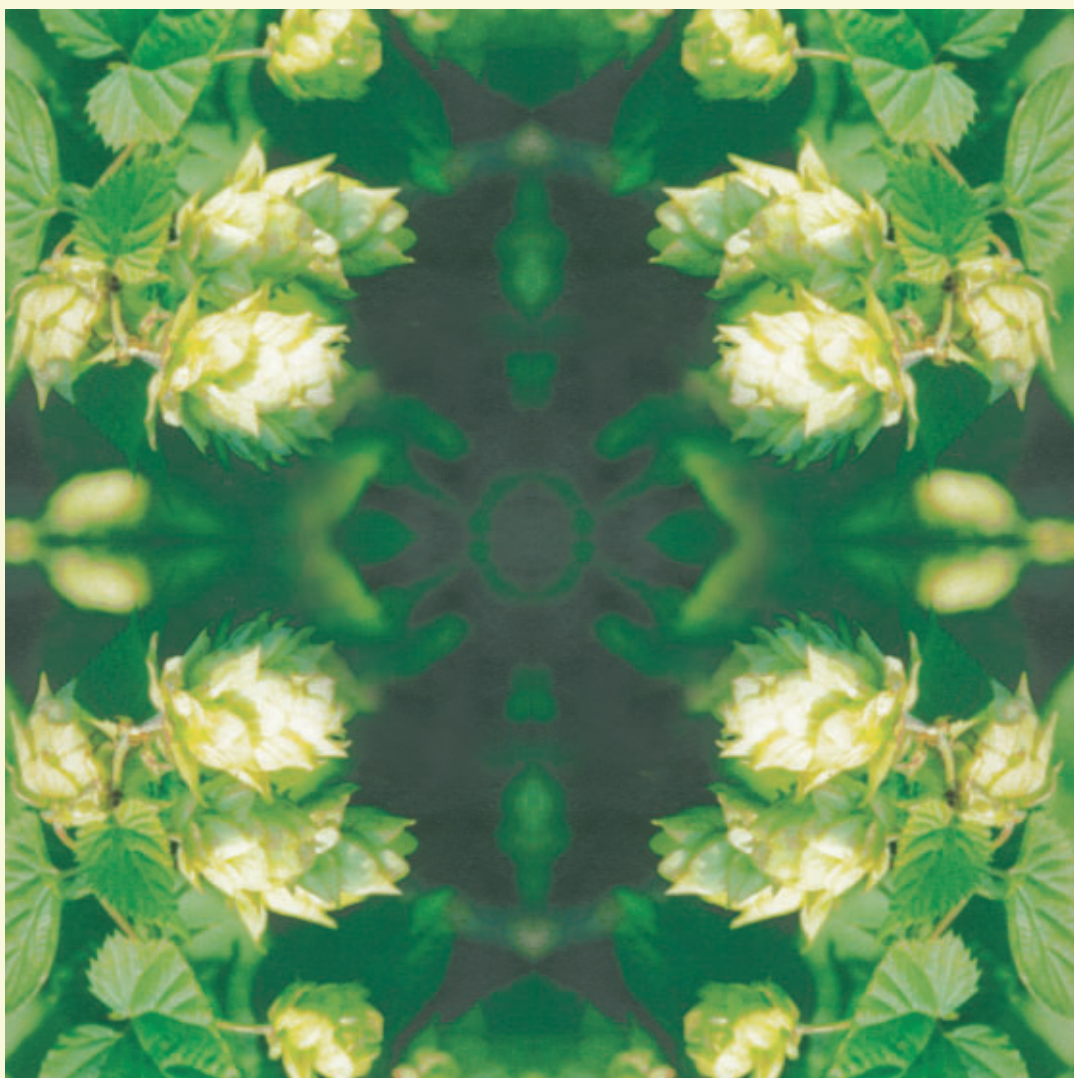


# The Barth Report

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Hops

2005/2006

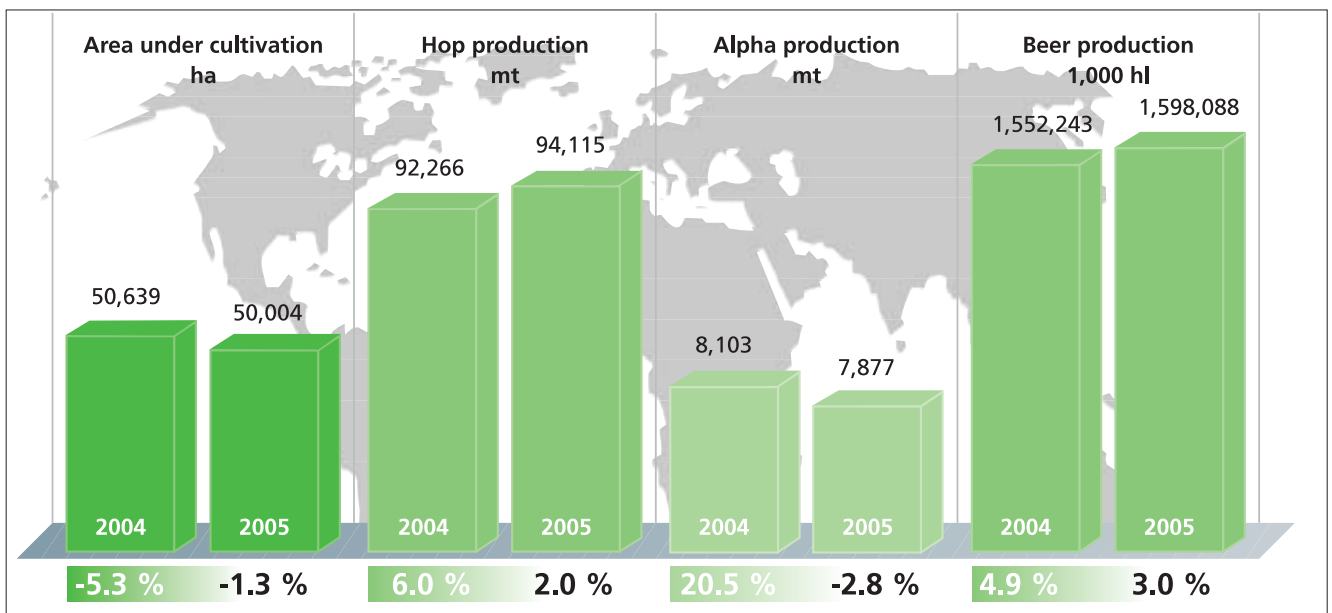


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## World Market Key Data



## Dear Reader,

When we talk about the hop trade today, we are talking about a global market. Hops are traded worldwide. It is interesting to note that the biggest hop exporting countries are also the biggest hop importing countries. The reason is obvious, as the leading exporting countries, Germany and the USA, have the entire value chain:

- variety breeding
- processing know-how
- adequate processing and storage capacities
- trading know-how
- research and development: products, applications

Moreover, the world export champions have the most efficient varieties and those most frequently traded on the world market, either in the form of national or company-specific variety breeding programmes.

Germany is the world leader in hop exports, with the USA in second place.

A notable absentee in the statistics on hop exporting nations is China,

although China is the world's biggest beer producer and has its own hop industry. However, what China still lacks is the above-mentioned value-added structure.

The world champion among the importers is the USA. Germany ranks third behind Japan.

Germany and the USA will continue to dominate the flow of trade in the hop industry. The short-lived changes in the respective positions of the two nations are governed by the fluctuations in dollar-euro exchange rate. In the medium term, the USA will enjoy a slight advantage, as downstream products are manufactured almost exclusively from US hops.

China is the great unknown quantity of the future. The output of the Chinese brewing industry could rise to 390 – 490m hl by 2010. This will exert a major influence on the flows of trade in hops and on investment decisions.



**Stephan J. Barth**  
Managing Partner  
Joh. Barth & Sohn GmbH & Co. KG

## The front cover

The photo-collage was designed by Roland Sattler, an academic artist based in the hop-growing district of Spalt, using a mirror technique. The result is a mandala.

Depictions of the mandala are found in many cultures. It is, in a sense, a supercultural symbol signifying: centering, concentration, order, structure, circle. A mandala

may contain both abstract and ornamental forms, or, as in this case, be based on a motif in nature.

# Political Situation

World attention was focused on the usual places – with the addition of one new one.

In August 2005, the occupation of the Gaza Strip was ended by **Israel** after 38 years. Eight months later, the Israeli army re-entered the area with ground troops. In August 2005, **Israel** also completed their clearance of the Jewish settlements on the West Bank.

After Ariel Sharon suffered a stroke, his deputy, Ehud Olmert, took over his duties in January 2006. Under the leadership of Prime Minister Olmert, the new Kadima Party founded by Ariel Sharon won the early elections on 28.3.2006 and formed a coalition government with the Labour Party.

In the parliamentary elections in **Palestine** on 25.1.2006 the radical Hamas party surprisingly won an absolute majority. As Hamas do not recognize the state of Israel, inter-Palestinian conflict broke out between them and President Mahmoud Abbas of the Fatah movement.

Five months after the parliamentary elections in **Iraq**, despite what continues to

be a difficult situation, the government of Prime Minister Jawad al-Maliki was confirmed in office on 20.5.2006.

In July 2005, the religious-conservative Mahmoud Ahmadinejad won the presidential election in **Iran**. In spite of international protests, Iran resumed its nuclear research programme with the aim, according to Ahmadinejad's government, of using nuclear energy for peaceful purposes. Attempts made at various levels to persuade Iran by political means to abandon this course have so far been to no avail.

In **Germany**, elections were held for the 16th "Bundestag", or federal parliament, on 18.11.2005, following the dissolution of the previous parliament by President Horst Köhler. The Christian Democrats (CDU, CSU) and Social Democrats (SPD) form a grand coalition which will govern until 2009. Angela Merkel (CDU) was sworn in as Germany's first woman Chancellor.

The last republic in the federation of Yugoslavia will be a new European state. In

May 2006 the people of **Montenegro** voted for independence from **Serbia**.

In **Japan**, Prime Minister Junichiro Koizumi was returned to office following new elections in September 2005. Also in September 2005, President Hosni Mubarak was re-elected in **Egypt**. In the general election in Egypt in December 2005 the opposition gained greater influence.

Changes in government followed elections in **Poland** (Lech Kaczyński of PiS, the national-conservative Law and Justice party, won the presidential election), in **Norway** (a red-red-green coalition replaced the centre-right government), in **Bolivia** (socialist trade union leader Morales became the new president) and in **Canada** (where the Conservatives ousted the Liberals after 12 years).

King Fahd of **Saudi Arabia** died on 1.8.2005 after a long illness. He was succeeded by Crown Prince Abdullah.

On 28.7.2005, the Irish Republican Army (IRA) declared an end to their armed struggle.

