which approx. 670 ha were ploughed out, followed by the reduction in the variety complex of **Columbus/Tomahawk®/Zeus (CTZ)** with 310 ha and **Galena** with 230 ha, as well as other alpha varieties with another approx. 290 ha.

Varieties that were expanded included **Cascade** (about 200 ha) and **Centennial** (approx. 95 ha), as well as other aroma and flavor hop varieties totalling about 260 ha (e.g. **Citra®**, **Simcoe®**, **Mt. Hood**, **Chinook**). The alpha varieties of **Apollo**, **Bravo** and **Super Galena** made up the remaining difference of the acreage expanded in 2011.



Area	Variety	Development of acreage			Development of production				
		Acreage ha			Ø Yield mt/ha		Production mt		
		2010	+/-	2011	2010	2011	2010	2011	
Washington	Cascade	699	154	853	2.14	2.19	1,493.2	1,869.4	
	Willamette	702	-340	362	1.51	1.69	1,061.8	612.4	
	Centennial	144	115	259	2.01	1.57	290.0	408.0	
	Simcoe®	96	104	200	1.90	1.99	182.5	399.5	
	Cluster	159	36	195	2.30	2.26	366.3	441.5	
	Amarillo®	166	16	182	2.19	1.37	362.9	249.5	
	Palisade®	151	-26	125	2.72	2.87	411.3	357.9	
	Citra®	46	51	97	2.15	2.03	98.9	196.5	
	Mount Hood	25	13	38	1.36	0.94	34.1	36.1	
	Other Aroma	351	-44	307	0.70	1.99	245.5	540.5	
	Total Aroma		2,539	79	2,618	1.79	1.95	4,546.5	5,111.3
	CTZ		3,173	-297	2,876	2.84	2.86	9,019.6	8,218.2
	Summit®		1,261	-153	1,108	2.47	2.47	3,109.5	2,742.2
	Galena		777	-204	573	2.03	2.04	1,576.3	1,168.6
	Super Galena		358	43	401	2.94	3.41	1,053.7	1,365.6
	Apollo		335	23	358	3.11	3.09	1,042.1	1,107.0
	Nugget		335	13	348	2.03	2.21	679.9	768.9
	Bravo		168	72	240	2.86	2.92	481.0	701.8
	Chinook		179	52	231	2.20	1.93	394.4	445.8
	Millennium		225	-62	163	2.44	2.87	550.1	468.3
	Warrior®		120	-15	105	1.99	2.31	238.7	243.1
	Other High Alpha		378	38	416	2.67	2.24	1,009.6	932.1
	Total High Alpha		7,309	-490	6,819	2.62	2.66	19,154.9	18,161.6
Total Washington		9,848	-411	9,437	2.41	2.48	23,701.4	23,272.9	
Oregon	Willamette	648	-333	315	1.72	1.92	1,114.0	606.4	
	Cascade	60	46	106	1.88	1.81	112.8	192.8	
	Mount Hood	69	18	87	1.84	2.12	127.2	183.5	
	Golding	73	3	76	1.52	1.66	110.9	126.6	
	Liberty	-	-	44	-	1.49	-	65.0	
	Perle	-	-	40	-	1.82	-	72.1	
	Centennial	32	5	37	2.30	2.02	73.5	74.3	
	Tettnang	-	-	28	-	1.83	-	51.9	
	Palisade®	18	-14	4	2.21	2.20	39.8	8.9	
	Other Aroma	140	-24	116	1.68	1.23	235.6	143.6	
	Total Aroma		1,040	-187	853	1.74	1.79	1,813.8	1,525.1
	Nugget	668	-86	582	2.30	2.60	1,534.3	1,511.4	
	Super Galena	54	44	98	2.72	2.54	147.1	247.3	
	Millennium	28	19	47	2.61	2.64	73.2	124.8	
	Other High Alpha	80	41	121	2.33	1.89	186.3	229.1	
	Total High Alpha		830	18	848	2.34	2.49	1,940.9	2,112.6
	Total Oregon		1,870	-169	1,701	2.01	2.14	3,754.7	3,637.7
Idaho*	Total Aroma*	173	7	180	1.63	1.50	283.3	269.7	
	Total High Alpha*	770	-33	737	2.56	2.99	1,967.7	2,204.4	
	Total Idaho	943	-26	917	2.39	2.70	2,251.0	2,474.1	
Total Aroma*		3,754	-104	3,650	1.77	1.89	6,643.6	6,906.1	
Total High Alpha*		8,909	-505	8,404	2.59	2.67	23,063.5	22,478.4	
USA TOTAL		12,662	-608	12,054	2.35	2.44	29,707.1	29,384.5	

Alpha production in mt



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

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



The alpha production in 2011 compared to crop 2010 increased by close to 3 % to approx. 3,700 tons, despite a drop in harvested acreage and a decrease in volume of more than 300 mt. This increase was due to the overall higher alpha contents of most high alpha as well as aroma varieties. In particular, the variety complex of **CTZ** showed a marked improvement over crop 2010, the year in which **CTZ** had returned to its historical alpha levels after charting three consecutive years of poor performance. The newer alpha varieties

(e.g. **Summit**[®], **Apollo**) performed in line with their historical averages. It should be noted that for crop 2011 aroma varieties were responsible for about 70 mt alpha of the approx. 113 mt increase in alpha production. However, the additional alpha from aroma varieties, which are largely the result of flavor hop cultivation, has little bearing on the alpha surplus as brewers use these hops strictly for flavoring, as is typical for the American craft brewing industry.

Alpha Acid Table

Variety	2007	2008	2009	2010	2011	Average
Willamette	4.5%	4.7%	4.3%	4.8%	5.6%	4.8%
Cascade	5.7%	6.2%	5.6%	6.5%	6.9%	6.2%
Cluster	6.5%	6.4%	7.0%	6.8%	7.3%	6.8%
Galena	11.6%	11.9%	11.6%	11.5%	12.5%	11.8%
Nugget	12.3%	12.3%	12.2%	12.3%	13.2%	12.5%
Columbus-Tomahawk-Zeus (CTZ)	13.2%	13.3%	13.5%	14.1%	14.7%	13.8%
Summit [®]	15.7%	15.8%	14.8%	16.3%	16.1%	15.7%
Bravo	-	15.5%	15.0%	15.0%	15.0%	15.1%
Apollo	-	17.0%	16.5%	16.7%	16.7%	16.7%

Crop Development

Washington: The winter of 2010 – 2011 brought abundant snowfall to the Cascade Mountains which met the summertime water requirements for the hop-growing areas. The growing season was cool, with the month of April being one of the coolest on record and May one of the wettest. The cooler temperatures during the initial growing period delayed most hops from reaching the top of the trellis in time and generated concern about the crop's expected production. However, the slow growth allowed extra laterals to develop, which promoted fine structure for additional hops. While this unusual weather pattern was good for mature plantings, first-year hops suffered from the cooler temperatures and had less than normal growth with subsequent lower yields.

Oregon: Winter conditions in the months of November through February were normal in Oregon. However, April and May weather were similar to Washington's growing areas, with temperatures much cooler than normal and above-average precipitation. These abnormal climatic conditions slowed growth significantly, especially in the alpha varieties, but also helped to contain downy mildew and early pest pressures. By July, however, normal temperatures allowed the crop to catch up and an extended bloom period allowed for excellent cone set. The resulting crop yield was slightly better than that of 2010, for both alpha and aroma varieties.

Quality: There continues to be a strong and successful push for improvement of hop quality by the marketers, processors and customers. In 2011 visual qualities, such as colour of cones, powdery mildew, and insect damage, were improved compared to the 2010 crop. The level of leaf and stem content continues to remain low, with crop 2011 charting only 0.12 %. This is in contrast to the average seed count, which continues as slightly high levels. Crop 2011 had an average seed content of 1.34 %.

Contract Market

The forward contracts offered to growers for the 2011 crop were almost exclusively driven by the spring 2011 demand for aroma / flavor hops destined for the craft brewing industry. Initially, market activity focused on **Cascade** which sold for 4.41 USD/kg, but then expanded to **Chinook**, **Cluster** and **Centennial**, which initially sold at 5.40 USD, 4.41 USD and 6.05 USD/kg plus premiums, respectively. As demand continued for these craft brewing-oriented varieties and as the window to plant additional acreage closed, prices increased, with **Centennial** selling at 7.70 USD/kg plus premiums. The contract length for most varieties varied from one and two years for existing plantings to three years for new plantings. Additional contracts for crop 2011 were also written for **Mt. Hood** and **Magnum**, both at 7.71 USD, **Northern Brewer** and **Tettnang** at 11.24 USD and **Golding** at 12.13 USD/kg plus premiums amongst other varieties.