# European Union (EU)

## EU enlargement

In October 2005 the members of the European Union agreed to commence accession negotiations with **Turkey** and **Croatia** immediately.

An important preliminary decision was reached by the EU Commission with regard to the accession of **Bulgaria** and **Romania**: The two states bordering on the Black Sea are to join the present Union of 25 countries on 1.1.2007, as planned. Safeguard clauses and conditions may be attached to the accession of the two countries. The EU heads of state and government are responsible for the final decision in the autumn of 2006.

## EU constitution

Although frequently referred to as a constitution, the text signed in Rome on 29.10.2004 is in fact an international treaty: the treaty concerning a constitution for Europe. In order to enter into force, it has to be ratified by the 25 member states of the European Union. The referendums in **France** and the **Netherlands** produced negative results. By 10.5.2006 the constitutional treaty had been approved in

15 of the 25 member states. The foreign ministers of the EU states have agreed to discuss a new proposal in June 2007, after the elections of a new president in France and a new government in the Netherlands. The objective is to have a valid constitution in time for the election of a new European parliament in 2009.

## EU stability pact

The Stability and Growth Pact is an agreement that is intended to ensure the stability of the euro within the framework of the economic and currency union primarily by limiting the government deficits of the member states to a maximum of three per cent of gross domestic product. In 11 of the 25 member states the government deficit is higher than the specified limit. Euro-zone states which contravene this rule run the risk of deficit proceedings and sanctions running into the billions.

## EU budget

At the end of tough negotiations in December 2005 the EU heads of government agreed upon a financial framework for the years 2007 to 2013. The EU budget will

amount to a total of 862.3 billion euros.

## Currency policy

On 16.5.2006 the EU Commission concluded that **Slovenia** met all the criteria to introduce the single currency as of 1.1.2007. This state would thus be the 13th to join the euro zone and the first country in the group of the ten new EU states to do so. The final decision is a matter for the EU finance ministers and will be taken in July 2006.

## Common Agricultural Policy reforms – The common market organisation for hops

On 23.11.2005 Council Regulation (EC) No. 1952/2005 was passed regarding the common market organisation for hops. This regulation took effect on 1.1.2006 and replaces the previous market organisation 1696/71 passed in 1971. The latter had already been amended substantially, particularly by Council Regulation (EC) No. 1782/2003 containing the common rules for direct support payments within the framework of the Common Agricultural Policy (see Barth Report 2004/2005, page 4).



In the interests of clarity, the old market organisation was therefore repealed and replaced with the new market organisation 1952/2005. The old section IV regarding "production aid" has been removed entirely, now that there is only one common regulation for direct payments for the entire agricultural sector. The other sections

containing the regulations on the subjects of "marketing", "producer groups" and "trade with third countries", however, have been adopted into the new market organization virtually unchanged.

At present, discussions are in progress on recodifying the regulations regarding hop certification. The two regulations applicable

until now, No. 1784/77 concerning hop certification and No. 890/78 concerning the details of hop certification, are to be modernized and combined to form one single regulation.

## Economic Situation

The world economy remained in good health. **Gross domestic product (GDP)** worldwide grew by 3.2 % in 2005, compared with 3.8 % in the year before, and remained robust in spite of rising energy and raw materials prices.

In order to curb the risks of inflation resulting from this growth, the **Fed**, the US central bank, continued to raise interest rates. From May 2005 to May 2006 the discount rate was increased from 3.00 % to 5.00 %. The interest rate rise in May 2006 was the 16th in succession since June 2004. In Europe, the longest and most marked low-interest phase in post-war history ended on 1.12.2005. The European Central Bank (**ECB**) raised its key repo rate from 2.00 % to 2.25 %. This was the first increase in five years. A second increase, to 2.50 % followed on 2.3.2006. The soaring US budget deficits, however, are considered a risk to the world economy in general and to the American economy in particular.

The euro-dollar **exchange rate**, which is important for the flow of goods, developed unevenly during the period under review. On 16.11.2005 the euro reached a two-year low of 1.1645 dollars, whereas on 6.6.2006 it reached 1.2971 dollars, its highest level since May 2005.

The stock markets recorded rising share prices during the period under review. On 9.1.2006, the **Dow Jones** surpassed the 11,000-point mark for the first time since 11 September 2001. On 11.5.2006, Germany's **Dax** index reached 6,162 points, its highest level since June 2006. Within only a few weeks, however, it fell back to a low of 5,244 points. This was a clear expression of the uncertainty in the markets.

GDP growth in the **eurozone** amounted to 1.3 %. Growth in **Germany** of +0.9 %, however, was below average, although the country was the undisputed world leader in

the export of goods, as it had been the year before. The EU and the Franco-German axis in particular remain a cause of concern for the world economy. There is an urgent need for reform of their tax and labour market systems.

**China**, on the other hand, posted the greatest growth, with an increase of 9.9 %. In the meantime, this country has become the world's third-largest economy. In 2005, its trade surplus trebled year on year.

Rising energy prices are having a negative effect on economic development. On 23.6.2005, the price of a barrel of crude oil exceeded 60 dollars for the first time. An all-time high of over 75 dollars was reached on 21.4.2006.

### Key Data of the USA, Japan, Germany and China

		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	2003	2.7%	-519.7	-547.3	2.3%	4.02%	6.0%
	2004	4.2%	-668.1	-665.4	2.7%	4.27%	5.5%
	2005	3.5%	-817.5	-784.1	3.4%	4.29%	5.1%
Japan	2003	1.8%	137.1	106.5	-0.3%	0.99%	5.2%
	2004	2.3%	172.0	130.6	0.0%	1.49%	4.7%
	2005	2.7%	166.4	93.8	-0.3%	1.38%	4.4%
Germany	2003	-0.2%	52.7	148.9	1.0%	4.09%	10.5%
	2004	1.6%	104.7	192.4	1.8%	4.06%	10.6%
	2005	0.9%	112.3	199.1	1.9%	3.38%	11.7%
China	2003	10.9%	45.9	24.8	1.2%	5.76%	4.5%
	2004	10.1%	68.7	32.8	3.9%	5.85%	4.5%
	2005	9.9%	128.7	101.9	1.9%	6.12%	4.4%

The figures for 2003 and 2004 have been revised according to the latest statistics \*) Interest rate for 10-year bonds. China: interest for long-term credits.

# World Beer Production 2004/2005

figures in 1,000 hl

Europe		
Country	2004	2005
Germany	106,190	105,500 *
Russia (CIS)	85,200	89,200
Great Britain	58,911	56,021
Spain	30,677 *	32,500 *
Poland	27,700	29,000
Netherlands	23,828	24,560
Ukraine (CIS)	17,290	23,700
Czech Republic	18,753	19,069
Belgium	17,409	17,274
France	16,801	16,394
Romania	14,000	15,241
Italy	12,566	12,269
Ireland	8,142	8,969
Turkey	8,245	8,936
Austria	8,670	8,785
Denmark	8,550	8,704
Portugal	7,710	7,440
Hungary	6,872	7,000
Serbia/Montenegro	6,000 *	6,730
Finland	4,617	4,590
Bulgaria	4,312	4,225
Greece	4,000 *	4,000 *
Slovakia	4,218	3,963
Sweden	3,788	3,781
Croatia	3,653	3,619
Switzerland	3,561	3,417
Latvia	2,770	2,990
Belarus (CIS)	2,200 *	2,715
Norway	2,490	2,368
Slovenia	2,100	1,989
Lithuania	1,350	1,390
Estonia	1,100	1,250
Bosnia-Herzegovina	1,079	1,145
Georgia (CIS)	750 *	900
Moldavia	650	740
Macedonia	716	695
Albania	400	550
Armenia	350 *	400
Cyprus	390	393
Luxembourg	377	374
Other CIS-countries	300 *	320
Iceland	145	156
Malta	80 *	76
<b>Total</b>	<b>528,910</b>	<b>543,338</b>

Australia/Oceania		
Country	2004	2005
Australia	16,910	17,090
New Zealand	3,060	3,036
Papua-New Guinea	390	390 *
Tahiti	180 *	180 *
Fiji Islands	160 *	160 *
New Caledonia	130 *	130 *
Samoa	72	72 *
Solomon Islands	31	41
Tonga	8 *	8 *
Vanuatu	7 *	7 *
<b>Total</b>	<b>20,948</b>	<b>21,114</b>

America		
Country	2004	2005
USA	232,402	230,245
Brazil	85,600 *	90,000 *
Mexico	68,482	72,500
Canada	23,130	23,156
Venezuela	20,800 *	22,000 *
Columbia	16,000 *	16,500 *
Argentina	12,800 *	13,700 *
Peru	6,100 *	7,100 *
Chile	4,200 *	4,600 *
Dominican Republic	3,000 *	3,000 *
Ecuador	3,000 *	3,000 *
Cuba	2,490	2,629
Bolivia	1,881 *	1,800 *
Panama	1,500 *	1,800 *
Paraguay	1,600 *	1,600 *
Guatemala	1,400 *	1,500 *
Costa Rica	1,300 *	1,400 *
Honduras	961 *	950 *
Jamaica	900 *	900 *
Uruguay	800 *	800 *
El Salvador	770 *	800 *
Nicaragua	665 *	650 *
Puerto Rico	500 *	550 *
Guyana	400 *	400 *
Trinidad	300 *	330 *
Belize	150 *	180 *
Bahamas	140 *	140 *
Dutch Antilles	130 *	130 *
Surinam	97 *	95 *
Haiti	100 *	90 *
Barbados	70 *	70 *
Martinique	70 *	70 *
St. Lucia	60 *	60 *
St. Vincent	45	51
Grenada	35 *	35 *
Antigua	25	27
Dominica	18	21
St. Kitts	17 *	17 *
Aruba	16 *	16 *
Cayman Islands	4 *	4 *
<b>Total</b>	<b>491,958</b>	<b>502,916</b>

Asia		
Country	2004	2005
China	291,000	306,156
Japan	65,490	63,430
Thailand	16,135	17,030
South Korea	17,895	17,020
Vietnam	11,664	13,783
Philippines	14,000 *	13,500
India	7,000 *	7,800
Kazakhstan (CIS)	3,110	3,890
Taiwan	3,846	3,676
Indonesia	1,470 *	1,500 *
Uzbekistan (CIS)	1,200 *	1,500
Malaysia	1,415	1,300
Singapore	1,130	1,103
Laos	826	927
Israel	722	845
Aserbajdschan (CIS)	450 *	650
Sri Lanka	484	515
Cambodia	450 *	480 *
Hong Kong	288	266
Nepal	251	265
Myanmar (Burma)	245 *	250 *
Iran	200 *	200 *
Lebanon	150 *	185
Syria	104	100
Mongolia	80	80
Jordania	50 *	55 *
Pakistan	30	25
Iraq	50 *	0 *
<b>Total</b>	<b>439,735</b>	<b>456,531</b>