Spot Market Crop 2011

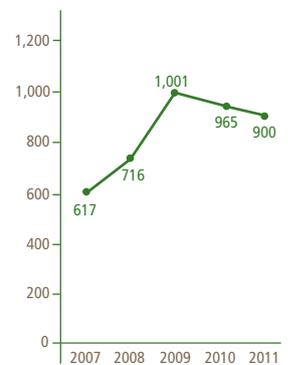
Most growers achieved their contractual quantities despite fears to the contrary during the growing season. However, both **Centennial** and **Chinook** came up short and the little volume of **Centennial** that did come onto the spot market was quickly sold at around 15.00 USD/kg. **Cascade**, thought to be an alternative

to other craft varieties that fell short of their expected yields, was sold at 7.39 USD/kg plus premiums. But as more spots came onto the market due to this variety's better-than-expected yield, the price softened slightly. With the exception of **Willamette**, all aroma/ flavor hops achieved prices in the spot market that were at or higher than the prices paid in the contract market.



Area	Variety	Development of acreage			Development of production			
		Acreage ha			Ø Yield mt/ha		Production mt	
		2010	+/-	2011	2010	2011	2010	2011
Xinjiang	Tsingtao Flower	2,114	-386	1,728	2.40	3.06	5,074.0	5,286.0
	Kirin Flower	490	-26	464	2.98	3.26	1,462.0	1,514.0
	SA-1	327	-94	233	2.14	2.58	700.0	600.0
	Marco Polo	253	-73	180	2.96	3.75	750.0	675.0
	Other Aroma	119	1	120	2.77	2.78	330.0	333.0
	Total Xinjiang	3,303	-578	2,725	2.52	3.09	8,316.0	8,408.0
Gansu	Tsingtao Flower	1,446	-377	1,069	2.92	3.16	4,217.0	3,379.3
	Marco Polo	287	2	289	2.66	3.44	762.0	993.0
	Nugget	252	-64	188	0.96	1.29	241.0	243.0
	Other High Alpha	169	-12	157	3.00	1.46	507.0	229.5
	Other Aroma	45	-15	30	1.73	1.67	78.0	50.0
	Total Gansu	2,199	-466	1,733	2.64	2.82	5,805.0	4,894.8
Total Aroma		491	-108	383	2.26	2.57	1,108.0	983.0
Total Bitter		4,050	-789	3,261	2.66	3.12	10,753.0	10,179.3
Total High Alpha		961	-147	814	2.35	2.63	2,260.0	2,140.5
CHINA TOTAL		5,502	-1,044	4,458	2.57	2.98	14,121.0	13,302.8

Alpha production in mt



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

A significant reduction in acreage also had repercussions on the number of hop farms. Hops were grown on 53 farms in the 2011 crop year, 5 fewer than in the previous year. The average area under hops declined from 95 ha to 84 ha per farm.

The most significant change occurred in the Gansu hop-growing region where only 20 out of 24 farms remained. These comprised 13 private producers, 6 Luxin farms belonging to the state-owned Gansu State Farm Corporation and the Zhangye farm which is also state-run. In the Xinjiang growing region hop growing was discontinued on one state-managed farm, leaving 33 farms involved in hop production of which 6 are private and 27 state-owned.

Acreage/Production/Alpha Content

The decline in the acreage of hops grown in China amounted to almost 20 %. The **Tsingtao Flower** variety

alone suffered losses of 763 ha of its acreage.

In the **Xinjiang** growing region heavy snowfalls up to March contributed to a late start to growth. The summer was extremely dry, but the winter snowfall ensured that an adequate supply of water was available. The yield per hectare was significantly above the long-term average. In **Gansu** the plants could not be pruned until after 15 April, thus reducing the hop growth period by a month. The subsequent climatic conditions were beneficial to growth, leading to a slightly above-average result in terms of yield.

The alpha acid content recorded for the main variety **Tsingtao Flower** was on average 5.8 %, remaining significantly below the previous year's result of 6.2 %. The average alpha content of 6.8 % across all varieties remained at the 2010 level. Despite the very good yields, the lower production acreage led to a 7 % lower alpha yield in comparison with the previous year.