Africa		
Country	2004	2005
South Africa	25,000 *	25,900
Nigeria	9,400	10,000
Cameroon	4,775	4,270
Kenya	2,600	3,500
Angola	2,059	2,931
Tanzania	2,135	2,430
Egypt	2,650	2,000
Ethiopia	1,610	1,700
Dem. Rep. Congo (Zaire)	1,812	1,650 *
Uganda	1,200	1,444
Algeria	1,071	1,337
Ivory Coast	1,214	1,300
Namibia	1,165 *	1,300
Zimbabwe	1,300	1,209
Mozambique	1,085	1,177
Ghana	1,048	1,086
Burundi	962	1,004
Tunesia	1,000	1,000
Morocco	914	950
Gabon	760	850
Congo	671	742
Madagascar	700	682
Burkina Faso	578	620
Rwanda	464	561
Zambia	570	529
Botswana	570	510
Benin	430	430
Mauritius	374	368
Eritrea	277	338
Togo	316	322
Lesotho	301	293
Chad	207	230 *
Réunion	196	207
Swaziland	189	202
Senegal	183	200
Malawi	190 *	190 *
Guinea	156	155 *
Central African Republic	116	100 *
Mali	79	84
Liberia	68	83
Sierra Leone	71	83
Seychelles	63	66
Niger	61	62
Guinea Bissau	46	40 *
Gambia	36	34
Cape Verde Islands	20 *	20 *
<b>Total</b>	<b>70,692</b>	<b>74,189</b>

WORLD TOTAL	
2004	2005
1,552,243	1,598,088

in italics: corrections for 2004 as stated in last year's report.

\* estimate



# Output Development

	2004 1,000 hl	2005 1,000 hl	2004 +/- % rel.	2005 +/- % rel.
European Union	377,569	378,281	20.6%	0.2%
Rest of Europe	151,341	165,057	-25.2%	9.1%
<b>Europe total</b>	<b>528,910</b>	<b>543,338</b>	<b>2.6%</b>	<b>2.7%</b>
North America	255,532	253,401	0.3%	-0.8%
Central America/Caribbean	83,078	87,770	3.1%	5.6%
South America	153,348	161,745	6.9%	5.5%
<b>America total</b>	<b>491,958</b>	<b>502,916</b>	<b>2.8%</b>	<b>2.2%</b>
<b>Asia</b>	<b>439,735</b>	<b>456,531</b>	<b>10.6%</b>	<b>3.8%</b>
<b>Africa</b>	<b>70,692</b>	<b>74,189</b>	<b>7.1%</b>	<b>4.9%</b>
<b>Australia/Oceania</b>	<b>20,948</b>	<b>21,114</b>	<b>-2.0%</b>	<b>0.8%</b>
<b>WORLD TOTAL</b>	<b>1,552,243</b>	<b>1,598,088</b>	<b>4.9%</b>	<b>3.0%</b>

In 2005 beer output rose year on year by 3 %, or 45.8m hectolitres. Of that amount,

**China** contributed by far the largest share, with an increase of 15.2m hectolitres.

In **Europe**, Ukraine (+6.4m hl.) and Russia (4.0m hl.) provided for strong growth, while the UK, on the other hand, registered a significant drop of 2.9m hectolitres.

The increase in output in **America** is accounted for by growth in Brazil (+4.4m hl.) and Mexico (+4m hl.). In the USA, output fell by 2.2m hectolitres.

A drop of 2.1m hectolitres in Japan slightly reduced the above-average growth in **Asia** compared with the rest of the world.

**Africa** shows the highest growth of all continents in percentage terms, with 4.9 %.

# Market Analysis

Seldom did the experts agree so closely at the beginning of a harvest in their assessment of the upcoming marketing campaign. In Germany at the end of August, expressions of great expectations with regard to the market and price opportunities open to aroma hops, combined with a basic mood of subdued optimism on the marketing of high-alpha hops, contrasted with complaints in America at the same time of loss of production volume due to powdery mildew and, consequently, of a scarcity of high-alpha spot hops.

The actual development of the market proved none of the experts really right and clearly showed that in these days of a globally networked world, everyone has access to information, but no-one has an overview.

As in the previous year, good to above-average yields, accompanied by good alpha results, were recorded for the high-alpha varieties in all the European production areas, particularly in Germany, however. With acreage continuing to decline to currently only 50,004 hectares, world production volume amounted to 7,877 mt of alpha, which was down by 226 mt year on year. 3,005 mt of the alpha was produced in Germany. This is almost equal to the previous year's crop. However, the alpha volume from the high-alpha varieties was approx. 200 mt lower. Due to increased acreage, good yields per hectare and in some cases above-average alpha content – for Perle, in particular – production volume among the aroma varieties was approx. 180 mt higher than in 2004. The US crop, on the other hand, produced only 2,550 mt alpha. It was therefore

155 mt down year on year and can only be rated as below-average. The volume of alpha produced in China was virtually unchanged year on year at only 657 mt, which in turn led to a national supply deficit whose effects were felt on the world market for the first time.

It is also worth mentioning the production volume in the Czech Republic. In terms of alpha values, which were in line with the long-term average, the volume recorded was 1,520 mt higher than in the previous year. In response to this, pressure grew on both the purchase and the selling price quotations for finest Saaz hops. For the first time it was necessary to establish pools for non-contracted hops to ensure the sale of the crop.

All in all, the world market was offered approx. 420 mt less alpha acid from alpha varieties and 200 mt more from aroma varieties than in 2004.

Regardless of the underlying positive assessment for high-alpha hops in crop 2005, the market was initially depressed by the existence of unsold stocks of German hops from the previous year. Nevertheless, as the market players expected a shortfall in supply in the high-alpha segment, although there was disagreement as to its extent, purchase prices rose, both in Germany and in the USA. For the first time in years, the predominant share of the high-alpha crop on the German spot market was once again sold at fixed prices and not through pools, the sign of weak markets. In the course of 2005 and well into the spring of 2006, hop merchants were unable to pass

on more than a part of these increases in purchase prices to the brewing industry. This was remarkable in view of the USA having largely dropped out as a supplier for the world market and of the marked weakness of the euro against the US dollar. The multinational brewing companies, which all adhere to budget-oriented purchasing policies, responded to the price increases by cutting back purchasing, delaying purchasing or reducing strategic stocks. It was not until the early summer of 2006, when levels of existing stocks of high-alpha hop material were becoming low, that there was a noticeable and sharp rise in price quotations. At the same time, demand was unusually brisk for the time of year.

The situation regarding aroma hops initially came up to the high expectations. As in the previous year, a market quickly developed for non-contracted hops at adequate fixed prices. Only very small quantities were marketed through the trading companies' pools. However, from spring 2006 onwards trading became thin, with prices for aroma hops falling noticeably and still failing to recover by early summer 2006.

Due to continuing clearance of hop yards in the high-alpha segment, the market for crop 2006 is expected to be tight. The market for common aroma varieties is also expected to be balanced to tight. The volume of alpha required for markets outside the brewing industry is estimated at approx. 100 mt, and rising. Greater attention will have to be paid to this factor in the future.



# Hop Acreage and Production 2004/2005

		2004				2005			
		Acreage ha	Production mt	Ø-Alpha %	Alpha mt	Acreage ha	Production mt	Ø-Alpha %	Alpha mt
Germany	Hallertau	14,515	28,240.7	9.4%	2,649	14,221	29,640.6	8.8%	2,599
	Elbe-Saale	1,333	2,525.4	11.6%	294	1,332	2,486.2	12.3%	305
	Tettngang	1,220	1,861.2	4.5%	83	1,193	1,702.8	4.2%	71
	Spalt	388	543.6	4.4%	24	395	599.6	4.4%	27
	Others	20	37.1	6.5%	2	20	37.6	7.3%	3
	<b>Total</b>	<b>17,476</b>	<b>33,208.0</b>	<b>9.2%</b>	<b>3,052</b>	<b>17,161</b>	<b>34,466.8</b>	<b>8.7%</b>	<b>3,005</b>
Czech Republic	Saaz	4,382	4,435.5	4.3%	191	4,225	5,462.2	3.9%	211
	Auscha	756	816.4	3.3%	27	740	1,108.7	3.5%	38
	Tirschitz	700	1,058.8	4.7%	49	705	1,260.3	4.2%	53
	<b>Total</b>	<b>5,838</b>	<b>6,310.7</b>	<b>4.2%</b>	<b>267</b>	<b>5,670</b>	<b>7,831.2</b>	<b>3.9%</b>	<b>302</b>
Poland		2,239	3,015.2	7.0%	211	2,289	3,413.7	6.9%	237
Slovenia		1,557	2,690.0	8.6%	231	1,511	2,539.0	7.5%	189
England		1,358	2,048.2	8.4%	172	1,071	1,593.3	7.9%	125
France		786	1,159.5	1.9%	22	802	1,371.3	2.9%	39
Spain		684	1,338.2	11.4%	153	685	1,294.5	10.9%	141
Slovakia		320	363.6	4.4%	16	320	425.5	4.0%	17
Austria		207	299.6	7.7%	23	219	337.3	7.2%	24
Belgium		194	395.0	9.5%	38	191	364.0	10.5%	38
Hungary		37	62.5	12.4%	8	37	64.1	10.9%	7
Portugal		22	38.9	9.7%	4	21	27.0	8.6%	2
<b>European Union</b>		<b>30,718</b>	<b>50,929.4</b>	<b>8.2%</b>	<b>4,197</b>	<b>29,977</b>	<b>53,727.7</b>	<b>7.7%</b>	<b>4,126</b>
Ukraine		1,464	1,270.0	4.4%	56	1,464	1,473.0	4.5%	66
Russia		555	340.0	4.7%	16	422	264.0	4.8%	13
Turkey		342	274.8	8.9%	25	311	309.2	9.2%	28
Bulgaria		221	323.0	10.1%	33	221	342.0	10.1%	35
Serbia/Montenegro		246	428.0	5.3%	23	166	300.0	5.4%	16
Romania		100 *	50.0 *	6.5%	3	100 *	50.0 *	6.5%	3
Belarus		22 *	22.0 *	9.0%	2	22 *	22.0 *	9.0%	2
Switzerland		20	48.6	11.9%	6	20	38.1	11.4%	4
<b>Rest of Europe</b>		<b>2,970</b>	<b>2,756.4</b>	<b>5.9%</b>	<b>164</b>	<b>2,726</b>	<b>2,798.3</b>	<b>6.0%</b>	<b>167</b>
<b>EUROPE</b>		<b>33,688</b>	<b>53,685.8</b>	<b>8.1%</b>	<b>4,361</b>	<b>32,703</b>	<b>56,526.0</b>	<b>7.6%</b>	<b>4,293</b>
USA	Washington	7,844	18,791.0	11.5%	2,165	8,537	17,903.1	11.3%	2,022
	Oregon	2,067	3,906.3	7.8%	304	2,089	3,653.2	7.9%	287
	Idaho	1,316	2,342.8	9.5%	222	1,330	2,445.3	9.2%	224
	<b>Total</b>	<b>11,227</b>	<b>25,040.1</b>	<b>10.7%</b>	<b>2,691</b>	<b>11,956</b>	<b>24,001.6</b>	<b>10.6%</b>	<b>2,533</b>
Argentina		160	185.0	7.5%	14	184	257.4	6.6%	17
<b>AMERICA</b>		<b>11,387</b>	<b>25,225.1</b>	<b>10.7%</b>	<b>2,705</b>	<b>12,140</b>	<b>24,259.0</b>	<b>10.5%</b>	<b>2,550</b>
China	Xinjiang	2,056	5,260.0	7.1%	372	1,830	5,500.0	7.0%	387
	Gansu	1,696	4,398.4	6.2%	272	1,656	4,272.5	6.3%	270
	<b>Total</b>	<b>3,752</b>	<b>9,658.4</b>	<b>6.7%</b>	<b>644</b>	<b>3,486</b>	<b>9,772.5</b>	<b>6.7%</b>	<b>657</b>
Japan		274	459.2	6.7%	31	244	496.5	6.3%	31
India		71	28.0	11.0%	3	73	41.6	10.6%	4
<b>ASIA</b>		<b>4,097</b>	<b>10,145.6</b>	<b>6.7%</b>	<b>678</b>	<b>3,803</b>	<b>10,310.6</b>	<b>6.7%</b>	<b>692</b>
South Africa		510	988.5	12.8%	126	506	937.0	12.9%	121
<b>AFRICA</b>		<b>510</b>	<b>988.5</b>	<b>12.7%</b>	<b>126</b>	<b>506</b>	<b>937.0</b>	<b>12.9%</b>	<b>121</b>
Australia		535	1,428.5	11.4%	163	449	1,238.0	11.8%	146
New Zealand		422	792.1	8.8%	70	403	844.5	8.9%	75
<b>AUSTRALIA/OCEANIA</b>		<b>957</b>	<b>2,220.6</b>	<b>10.5%</b>	<b>233</b>	<b>852</b>	<b>2,082.5</b>	<b>10.6%</b>	<b>221</b>
<b>WORLD</b>		<b>50,639</b>	<b>92,265.6</b>	<b>8.8%</b>	<b>8,103</b>	<b>50,004</b>	<b>94,115.1</b>	<b>8.4%</b>	<b>7,877</b>