CHINA

Market Situation

The forward contract market in China cannot be compared with other hop-growing countries. Buyers and producers only sign negotiable purchasing agreements which in each case define the quantity and quality of the hops, but do not state a concrete price. Pricing is subject to the spot market. For good-quality hops from the 2011 crop, producers earned between 16,000 CNY/mt (1,900 EUR) and 20,000 CNY/mt (2,400 EUR).

In spring 2012, the existing stocks of hops from 2011 and

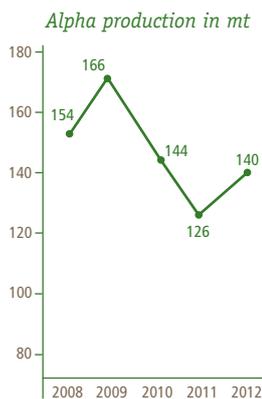
earlier crop years were estimated at approx. 2,000 mt in **Xinjiang** and approx. 2,700 mt in **Gansu**.

Overall, the area under hops is expected to increase slightly for the 2012 harvest, with a decrease in acreage in the **Xinjiang** growing region and a reduction in acreage in **Gansu**. Some breweries have already secured certain quantities of the 2012 crop through purchase agreements.

The constant reduction in the hopping rate in beer in China over recent years appears to have ceased.



CROP 2012: AUSTRALIA



Rounding differences of the acreage may cause differences in addition.

Area	Variety	Development of acreage			Development of production			
		Acreage ha			Ø Yield mt/ha		Production mt	
		2011	+/-	2012	2011	2012	2011	2012
Tasmania	Super Pride	63	0	63	2.53	2.43	159.2	153.1
	Pride of Ringwood	58	-11	47	3.21	2.98	186.1	141.1
	Millennium	48	-13	35	2.23	1.85	106.3	64.6
	Other	32	21	53	1.70	1.55	54.1	81.0
	Total Tasmania	200	-2	198	2.52	2.22	505.7	439.8
Victoria	Topaz	83	22	105	2.72	2.94	225.5	309.5
	Pride of Ringwood	60	0	60	2.00	2.00	120.0	120.0
	Super Pride	71	-21	50	1.62	2.51	115.0	125.4
	Other	40	-1	39	1.95	2.51	77.8	97.9
	Total Victoria	254	0	254	2.12	2.57	538.3	652.8
AUSTRALIA TOTAL		454	-2	452	2.30	2.42	1,044.0	1,092.6

Farm Structure

As in previous years, hops were grown on eight farms in Australia. The average trellised area remained unchanged from the previous year at 57 ha per farm.

Acreage/Production/Alpha Content

Although total acreage remained virtually unchanged, on 10 % of it there were changes in the variety mix. In **Tasmania's** growing area August (late winter) was unseasonably warm. The mean monthly temperature was several degrees above the long-term average, which caused the hops to start growing much earlier than expected. This head start maintained its momentum, with flowering also beginning early and the entire harvest being completed about a week earlier than usual. Ample rainfall over the entire season resulted in a good average yield for the hop farms in **Victoria**, making up for a slightly poorer yield in **Tasmania**.

In contrast to those in **Victoria**, the alpha acid values for hops in **Tasmania** were lower than expected. Average values compared with the previous year: **Pride of Ringwood** 8.8 % (9.3 %), **Super Pride** 14.2 % (14.0 %), **Millennium** 13.3 % (12.6 %), **Topaz** 16.4 % (15.5 %). The slightly higher production volume, combined with a marginally increased average alpha acid content, resulted in an 11% increase in alpha yield.

Market Situation

By the time of harvest in March, 97 % of the 2012 crop was already committed through forward contracts. Although cultivation of high alpha varieties still predominates, a new trend is emerging. In instances where high alpha contracts are coming to an end, the variety mix is shifting towards new flavor hops and aroma varieties. For the time being, total acreage is set to remain unchanged.

CROP 2012: NEW ZEALAND



Variety Group	Development of acreage			Development of production			
	Acreage ha			Ø Yield mt/ha		Production mt	
	2011	+/-	2012	2011	2012	2011	2012
Aroma	200	-10	190	1.52	1.86	303.0	354.0
High Alpha	120	10	130	1.96	2.19	235.0	285.0
Other	30	10	40	1.17	1.38	35.0	55.0
NEW ZEALAND TOTAL	350	10	360	1.64	1.93	573.0	694.0

Farm structure

The number of hop farmers in New Zealand remained unchanged, with 19 hop growers cultivating an average of 19 ha of hops.

Acreage/Production/Alpha Content

The reported acreage of 300 ha, as cited in the previous 2011 Barth Report, has had to be revised. On the basis of the amended total acreage, there is only a slight change when compared with 2012.

Predominantly cool and wet weather conditions prevailed during the growing season. Although there was an average yield in terms of volume, with very good quality ratings, the harvest produced above-average alpha yields for the aroma varieties. The alpha content in high alpha varieties was only average, however.

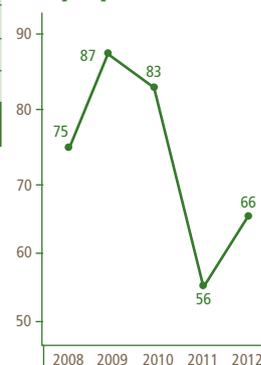
The results for the two main varieties in New Zealand, comparing crop year 2012 with 2011 were as follows: **NZ Hallertau Aroma** 7.9 % (7.6 %), **NZ Pacific Gem** 14.6 % (15.1 %). The overall alpha yield rose by 17 %.

Market Situation

By harvest time 2012, 95 % of the crop had been sold. In spring 2012 there was a minimal amount of stock left over from the previous 2011 harvest.

The variety **NZ Hallertau Aroma** got the name **Wakatu**. The variety **NZ Super Alpha** is called now **Dr. Rudi**. It is expected that new varieties from the New Zealand research programme will be released before the end of this year. The intention is to base the scale of acreage expansion for these new varieties on the projected crop volume that can be covered by forward contracts with brewers and marketers.

Alpha production in mt



HOP PLANT DEVELOPMENT 2012



Germany

The dry autumn of 2011 was followed in December by a mild start to the winter with above-average precipitation. These mild and wet conditions continued during January. It became significantly colder from the end of the month, with severe frost in all the German growing regions. Spring 2012 started off dry and unusually warm in March. All the spring work was able to be finished under ideal conditions. As a result, the hops were cut in the normal period from the middle of March until the first week of April. April began noticeably cooler in comparison to the previous year and with average amounts of rainfall. Hop plant growth was held back especially by the cool night-time temperatures. It was not until the last week of April that rising temperatures accelerated the development of the hop plants and lead to significant vertical growth. Some hop stands had to be trained under considerable time pressure. Most farms had finished training by the end of the second week of May. By the beginning of June, hop plant development matched the long-term average.

In the Tettngang growing region, approx. 50 ha of hops were affected by hail on 16 May and approx. 75 ha on 23 May. However, it is unlikely that this will have any effect on crop volume.

USA

Snow pack accumulations in the Cascade mountain ranges were above normal and therefore adequate to supply sufficient irrigation water during the growing season. Below-average temperatures predominated in the winter months. In April and May it was unseasonably warm which enabled the plants to grow well.

The discovery of a mutated variant of Powdery Mildew that can attack previously resistant varieties, such as Nugget and Apollo, raised some concern. However, it is believed that existing measures to combat this disease will also keep damage to these varieties in check.



Germany

The acreage survey in Germany recorded a farmed hop area of 17,124 ha for 2012 – a figure which equates with that of crop year 2006. However, in comparison with 2006, the market conditions in 2012 are completely different. Whereas acreage then was too low, today it is too high. The year-on-year decline from 2011 amounts to 1,104 ha. Within the variety groups, the greatest decline has been registered among the high alpha hops, with a minus of 693 ha. The Hallertau Magnum variety alone was cut back by 530 ha. Aroma varieties declined by 369 ha, a statistic that can be primarily attributed to the reduction in acreage planted with the Perle (-193 ha) and Spalt Select (-181 ha) varieties.

USA

As reported by the US Department of Agriculture (USDA) on 12 June 2012, total hop acreage in the US increased by 413 ha to 12,468 ha and marked the first time since crop 2008 that the US has added acreage. While the expansion in acreage represented a little more than 3 % compared to 2011, the underlying shift in varieties is significant and highlights the changing landscape of US hop production. Most of the alpha varieties declined in acreage being led by the variety complex CTZ which saw a reduction of close to 600 ha and followed by Galena with nearly 190 ha.