\* estimate

in italics: corrections for 2004 as stated in last year's report.





# Alpha Acid Production

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

<b>Group I:</b>	Fine aroma hops	Hops with a long-term average alpha content of up to 4.5%, such as Hallertau Mittelfrueh, Hersbruck Spaet, Klon 18, Lublin, Saaz, Saphir, SA-1, Spalt, Styrian Golding, Strisselspalt, Tettngang.
<b>Group II:</b>	Aroma hops	Varieties with a long-term average alpha content of over 4.5%, such as Aurora, Cascade, First Gold, Fuggles, Goldings, Hallertau Tradition, Horizon, Mount Hood, NZ Hallertau, Perle, Spalt Select, Sterling, Willamette.
<b>Group III:</b>	Bitter hops/ high alpha hops	such as Admiral, Chelan, Chinook, Cluster, Columbus/Tomahawk/Zeus (CTZ), Galena, Hallertau Magnum, Hallertau Taurus, Kirin Flower, Marco Polo, Marynka, Millennium, Northern Brewer, Nugget, NZ Pacific Gem, Phoenix, Pride of Ringwood, Super Pride, Target, Tsingdao Flower, Victoria, Warrior.

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

Group	Crop share	Crop mt	2004			2005				
			Alpha Ø	Alpha mt	Alpha share	Crop share	Crop mt	Alpha Ø	Alpha mt	Alpha share
I	17.5%	16,162	3.7%	590	7.3%	19.7%	18,516	3.4%	627	8.0%
II	25.1%	23,145	5.8%	1,331	16.4%	26.9%	25,367	5.9%	1,492	18.9%
III	57.4%	52,959	11.7%	6,182	76.3%	53.4%	50,232	11.5%	5,758	73.1%
<b>Total</b>	<b>100.0%</b>	<b>92,266</b>	<b>8.8%</b>	<b>8,103</b>	<b>100.0%</b>	<b>100.0%</b>	<b>94,115</b>	<b>8.4%</b>	<b>7,877</b>	<b>100.0%</b>

The total figures for 2004 were amended compared to last year's report.

**All the alpha acid values stated in this report were recorded on the basis of % as is, according to EBC analysis 7.4 ToP (Time of Processing).**

In crop year 2005, alpha production fell short of the previous year's total by 226 mt. Due to the combination of a low production volume and low average alpha content in the bitter and high-alpha hops, the share of total alpha production accounted for by variety group III decreased relative to that of the aroma hops (groups I and II). Together, Germany and the USA produced 70.3 % of total world alpha in crop year

2005. Germany retained its title as the world's top alpha producer with a share of 38.1 % (previous year: 37.7 %), followed by the USA with 32.2 % (previous year: 33.2 %) and China with 8.3 % (previous year: 8.0 %). Within the individual alpha groups there were no changes in the countries' rankings. There were only minor year-on-year changes in their individual shares.

Alpha group I – fine aroma hops: Germany 39.1 % (previous year: 40.7 %), Czech Republic 35.7 % (previous year: 35.5 %).

Alpha group II – aroma hops: Germany 51.7 % (previous year: 45.3 %), USA 21.1 % (previous year: 23.5 %).

Alpha group III – bitter hops/high-alpha hops: USA 38.5 % (previous year: 38.5 %), Germany 34.5 % (previous year: 35.8 %).

# Alpha Acid Balance

Calendar year	Alpha demand		Alpha production		Alpha supply	
	Hopping rate	Demand	Crop year	Production	Surplus	Deficit
2002	5.3 g α/hl	7,649 mt α	2001	8,646 mt α	997 mt α	---
2003	5.2 g α/hl	7,664 mt α	2002	8,749 mt α	1,085 mt α	---
2004	5.1 g α/hl	7,916 mt α	2003	6,722 mt α	---	1,194 mt α
2005	5.0 g α/hl	7,990 mt α	2004	8,103 mt α	113 mt α	---
2006*	4.9 g α/hl	8,026 mt α	2005	7,877 mt α	---	149 mt α

\* Estimated demand

The alpha acid balance for crop year 2005 records alpha production totalling 7,877 mt, and thus an arithmetical deficit of 149 mt.

This does not take into account any alpha degradation taking place between the processing of the hops and their actual use in

the brewery. The increasing usage of hops outside the brewing industry should also be kept in mind.



# Germany

Area	Variety	Development of acreage			Development of production			
		2004	+/-	2005	2004	2005	2004	2005
		Acreage ha			Ø-Yield mt/ha		Production mt	
Hallertau	Perle	2,690	99	2,789	1.87	2.04	5,032.68	5,693.38
	Hallertau Tradition	1,919	197	2,116	1.78	2.00	3,419.62	4,230.16
	Hallertau Mittelfrueh	1,440	52	1,492	1.32	1.59	1,903.97	2,368.39
	Hersbruck Spaet	1,187	-146	1,041	1.70	1.91	2,018.66	1,985.37
	Spalt Select	734	-2	732	1.94	2.26	1,425.90	1,651.12
	Saphir	183	5	188	1.33	2.35	243.51	441.57
	Other Aroma	1	44	45	3.63	0.77	3.63	34.86
	<b>Total Aroma</b>	<b>8,154</b>	<b>249</b>	<b>8,403</b>	<b>1.72</b>	<b>1.95</b>	<b>14,047.97</b>	<b>16,404.85</b>
	Northern Brewer	474	-51	423	1.97	2.02	933.03	852.67
	Other Bitter	40	-1	39	2.28	2.43	91.12	94.75
	<b>Total Bitter</b>	<b>514</b>	<b>-52</b>	<b>462</b>	<b>1.99</b>	<b>2.05</b>	<b>1,024.15</b>	<b>947.42</b>
	Hallertau Magnum	3,996	-336	3,660	2.31	2.32	9,212.03	8,476.50
	Hallertau Taurus	1,238	-61	1,177	2.13	2.33	2,635.84	2,745.30
	Nugget	381	-63	318	2.38	2.20	906.03	699.16
	Hallertau Merkur	150	-34	116	1.79	2.12	269.23	245.47
	Other High Alpha	38	18	56	2.52	1.20	95.89	67.02
	<b>Total High Alpha</b>	<b>5,803</b>	<b>-476</b>	<b>5,327</b>	<b>2.26</b>	<b>2.30</b>	<b>13,119.02</b>	<b>12,233.45</b>
	<b>Others</b>	<b>44</b>	<b>-15</b>	<b>29</b>	<b>1.13</b>	<b>1.89</b>	<b>49.54</b>	<b>54.89</b>
	<b>Total Hallertau</b>	<b>14,515</b>	<b>-294</b>	<b>14,221</b>	<b>1.95</b>	<b>2.08</b>	<b>28,240.68</b>	<b>29,640.61</b>
	Elbe-Saale	Perle	115	4	119	1.95	1.85	224.35
Hallertau Tradition		14	10	24	1.21	1.26	16.91	30.27
<b>Total Aroma</b>		<b>129</b>	<b>14</b>	<b>143</b>	<b>1.87</b>	<b>1.75</b>	<b>241.26</b>	<b>250.23</b>
Northern Brewer		191	-2	189	1.73	1.48	330.75	279.63
<b>Total Bitter</b>		<b>191</b>	<b>-2</b>	<b>189</b>	<b>1.73</b>	<b>1.48</b>	<b>330.75</b>	<b>279.63</b>
Hallertau Magnum		867	-10	857	1.94	1.98	1,678.94	1,694.42
Nugget		69	-7	62	1.77	1.88	121.81	116.35
Hallertau Merkur		40	0	40	1.86	2.02	74.33	80.92
Hallertau Taurus		30	3	33	2.24	1.62	67.32	53.49
Other High Alpha		7	1	8	1.57	1.40	10.97	11.17
<b>Total High Alpha</b>		<b>1,013</b>	<b>-13</b>	<b>1,000</b>	<b>1.93</b>	<b>1.96</b>	<b>1,953.37</b>	<b>1,956.35</b>
<b>Total Elbe-Saale</b>	<b>1,333</b>	<b>-1</b>	<b>1,332</b>	<b>1.89</b>	<b>1.87</b>	<b>2,525.38</b>	<b>2,486.21</b>	
Tettngang	Tettngang	790	-25	765	1.41	1.33	1,116.43	1,018.89
	Hallertau Mittelfrueh	414	-2	412	1.73	1.51	717.57	623.82
	Other Aroma	13	0	13	1.56	3.74	20.28	48.58
	<b>Total Aroma</b>	<b>1,217</b>	<b>-27</b>	<b>1,190</b>	<b>1.52</b>	<b>1.42</b>	<b>1,854.28</b>	<b>1,691.29</b>
	<b>High Alpha</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>2.33</b>	<b>3.83</b>	<b>6.98</b>	<b>11.50</b>
<b>Total Tettngang</b>	<b>1,220</b>	<b>-27</b>	<b>1,193</b>	<b>1.53</b>	<b>1.43</b>	<b>1,861.26</b>	<b>1,702.79</b>	
Spalt	Spalt Select	115	0	115	1.68	1.90	193.63	218.50
	Hallertau Mittelfrueh	114	-1	113	1.30	1.47	148.21	165.90
	Spalt	101	-6	95	1.16	1.19	116.71	113.24
	Hallertau Tradition	18	8	26	1.39	1.33	25.10	34.47
	Perle	17	6	23	1.70	1.45	28.90	33.40
	Hersbruck Spaet	9	0	9	1.46	1.23	13.14	11.09
	<b>Total Aroma</b>	<b>374</b>	<b>7</b>	<b>381</b>	<b>1.41</b>	<b>1.51</b>	<b>525.69</b>	<b>576.60</b>
	<b>High Alpha</b>	<b>14</b>	<b>0</b>	<b>14</b>	<b>1.28</b>	<b>1.64</b>	<b>17.88</b>	<b>22.94</b>
<b>Total Spalt</b>	<b>388</b>	<b>7</b>	<b>395</b>	<b>1.40</b>	<b>1.52</b>	<b>543.57</b>	<b>599.54</b>	
Rhenish-Pal/ Hochdorf	<b>Aroma</b>	<b>15</b>	<b>0</b>	<b>15</b>	<b>1.75</b>	<b>1.82</b>	<b>26.21</b>	<b>27.23</b>
	<b>High Alpha</b>	<b>5</b>	<b>0</b>	<b>5</b>	<b>2.18</b>	<b>2.08</b>	<b>10.90</b>	<b>10.39</b>
	<b>Total Rhenish./Hoch.</b>	<b>20</b>	<b>0</b>	<b>20</b>	<b>1.86</b>	<b>1.88</b>	<b>37.11</b>	<b>37.62</b>
<b>Total Aroma</b>		<b>9,889</b>	<b>243</b>	<b>10,132</b>	<b>1.69</b>	<b>1.87</b>	<b>16,695.41</b>	<b>18,950.20</b>
<b>Total Bitter</b>		<b>705</b>	<b>-54</b>	<b>651</b>	<b>1.92</b>	<b>1.88</b>	<b>1,354.90</b>	<b>1,227.05</b>
<b>Total High Alpha</b>		<b>6,838</b>	<b>-489</b>	<b>6,349</b>	<b>2.21</b>	<b>2.24</b>	<b>15,108.15</b>	<b>14,234.63</b>
<b>Total Others</b>		<b>44</b>	<b>-15</b>	<b>29</b>	<b>1.13</b>	<b>1.89</b>	<b>49.54</b>	<b>54.89</b>
<b>GERMANY TOTAL</b>		<b>17,476</b>	<b>-315</b>	<b>17,161</b>	<b>1.90</b>	<b>2.01</b>	<b>33,208.00</b>	<b>34,466.77</b>



## Farm structure

With hops no longer being grown on 177 farms, the number of hop producers in 2005 totalled 1,611. The average hop acreage per farm rose to 10.65 ha.

## Growth, crop estimate and weights

After a long, hard winter with very much snow lying until mid-March and a very cold and wet spring, vegetation began late. Throughout the spring season, development of the hop plants was inconsistent and was delayed due to late cutting and the cold and wet weather conditions. Despite a warm period in late April and early May, training began a good week later than in previous years. By early June, the vines had only grown to half the trellis height. During the vegetation period the hop plants appeared to be very healthy, but, due to the cool temperatures, their growth lagged approximately one week behind the 10-year average. It was only thanks to a brief warm spell from the middle to the end of June, in what was otherwise a cool and rainy summer, that the vines were able to catch up in terms of development. By the end of June, the hops varied greatly in their development, according to the quality of the soil. Depending on variety and location, the differences ranged from a height of 5 metres with only the beginnings of lateral growth to 1 metre above trellis

Area	Estimate 08/2005 mt	Weight 31.03.06 mt
Hallertau	28,000.00	29,640.61
Elbe-Saale	2,350.00	2,486.21
Tett nang	1,695.00	1,702.79
Spalt	565.00	599.54
Rhenish-Palatinate/Hochdorf	38.75	37.62
<b>TOTAL</b>	<b>32,648.75</b>	<b>34,466.77</b>

height with laterals already meeting. Due to the weather conditions, flowering and subsequent cone development extended over a longer period than usual. As a result, a larger proportion of the flowers were able to develop into cones which, with the maturation phase extending to late August, produced an above-average yield and high to very high alpha acid values. Maturity and the optimum harvesting time for the individual varieties lagged another 3-4 days behind the relatively late harvest time of the previous year. The long maturing period resulted in some cases in below-average quality of appearance.

The final total recorded as the officially certified hop volume for crop year 2005 was 5.6 % higher than the crop estimate made at the beginning of the harvest. The volume produced in 2005 was approximately 1,260 mt higher than in 2004. Despite the high alpha content, however, alpha production in 2005 was about 50 mt below that of the previous year.

## Acreage/Variety development

Hop acreage in Germany declined for the fourth year in succession. From 2004 to 2005 it decreased by 315 ha. With regard to the variety groups themselves, the acreage strung with aroma hops increased by 243 ha. Among them, **Hallertau Tradition** alone saw its acreage grow by 215 ha (+11 %), whereas the **Hersbruck** variety was cut back by 146 ha (-12.2 %). Bitter varieties, in particular **Northern Brewer**, continue to decline. Acreage of these hops has been halved in the last five years. There was also a significant reduction in the acreage of high-alpha varieties amounting to 489 ha (-7.2 %). The greatest reduction, totalling 344 ha, was recorded for the **Hallertau Magnum** variety. Total acreage in 2005 was divided into: aroma hops 59 %, bitter varieties 4 % and high alpha varieties 37 %.

Over the last five years the acreage developed as follows:

Variety	2001 ha	2002 ha	2003 ha	2004 ha	2005 ha
Perle	3,606	3,385	2,829	2,839	2,947
Hallertau Tradition	1,849	1,783	1,727	1,958	2,173
Hallertau Mittelfrueh	1,411	1,508	1,903	1,970	2,019
Hersbruck Spaet	1,643	1,378	1,270	1,196	1,050
Spalt Select	1,080	990	867	850	850
Tett nang	994	921	822	790	767
Spalt	156	140	116	101	99
Other Aroma	34	73	134	185	227
<b>Total Aroma</b>	<b>10,773</b>	<b>10,178</b>	<b>9,668</b>	<b>9,889</b>	<b>10,132</b>
Northern Brewer	1,695	1,237	870	665	612
Other Bitter	130	74	44	40	39
<b>Total Bitter</b>	<b>1,825</b>	<b>1,311</b>	<b>914</b>	<b>705</b>	<b>651</b>
Hallertau Magnum	4,535	4,847	4,929	4,870	4,526
Hallertau Taurus	1,154	1,243	1,284	1,272	1,215
Nugget	581	545	501	450	380
Other High Alpha	118	199	236	246	228
<b>Total High Alpha</b>	<b>6,388</b>	<b>6,834</b>	<b>6,950</b>	<b>6,838</b>	<b>6,349</b>
Others	37	29	30	44	29
<b>GERMANY TOTAL</b>	<b>19,023</b>	<b>18,352</b>	<b>17,562</b>	<b>17,476</b>	<b>17,161</b>

## Alpha acid table

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	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	ø 5 Years	ø 10 Years
Hallertau	Hallertau	5.4%	5.4%	4.7%	4.1%	4.9%	4.6%	4.6%	3.1%	4.3%	4.4%	4.2%	4.6%
Hallertau	Hersbruck	4.3%	4.7%	3.7%	2.1%	4.9%	3.0%	3.2%	2.1%	3.0%	3.5%	3.0%	3.5%
Hallertau	Saphir	--	--	--	--	--	--	--	--	3.4%	4.1%	--	--
Hallertau	Perle	8.5%	9.3%	6.7%	7.0%	8.1%	7.0%	8.6%	3.9%	6.4%	7.8%	6.7%	7.3%
Hallertau	Spalt Select	5.7%	6.8%	5.5%	4.5%	6.4%	4.8%	6.0%	3.2%	4.9%	5.2%	4.8%	5.3%
Hallertau	Hallertau Tradition	6.8%	7.0%	5.6%	6.0%	7.1%	6.3%	7.2%	4.1%	6.3%	6.3%	6.0%	6.3%
Hallertau	Northern Brewer	10.5%	10.8%	9.1%	9.0%	10.1%	9.6%	10.1%	6.0%	9.8%	9.8%	9.1%	9.5%
Hallertau	Hallertau Magnum	14.2%	16.9%	14.0%	13.4%	14.4%	13.9%	14.6%	11.7%	14.8%	13.8%	13.8%	14.2%
Hallertau	Nugget	10.7%	13.6%	11.2%	10.0%	12.9%	11.9%	12.4%	8.5%	10.6%	11.3%	10.9%	11.3%
Hallertau	Hallertau Taurus	--	16.6%	13.7%	15.9%	15.6%	15.7%	16.5%	12.3%	16.5%	16.2%	15.4%	--
Hallertau	Hallertau Merkur	--	--	--	--	--	--	--	--	13.5%	13.3%	--	--
Elbe-Saale	Northern Brewer	--	9.3%	8.1%	8.0%	9.8%	7.6%	8.8%	6.0%	8.5%	8.7%	7.9%	--
Elbe-Saale	Hallertau Magnum	--	15.4%	12.4%	12.2%	14.0%	13.9%	13.9%	10.2%	14.0%	14.4%	13.3%	--
Tettnang	Tettnang	4.8%	5.4%	4.0%	3.8%	4.9%	4.4%	4.6%	2.6%	4.7%	4.5%	4.2%	4.4%
Tettnang	Hallertau	5.0%	5.5%	4.3%	4.2%	4.8%	4.5%	4.8%	3.1%	5.0%	4.8%	4.4%	4.6%
Spalt	Spalt	5.6%	5.6%	4.4%	3.8%	4.0%	4.4%	4.6%	3.1%	4.4%	4.3%	4.2%	4.4%

The 5-year average refers to the average of the available years for the varieties without a 10-year average.