In contrast, aroma varieties and the new flavor hops which are in good demand by the US craft industry and increasingly by brewers around the world enjoyed a striking increase: The variety Centennial more than doubled its reported acreage to 640 ha and Simcoe®, Citra® and Chinook all nearly doubled in acreage. Cascade, the dominant aroma/ flavor hop variety in the US, grew by another 25 % over the previous year to reach 1,206 ha.

World

Hop acreage worldwide was approx. 47,200 ha in 2012, which is 1,300 ha lower than the figure for the previous year. Not since 1955 has acreage been lower than it is today. At that time, however, hops had an average yield of 1.4 mt/ha, compared to a normal yield today of 2 mt/ha – not to mention the difference in alpha content. Also at that time, the hopping rate in grams alpha per hl was probably much more than it is today. On the basis of average production volume, the 2012 harvest will be sufficient to meet the demand for alpha acid. However, the smaller the acreage and the greater the main concentration on a small number of hop-growing countries, the greater is the risk constituted by poor harvests due to adverse weather conditions and/or potential crop failure due to disease or pests.

Currency Exchange Rates

1 EUR equals (reference by ECB):

	on 1 June 2011	on 1 June 2012		on 1 June 2011	on 1 June 2012
USA	1.4408 USD	1.2322 USD	Canada	1.3948 CAD	1.2794 CAD
Australia	1.3410 AUD	1.2772 AUD	Poland	3.9570 PLN	4.4125 PLN
China	9.3336 CNY	7.8486 CNY	Switzerland	1.2182 CHF	1.2008 CHF
United Kingdom	0.8770 GBP	0.8050 GBP	Russia	40.2340 RUB	41.7546 RUB
Japan	117.1100 JPY	96.2500 JPY	Czech Republic	24.5010 CZK	25.7870 CZK

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

Conversion Table

Area:	Weight:
1 hectare (ha) = 10,000 m ² = 2.934 Bavarian „Tagwerk“	1 metr. ton (mt) = 1,000 kg = 20 cwt (D) = 2,204.6 lbs
1 hectare (ha) = 10,000 m ² = 2.471 acres	1 Zentner cwt (D) = 50 kg = 110.23 lbs = 1.102 cwt (USA)
1 Bavarian „Tagwerk“ = 0.341 ha	= 110.23 lbs = 0.984 cwt (GB)
1 acre = 0.4047 ha	1 hundredweight (cwt/USA) = 100 lbs = 45.36 kg = 0.9072 Ztr.
Volume:	1 hundredweight (cwt/GB) = 112 lbs = 50.800 kg = 1.0160 Ztr.
1 hl = 100 l = 26.42 gall = 0.8523 bbl (USA)	1 centner (GB) = 100 lbs = 45.36 kg = 0.9072 Ztr.
1 hl = 100 l = 22.01 gall = 0.6114 bbl (Brit.)	1 kg = 2.20462 lbs
1 barrel (bbl/USA) = 31 gall = 1,1734 hl	1 lb = 0.45359 kg
1 barrel (bbl/GB) = 36 gall = 1,6365 hl	



Publisher: Joh. Barth & Sohn GmbH & Co KG,
Freiligrathstrasse 7/9. 90482 Nuremberg
Project responsibility: Stephan Barth,
Managing Partner, Nuremberg
Editor: Heinrich Meier, Georgensmuend

Layout: Lingner Marketing GmbH, Fuerth
Cover: Lingner Marketing GmbH, Fuerth
Print: COS Druck & Verlag GmbH, Hersbruck

Nuremberg, July 2012

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Please note our report „Market Leaders and their Challengers in the Top 40 Countries“
with the table of the 40 biggest brewing groups worldwide.

FLAVOR HOPS - FLAVOUR HOPS

History

The term “Flavor Hops” or “Flavour Hops” is a neologism which has become increasingly prevalent over the past few years. It describes hop varieties which are bred and cultivated in the USA, Australia and recently also in Germany and other countries. Flavor hops were first grown in the USA to keep pace with the demand generated by the fast-growing US craft beer sector, a sector whose aim is to brew beers which are characterised by unusual and distinctive flavors.

For this reason, the past few years have witnessed a significant shift in the US hop industry with regard to the acreage mix of the varieties grown. Although alpha varieties, such as the Columbus, Tomahawk® and Zeus (CTZ) group, continue to dominate the market, a number of lesser-known varieties are increasingly making their presence felt, with yields now totalling as much as several hundred tons of hops per year. Indeed some of these varieties have even broken the 500-tonne mark.