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) and Labor Veritas (Zürich).

These values constitute the basis for any adjustments of supply contracts containing "alpha clauses" between the brewing industry and hop merchants. The alpha clause was devised jointly by the German brewers' association and the hop industry association and applied for the first time 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.

### Market development

The relatively good 2004 crop affected the alpha market in particular in 2005. As a result, for the first time forward contracts containing alpha contracts for **Hallertau Magnum** were offered and concluded at the historically low price of 16 EUR/kg of alpha acid (ToH, i.e. alpha acid at time of harvest) in all areas during the entire 2005 vegetation period.

In the course of the 2005 growing period, with little high-alpha acreage having been taken out of production, the prospect of good to very good yields became apparent

for all varieties due to the good growing conditions everywhere. As picking proceeded, the high yields were confirmed, along with good to very good alpha levels. The spot market that opened immediately after the harvest fell in turn into two segments: While the aroma varieties **Perle**, **Spalt Select** and **Hallertau Tradition** sold briskly on the spot market before picking at 3.70 EUR/kg and at 4.10 EUR/kg respectively during the harvest, no market developed for **Hersbruck** and **Northern Brewer**. The market for high-alpha varieties opened only very cautiously at a low price level. **Hallertau Magnum** was purchased occasionally at 2.50 EUR/kg and **Hallertau Taurus** at 2.80 EUR/kg.

When the hop pool for all varieties was opened by the growers' association, the other hop trading companies also offered corresponding hop purchasing initiatives, but in some cases with slightly higher prepayment and minimum prices. Against the background of low supply of high-alpha hops from the USA and significantly reduced acreage in China, some market players expected demand for German high-alpha hops to rise or stabilize as the market progressed, which led to widespread spot purchasing of **Hallertau Magnum** at 2.50 EUR/kg and **Hallertau Taurus** at 2.80 EUR/kg and later at 2.90 EUR/kg. The anticipated market revival failed to meet their expectations of sales, however. It was not until the poor crop in the high-alpha segment in the USA was confirmed in the

course of the month of September that the market came to life. Consequently, at the time of going to press, the trading companies' and growers' associations' hop pools had still not been finally settled. In the high-alpha segment in particular, the final settlements will presumably be below or not far above the prepayment price.

### Acreage reduction programme

For the third year in succession the growers' association HVG has set up a special scheme for targeted control of German hop production. Its objective is to prevent a surplus of hops. According to the resolution of 14.12.2005, the scheme offered growers two options:

1. To set aside or clear hop yards that had been planted with hops in 2005 and would no longer be strung in 2006, regardless of variety. In return, an annual premium of 750 EUR/ha would be paid in the years 2006 and 2007.

2. To discontinue hop production entirely on a farm's acreage that had been harvested in 2005 and would no longer be strung for at least years. In return, an annual premium of 500 EUR/ha would be paid in the years 2006, 2007 and 2008.

According to initial reports, a total of 300 ha was registered for this special measure. This total is made up of 119 ha of aroma varieties and 181 ha of bitter and high-alpha varieties. The predominant share (115 ha) is accounted for by the high-alpha variety **Hallertau Magnum**.



# Czech Republic

Variety	Development of acreage			Development of production			
	2004	+/-	2005	2004	2005	2004	2005
	Acreage ha			Ø-Yield mt/ha		Production mt	
Saaz	5,407	-176	5,231	1.02	1.30	5,518.6	6,816.3
Sládek	195	7	202	1.94	2.33	377.9	470.5
Premiant	151	0	151	2.02	2.42	304.7	365.8
Bor	17	0	17	1.16	1.73	19.8	29.4
<b>Total Aroma</b>	<b>5,770</b>	<b>-169</b>	<b>5,601</b>	<b>1.08</b>	<b>1.37</b>	<b>6,221.0</b>	<b>7,682.0</b>
Agnus	52	0	52	1.32	2.41	68.6	125.3
Magnum	7	0	7	0.91	2.04	6.4	14.3
<b>Total High Alpha</b>	<b>59</b>	<b>0</b>	<b>59</b>	<b>1.27</b>	<b>2.37</b>	<b>75.0</b>	<b>139.6</b>
Others	9	1	10	1.63	0.96	14.7	9.6
<b>CZECH REPUBLIC TOTAL</b>	<b>5,838</b>	<b>-168</b>	<b>5,670</b>	<b>1.08</b>	<b>1.38</b>	<b>6,310.7</b>	<b>7,831.2</b>

## Farm structure

In crop year 2005, hops were grown by 145 producers, 17 fewer than in the previous year. The average hop growing acreage per farm rose from 36 ha to 39 ha.

## Acreage/Production/Alpha Content

The acreage strung with hops in the Czech Republic declined by 2.9 % (Saaz -157 ha, Auscha -16 ha, Tirschitz +5 ha). This reduction was confined solely to the **Saaz** variety. The weather conditions throughout the entire growing period were very favourable

for the hop plants. Yields turned out to be unusually high. The average yields (mt/ha) finally recorded for **Saaz** hops in the individual hop growing regions, compared with the figures for crop year 2004 (in brackets): Saaz 1.22 (0.96), Auscha 1.49 (1.06), Tirschitz 1.62 (1.39).

The average alpha acid content of 3.3 % in **Saaz** hops in 2005 failed to equal the previous year's level of 3.7%. The results for the other varieties compared with 2004 (in brackets): **Sládek** 6.8 % (5.4 %), **Premiant** 8.2 % (8.7 %), **Bor** 6.8 % (6.8 %), **Agnus** 9.6 % (11.0 %).

## Market situation

Forward selling of the 2005 crop was based on the expectation of an average yield. Due to the very good production volume, an unexpectedly large quantity of hops became available on the spot market. Consequently, for the first time the Czech producers were offered a hop pool along the lines of the German model. In mid-May stocks of the 2005 crop totalling approx. 130 mt were still available in the form of pellets.

In April, forward contracts accounted for 85 % of the 2006 crop. Hop acreage is expected to decline further by approx. 120 ha.

# Poland

Variety	Development of acreage			Development of production			
	2004	+/-	2005	2004	2005	2004	2005
	Acreage ha			Ø-Yield mt/ha		Production mt	
Lubelski	792	3	795	1.37	1.41	1,085.4	1,117.4
Lomik	50	-3	47	1.18	1.49	59.2	70.8
Other Aroma	12	11	23	1.34	1.21	16.1	27.0
<b>Total Aroma</b>	<b>854</b>	<b>11</b>	<b>865</b>	<b>1.36</b>	<b>1.40</b>	<b>1,160.7</b>	<b>1,215.1</b>
Marynka	1,033	28	1,061	1.30	1.57	1,342.4	1,666.2
Other Bitter	47	0	47	1.15	0.49	54.1	22.9
<b>Total Bitter</b>	<b>1,080</b>	<b>28</b>	<b>1,108</b>	<b>1.29</b>	<b>1.52</b>	<b>1,396.5</b>	<b>1,689.1</b>
Magnum	305	11	316	1.50	1.61	458.0	509.4
<b>Total High Alpha</b>	<b>305</b>	<b>11</b>	<b>316</b>	<b>1.50</b>	<b>1.61</b>	<b>458.0</b>	<b>509.4</b>
<b>POLAND TOTAL</b>	<b>2,239</b>	<b>50</b>	<b>2,289</b>	<b>1.35</b>	<b>1.49</b>	<b>3,015.2</b>	<b>3,413.7</b>

## Farm structure

In comparison to 2004, the number of hop producers rose by 23 to 1,144 growers. Average hop acreage remained unchanged at 2.00 ha per farm.

## Acreage/Production/Alpha Content

As in the previous year, hop acreage increased slightly. The varieties planted were

mainly **Marynka** and some **Magnum**. The aroma varieties surpassed what had already been a very good yield in 2004. The bitter and high-alpha varieties also produced unusually good results.

Alpha contents in crop year 2005 with year-on-year comparison: **Lubelski** 3.4 % (3.9 %), **Marynka** 7.4 % (8.0 %), **Magnum** 13.5 % (12.1 %).

## Market situation

When picking started, 95 % of production volume had been sold by forward contract; the remainder was sold on the spot market. In spring 2006, forward contracts accounted for 70 % of the coming crop.

There will be a further slight increase in acreage due to planting of the varieties **Marynka** and **Magnum**.

# Slovenia

Variety	Development of acreage			Development of production			
	2004	+/-	2005	2004	2005	2004	2005
	Acreage ha			Ø-Yield	mt/ha	Production	mt
Aurora	988	-35	953	1.90	1.74	1,875.0	1,659.0
Styrian Golding	287	-23	264	1.30	1.47	373.0	389.0
Celeia	106	20	126	1.26	1.70	134.0	214.0
Bobek	75	21	96	2.13	1.96	160.0	188.0
<b>Total Aroma</b>	<b>1,456</b>	<b>-17</b>	<b>1,439</b>	<b>1.75</b>	<b>1.70</b>	<b>2,542.0</b>	<b>2,450.0</b>
Magnum	93	-21	72	1.48	1.24	138.0	89.0
<b>Total High Alpha</b>	<b>93</b>	<b>-21</b>	<b>72</b>	<b>1.48</b>	<b>1.24</b>	<b>138.0</b>	<b>89.0</b>
Others	8	-8	0	1.25	0.00	10.0	0.0
<b>SLOVENIA TOTAL</b>	<b>1,557</b>	<b>-46</b>	<b>1,511</b>	<b>1.73</b>	<b>1.68</b>	<b>2,690.0</b>	<b>2,539.0</b>

## Farm structure

The number of producers actively growing hops in 2004 remained unchanged in crop year 2005. There was a slight reduction in the average hop acreage per farm, which fell to 8.6 ha.

## Acreage/Production/ Alpha Content

In crop year 2005 there was a slight year-on-year fall in acreage. There was some

redistribution among the varieties grown. The yield per hectare recorded for all varieties was lower than the year before. Historically, however, it was a good, above-average figure.

The alpha contents likewise fell short of the very good results of the previous year, but were still slightly above the long-term average. The results for crop year 2004 are shown in brackets. **Styrian Golding** 4.0 % (4.5 %), **Bobek** 5.5 % (5.8 %), **Aurora** 8.5 % (9.5 %).

## Market situation

Forward contracts accounted for 65 % of the 2005 crop. By early May 2006, only small quantities were still available. Acreage will remain virtually unchanged in crop year 2006.

# England

Variety	Development of acreage			Development of production			
	2004	+/-	2005	2004	2005	2004	2005
	Acreage ha			Ø-Yield	mt/ha	Production	mt
Goldings	251	-5	246	1.84	1.66	461.5	409.4
First Gold	177	-8	169	0.99	1.05	174.9	177.3
Fuggles	170	-16	154	1.52	1.66	258.9	255.9
Other Aroma	196	9	205	1.60	1.44	314.0	295.7
<b>Total Aroma</b>	<b>794</b>	<b>-20</b>	<b>774</b>	<b>1.52</b>	<b>1.47</b>	<b>1,209.3</b>	<b>1,138.3</b>
Target	271	-147	124	1.70	1.60	459.6	198.1
Other High Alpha	283	-117	166	1.30	1.51	367.5	250.0
<b>Total High Alpha</b>	<b>554</b>	<b>-264</b>	<b>290</b>	<b>1.49</b>	<b>1.55</b>	<b>827.1</b>	<b>448.1</b>
Others	10	-3	7	1.13	0.99	11.8	6.9
<b>ENGLAND TOTAL</b>	<b>1,358</b>	<b>-287</b>	<b>1,071</b>	<b>1.51</b>	<b>1.49</b>	<b>2,048.2</b>	<b>1,593.3</b>

## Farm structure

In 2005, as in the previous year, hops were grown in England by 60 producers. Compared with 2004, there was a decline in average hop acreage from 22.6 ha to 17.9 ha per farm.

## Acreage/Production/ Alpha Content

Hop growing in England has reached a new all-time low. From 2004 to 2005 alone, it declined by 21 %. The alpha varieties share was almost halved. Although the yield per hectare among the aroma varieties fell short of the previous year's very good result,

it was still above the long-term average. The high-alpha varieties saw a year-on-year improvement in average yield. The alpha content of the main varieties compared with the results for crop year 2004 (in brackets): **Fuggles** 5.1 % (4.8 %), **Goldings** 5.6 % (5.6 %), **First Gold** 8.3 % (8.5 %), **Target** 11.0 % (11.3 %).

## Market situation

By the beginning of the 2005 harvest approx. 80 % of the aroma hops and approx. 35 % of the alpha hops had been sold by forward contract. The entire crop is reported to be sold out. In the meantime, the decline in acreage

would appear to be over. On the contrary, an increase in the acreage of aroma varieties is expected in 2006. Forward contracts account for at least 80 % of the 2006 crop.

## Hop research

Up to now, the Wye hop research centre has received about 35 % of its income from the state. In accordance with the new government strategy towards financing agricultural research, due to the low remaining hop acreage, the state subsidies are to be withdrawn as of April 2007. The English growers are determined to continue the breeding programme, funding it themselves as a private concern.



# France

Area	Variety	Development of acreage			Development of production			
		2004	+/-	2005	2004	2005	2004	2005
		Acreage ha			Ø-Yield mt/ha		Production mt	
Alsace	Strisselspalt	685	-12	673	1.56	1.80	1,070.8	1,211.9
	Hallertau Tradition	50	28	78	0.52	1.08	25.8	84.7
	<b>Total Aroma</b>	<b>735</b>	<b>16</b>	<b>751</b>	<b>1.49</b>	<b>1.73</b>	<b>1,096.6</b>	<b>1,296.6</b>
	Bitter	1	3	4	1.24	0.53	1.7	2.0
	High Alpha	19	1	20	1.30	1.62	24.6	32.4
	<b>Total Alsace</b>	<b>755</b>	<b>20</b>	<b>775</b>	<b>1.49</b>	<b>1.72</b>	<b>1,122.9</b>	<b>1,331.0</b>
North	Aroma	8	-1	7	1.45	1.62	11.6	11.2
	Bitter	5	0	5	1.49	1.71	7.4	8.2
	High Alpha	18	-3	15	0.98	1.33	17.6	20.9
	<b>Total North</b>	<b>31</b>	<b>-4</b>	<b>27</b>	<b>1.18</b>	<b>1.47</b>	<b>36.6</b>	<b>40.3</b>
<b>FRANCE TOTAL</b>			<b>786</b>	<b>16</b>	<b>802</b>	<b>1.48</b>	<b>1.71</b>	<b>1,159.5</b>

## Farm structure

The number of producers actively involved in hop growing remained unchanged at 96. The average hop acreage per farm increased slightly to 8.4 ha.

## Acreage/Production/Alpha Content

Planting of the **Hallertau Tradition** variety has increased further. All in all, there was only a slight increase in hop acreage, however.

In comparison with 2004, the hops produced a 15 % higher yield per hectare.

At 2.4 %, the alpha acid content of the **Strisselspalt** variety was very good in crop year 2005, compared with merely 1.4 % the year before.

## Market situation

Some 70 % of the crop volume was sold by forward contract. Due to the good yields, stocks totalling 100 mt remained unsold at the end of April 2006. By April, 45 % of the 2006 crop had been sold by forward contract. The change-over in varieties from **Strisselspalt** to **Hallertau Tradition** continues on a small scale.

# Spain

Variety	Development of acreage			Development of production				
	2004	+/-	2005	2004	2005	2004	2005	
		Acreage ha			Ø-Yield mt/ha		Production mt	
Perle	1	0	1	1.50	0.70	1.5	0.7	
<b>Total Aroma</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>1.50</b>	<b>0.70</b>	<b>1.5</b>	<b>0.7</b>	
Nugget	675	0	675	1.95	1.89	1,319.2	1,274.7	
Magnum	6	0	6	2.05	1.87	12.3	11.2	
Columbus	2	1	3	2.60	2.63	5.2	7.9	
<b>Total High Alpha</b>	<b>683</b>	<b>1</b>	<b>684</b>	<b>1.96</b>	<b>1.89</b>	<b>1,336.7</b>	<b>1,293.8</b>	
<b>SPAIN TOTAL</b>	<b>684</b>	<b>1</b>	<b>685</b>	<b>1.96</b>	<b>1.89</b>	<b>1,338.2</b>	<b>1,294.5</b>	

## Farm structure

In 2005 the number of hop growers fell significantly year on year by 42 to stand at 353 farms, while acreage, however, remained constant. This means that the average hop acreage per farm rose from 1.7 ha to 1.9 ha.

## Acreage/Production/Alpha Content

Total hop acreage increased by one hectare. Although weather conditions during the entire vegetation period were changeable and unstable, they did not have a negative effect on the critical stages of hop growth. The average yield was within the long-term average. The alpha content of **Nugget** hops was 10.9 %, falling short of the unusually good result of 11.4 % recorded the previous year, but remaining in line with the long-term average.

## Market situation

The entire crop volume was purchased by the domestic brewing industry. **Nugget**, the main variety, was sold at an average price of 3.04 EUR/kg.

Acreage is expected to remain the same over the next few years, with the number of farms continuing to fall. The Spanish brewing industry has already contracted 1,325 mt per crop year up to the year 2009.

# Slovakia

Variety	Development of acreage			Development of production			
	2004	+/-	2005	2004	2005	2004	2005
	Acreage ha			Ø-Yield mt/ha		Production mt	
Saaz	290	0	290	1.06	1.28	308.1	370.5
Premiant	30	0	30	1.85	1.83	55.5	55.0
<b>SLOVAKIA TOTAL</b>	<b>320</b>	<b>0</b>	<b>320</b>	<b>1.14</b>	<b>1.33</b>	<b>363.6</b>	<b>425.5</b>

## Farm structure

The number of hop-growing farms and the average hop acreage per farm remained constant for the third year in succession, with 13 producers and 24.6 ha respectively.

## Acreage/Production/ Alpha Content

With acreage unchanged, the production volume in 2005 was even higher than the unusually good result recorded the year before. However, the average alpha acid content of the **Saaz** variety was only 3.6 %, thus falling short of the 3.9 % recorded in crop year 2004.

## Market situation

Forward contracting for the 2005 crop was based on an average production volume. Despite the record production volume, the entire crop was sold with the exception of a small quantity. At the time of going to press, approximately 75 % of the 2006 crop had been sold by forward contract. No changes in acreage are anticipated.

# Ukraine

Variety Group	Development of acreage			Development of production			
	2004	+/-	2005	2004	2005	2004	2005
	Acreage ha			Ø-Yield mt/ha		Production mt	
Aroma	895	0	895	0.87	1.01	777.0	904.0
Bitter	569	0	569	0.87	1.00	493.0	569.0
<b>UKRAINE TOTAL</b>	<b>1,464</b>	<b>0</b>	<b>1,464</b>	<b>0.87</b>	<b>1.01</b>	<b>1,270.0</b>	<b>1,473.0</b>

## Acreage/Production/ Alpha Content

The hop-producing farms in the Ukraine strung the same acreage in 2005 as in the

previous year. The most widely grown varieties remained **Klon-18** in the aroma hop category and **Polski** among the bitter hops. Production volume surpassed what had already been a very good result in crop year

2004 by 16 %. The alpha content in 2005 was slightly higher than in previous years. The results for crop year 2004 are shown in brackets: aroma hops 3.2 % (3.1 %), bitter hops 6.5 % (6.4 %).

# Russia

Variety Group	Development of acreage			Development of production			
	2004	+/-	2005	2004	2005	2004	2005
	Acreage ha			Ø-Yield mt/ha		Production mt	
Aroma	315	-112	203	0.55	0.66	173.0	134.0
Bitter	240	-21	219	0.70	0.59	167.0	130.0
<b>RUSSIA TOTAL</b>	<b>555</b>	<b>-133</b>	<b>422</b>	<b>0.61</b>	<b>0.63</b>	<b>340.0</b>	<b>264.0</b>

## Farm structure

After the harvest in 2004 more than half of the 78 hop farms discontinued hop production. In crop year 2006 only 36 hop producing cooperatives remained in operation. Small farms in particular stopped growing hops. The average hop acreage per cooperative rose from 7.1 ha to 11.7 ha.

## Acreage/Production/ Alpha Content

Hop acreage fell by 24 %. The production yield among the aroma varieties significantly exceeded the long-term average. Although the bitter varieties failed to equal the result of the previous year, the average yield was in line with the long-term average. The alpha acid contents were slightly

higher than in the previous year: aroma hops 3.9 % compared to 3.8 %, bitter varieties 5.7 % compared to 5.6 %.

## Market situation

The 2005 crop is not sold out. At the end of April, approx. 50 mt of bitter hops were still available. In crop year 2006 acreage will decline further by approximately 5 %.