Demand is certain to result in more new breeds of hops with particular fruit notes such as, for example, the four hop selections which have only recently been released for cultivation in Germany by the Hüll hop research centre in Hallertau: Polaris, Hallertau Blanc, Mandarina Bavaria and Huell Melon.

Categorisation

The categorisation of flavor hop varieties represents a real challenge. These varieties are specifically designed to lend the beer uniquely distinct aroma and flavor characteristics. As such, they cannot simply be classed according to the traditional categories of aroma hops or bitter/high alpha hops. Indeed, they represent their own new category. Unlike aroma hops or bitter/high alpha hops, the outstanding features of flavor hops are neither their particularly high or low alpha contents, nor their particularly high or low yields. Some flavor hop varieties demonstrate quite respectable agronomic traits, not to mention a relatively high alpha content. However, these are not the distinguishing features that set this hop category apart. What is central to these varieties is the impact they have on the flavor of the beer. The perception of flavor is highly subjective, which makes objective judgement and comparison of flavor difficult. Flavor hops often spark associations with tropical and fruity notes. However, these notes are extremely difficult to measure in their entirety by means of the analytical methods traditionally used in the hop and beer industries. It is therefore not easy to provide a scientific definition of the category of flavor hops. **For this reason, we are of the opinion that a flavor hop variety can be both an aroma and a bitter/high alpha hop – and that many a traditional aroma or bitter/high alpha hop could also be assigned to this new category.** The effect flavor hops have on beer, depending on the type of beer, is a sophisticated interplay of the point of addition and the composition of flavor hop varieties and the other raw materials used in the brewing process.

Joh. Barth & Sohn has conducted several workshops with two world beer sommelier champions and a perfumer.

In collaboration with these experts, 12 flavor categories (functionalities) and more than 70 descriptors were defined to describe the specific flavors for each individual category.

Category	This includes the following aromas:
Menthol	Mint, melissa, sage, metallic, camphor
Tea	Green tea, camomile tea, black tea
Green fruits	Pear, quince, apple, gooseberry, wine yeast, ethereal
Citrus	Grapefruit, orange, lime, lemon, bergamot, lemon grass, ginger
Green	Green-grassy, tomato leaves, green peppers
Vegetal	Celeriac, leek, onion, artichoke, garlic, wild garlic
Cream Caramel	Butter, chocolate, yoghurt, gingerbread, honey, cream, caramel, toffee, coffee
Woody aromatic	Tobacco, cognac, barrique, hay, leather, tonka, woodruff, incense, myrrh, resin
Spicy/herbal	Lovage, pepper, chilli, curry, juniper, marjoram, tarragon, dill, lavender, aniseed, liquorice, fennel
Red berries	Cassis, blueberries, raspberries, blackberries, strawberries
Sweet fruits	Banana, watermelon, honeydew melon, peach, apricot, passion fruit, lychee, dried fruit, plum, pineapple, white jelly bears
Floral	Elderflower, camomile blossom, lily of the valley, jasmine, apple blossom, rose, geranium

It is possible that additional categories will have to be added in the future. In characterising the various hop varieties we have, however, already been able to establish that the aroma/flavor profile of the raw hop changes significantly in a cold infusion of the same raw hop. This method was tested in order to obtain an impression of the aroma characteristics of these varieties if used for dry hopping. Each hop variety develops distinct flavor characteristics in the beer depending on the time of addition, the amount added, the brewing method and the beer matrix.

This is further illustrated with the Australian variety Galaxy: The specific aroma of the Galaxy variety – with pleasant overtones of peach and passion fruit – truly comes into its own in the beer if the hops are added late in the brewing process. Paradoxically, if used for dry hopping, this specific aroma of Galaxy does not always unfold. We also found that the German variety Saphir can exhibit very strong citrus aromas in one beer, but in a different beer a very strong green-grassy and spicy aroma. This can be attributed to differences in the brewing process, the beer matrix, the quantity of hops added and the point of addition, for example at an early stage in the whirlpool instead of shortly before the end of the boiling phase.

Conclusion

Flavor hops could just as easily be assigned to the traditional category of aroma hops as to that of bitter/high alpha hops. By means of this new category, the brewing industry can diversify its beers and avail itself of a broad variety of new creative possibilities using a natural raw material. Flavor hops make it possible for brewers to better explain and communicate the tasting profiles of their beers to the consumers.