Area	Variety	Development of acreage			Development of production			
		2004	+/- Acreage ha	2005	2004 Ø-Yield	2005 mt/ha	2004 Production mt	2005
Washington	Willamette	1,433	227	1,660	1.58	1.49	2,267.0	2,480.2
	Cascade	575	-102	473	2.25	2.28	1,293.9	1,078.6
	Sterling	-	38	38	-	1.70	-	64.4
	Mount Hood	16	5	21	1.01	1.40	16.1	29.4
	Golding	15	0	15	1.25	0.99	18.8	14.9
	Horizon	14	0	14	1.53	1.30	21.4	18.1
	Perle	19	-9	10	1.40	1.22	26.5	12.2
	Other Aroma	248	95	343	1.60	1.54	397.6	527.0
	<b>Total Aroma</b>	<b>2,320</b>	<b>254</b>	<b>2,574</b>	<b>1.74</b>	<b>1.64</b>	<b>4,041.3</b>	<b>4,224.8</b>
	Cluster	182	5	187	2.28	2.00	414.3	374.3
	<b>Total Bitter</b>	<b>182</b>	<b>5</b>	<b>187</b>	<b>2.28</b>	<b>2.00</b>	<b>414.3</b>	<b>374.3</b>
	CTZ	2,401	249	2,650	3.18	2.64	7,628.1	7,007.9
	Galena	1,383	183	1,566	2.08	1.95	2,882.9	3,048.4
	Millennium	455	-4	451	2.62	2.14	1,192.5	965.0
	Nugget	327	103	430	2.32	1.93	758.8	831.9
	Warrior	321	-85	236	2.58	2.05	827.3	484.8
	Chinook	199	-1	198	2.13	2.07	424.0	409.0
	Chelan/Tillicum	159	-19	140	2.47	2.36	393.2	330.2
	Other High Alpha	97	8	105	2.36	2.16	228.6	226.8
<b>Total High Alpha</b>	<b>5,342</b>	<b>434</b>	<b>5,776</b>	<b>2.68</b>	<b>2.30</b>	<b>14,335.4</b>	<b>13,304.0</b>	
<b>Total Washington</b>	<b>7,844</b>	<b>693</b>	<b>8,537</b>	<b>2.40</b>	<b>2.10</b>	<b>18,791.0</b>	<b>17,903.1</b>	
Oregon	Willamette	880	40	920	1.69	1.55	1,486.5	1,427.8
	Sterling	90	22	112	1.35	1.62	121.7	181.6
	Mount Hood	87	2	89	1.82	1.58	158.0	140.4
	Golding	43	-1	42	1.45	1.15	62.3	48.4
	Perle	105	-75	30	1.49	1.36	156.0	40.8
	Cascade	37	-12	25	1.55	1.53	57.5	38.4
	Other Aroma	193	2	195	1.61	1.28	310.3	248.9
	<b>Total Aroma</b>	<b>1,435</b>	<b>-22</b>	<b>1,413</b>	<b>1.64</b>	<b>1.50</b>	<b>2,352.3</b>	<b>2,126.3</b>
	Nugget	520	32	552	2.50	2.29	1,300.0	1,265.0
	Millennium	107	12	119	2.27	2.11	243.1	251.0
	Warrior	5	0	5	2.18	2.18	10.9	10.9
	<b>Total High Alpha</b>	<b>632</b>	<b>44</b>	<b>676</b>	<b>2.46</b>	<b>2.26</b>	<b>1,554.0</b>	<b>1,526.9</b>
	<b>Total Oregon</b>	<b>2,067</b>	<b>22</b>	<b>2,089</b>	<b>1.89</b>	<b>1.75</b>	<b>3,906.3</b>	<b>3,653.2</b>
Idaho*	<b>Total Aroma*</b>	<b>645</b>	<b>-7</b>	<b>638</b>	<b>1.15</b>	<b>1.29</b>	<b>740.4</b>	<b>824.2</b>
	<b>Total Bitter*</b>	<b>62</b>	<b>0</b>	<b>62</b>	<b>1.96</b>	<b>1.88</b>	<b>121.5</b>	<b>116.5</b>
	<b>Total High Alpha*</b>	<b>609</b>	<b>21</b>	<b>630</b>	<b>2.43</b>	<b>2.39</b>	<b>1,480.9</b>	<b>1,504.6</b>
	<b>Total Idaho</b>	<b>1,316</b>	<b>14</b>	<b>1,330</b>	<b>1.78</b>	<b>1.84</b>	<b>2,342.8</b>	<b>2,445.3</b>
<b>Total Aroma*</b>	<b>4,400</b>	<b>225</b>	<b>4,625</b>	<b>1.62</b>	<b>1.55</b>	<b>7,134.0</b>	<b>7,175.3</b>	
<b>Total Bitter*</b>	<b>244</b>	<b>5</b>	<b>249</b>	<b>2.20</b>	<b>1.97</b>	<b>535.8</b>	<b>490.8</b>	
<b>Total High Alpha*</b>	<b>6,583</b>	<b>499</b>	<b>7,082</b>	<b>2.64</b>	<b>2.31</b>	<b>17,370.3</b>	<b>16,335.5</b>	
<b>USA TOTAL</b>	<b>11,227</b>	<b>729</b>	<b>11,956</b>	<b>2.23</b>	<b>2.01</b>	<b>25,040.1</b>	<b>24,001.6</b>	

\* As growers in Idaho have only indicated total acreage and production figures since 2002, the figures for the individual variety groups are estimates. Minor statistical deviations may result from conversion of acres into hectares and pounds into metric tons.

## Farm structure

A hop acreage of approximately 200 ha is cultivated on average per farm at an unchanged number of growers in the USA.

## Acreage and Production

For the first time in five years, the US acreage expanded. From crop 2004 to 2005, US growers increased the production area struck for harvest by 729 ha, or 6 %,

bringing the total up to 11,956 ha. Alpha varieties accounted for more than 2/3 of the increase, or 499 ha. The most notable acreage changes within the alpha varieties were **CTZ (Columbus/Tomahawk®/Zeus)** and **Galena**, expanding by 232 ha and 211 ha, respectively, and **Warrior®** decreasing by 85 ha. The production area of aroma varieties (including Cluster) grew by a total of 230 ha. Almost all of the expansion in this segment was due to

**Willamette** which added 283 ha over the previous year. Aroma varieties losing ground were **Cascade** and **Perle**, dropping by 114 ha and 84 ha, respectively.

The increased production area, however, did not translate into a larger crop volume. As a matter of fact, crop 2005 disappointed in yield performance and produced 1,038 mt less than in the previous year. Moreover, it fell short of the anticipated

## Variety development

The acreage of the main varieties in the US growing regions developed as follows:

Variety	2001 ha	2002 ha	2003 ha	2004 ha	2005 ha
Willamette	2,517	2,333	2,409	2,362	2,645
Cascade	469	580	994	619	505
Sterling	–	–	34	90	149
Mount Hood	252	155	101	103	109
Other Aroma	1,425	1,312	1,327	1,226	1,217
<b>Total Aroma</b>	<b>4,663</b>	<b>4,380</b>	<b>4,865</b>	<b>4,400</b>	<b>4,625</b>
Cluster	311	289	255	244	249
<b>Total Bitter</b>	<b>311</b>	<b>289</b>	<b>255</b>	<b>244</b>	<b>249</b>
Columbus-Tomahawk-Zeus (CTZ)	3,067	2,598	2,317	2,679	2,911
Galena	1,994	1,513	1,410	1,638	1,849
Nugget	2,603	1,330	1,012	869	1,004
Millennium	606	759	728	562	571
Chinook	266	211	236	252	251
Warrior	554	406	507	326	241
Chelan/Tillicum	278	198	151	159	140
Other High Alpha	192	175	121	98	115
<b>Total High Alpha</b>	<b>9,560</b>	<b>7,190</b>	<b>6,482</b>	<b>6,583</b>	<b>7,082</b>
<b>USA TOTAL</b>	<b>14,534</b>	<b>11,859</b>	<b>11,602</b>	<b>11,227</b>	<b>11,956</b>

Since 2002 the acreage of the individual varieties has been estimated, as only the total acreage is now reported for Idaho.

production (based on average yields) by an estimated 2,250 mt. Much of the poorer performance was due to alpha varieties which produced 1,035 mt less than in 2004 and an estimated 2,100 mt less than expected.

### Crop development

**Washington:** Winter precipitation for the months of October through March was just 60 % of normal, resulting in mountain snow pack levels only 24 % of normal by the beginning of April. The extremely dry conditions caused the Bureau of Reclamation to cut back deliveries of water in junior water rights districts to 34 % while still continuing full deliveries to senior districts. Because of the widespread use of efficient drip irrigation and emergency exceptions that allowed holders of water rights to sell their water allocations for that year, growers were able to provide the crop with close to normal quantities of water during the growing season. By midsummer, the initial scare of a drought was forgotten and the industry looked towards a normal, if not above-average crop. In hindsight, however, the very dry soils at the start of the growing season are likely to have contributed to higher than normal plant stress levels that resulted in a lower than normal bloom set and a higher degree of susceptibility to powdery mildew shortly before harvest, resulting in the most damaging powdery mildew outbreak in years. In addition,

a two-week cool period during the summer halted crop development, from which plants never fully recovered.

**Oregon:** Water resource availability was also a concern in Oregon during the spring of 2005. By early April, the snow pack in the mountains was only 39 % of normal. Heavy precipitation in May and June, however, relieved the looming drought conditions but caused downy mildew to become a constant problem for growers. While these conditions hindered vine growth of especially the alpha varieties early in the season, abnormally high temperatures in July and August retarded vine development toward the end of the season.

The 2005 production in Oregon dropped approximately 250 mt, or 6 %, below 2004 and close to 340 mt, or 9 %, against expected yields. Production shortfalls were consistent in nearly all the varieties.

### Quality

While pests such as aphids and mites were controlled effectively throughout the season, an outbreak of powdery mildew shortly before harvest damaged cones of susceptible alpha varieties (mostly CTZ) and also contributed to a premature dehydration of the crop that further reduced the overall quality of the crop.

US hop growers continued to produce relatively clean hops with close to 90 % of the hops produced with 0 % leaf and stem and 2/3 with 0 % seed content.

### Contract market

Depressed by the downward-spiralling alpha spot market conditions of fall 2004, the grower contract market in the USA was practically non-existent through the end of the year. Only by January 2005, when growers were offered two pooling options for the upcoming crop, did the future market become more active. With cash flow being tight, however, growers were pushing for fixed-price and fixed-payment contracts. By early spring, irrigation water forecasts were still predicting insufficient supplies and it was thought that the crop might actually be impacted or at least that the crop would not yield much excess production. As a result, growers were able to enter into fixed-price contracts in addition to pooling arrangements and marketed most of their normal production by summer, leaving very little quantities for the spot market.

Over the course of the season, prices to growers for **Columbus/Tomahawk®/Zeus (CTZ)** rose from 5.50 to 8.00 USD/lb alpha (1.95 to 2.80 USD/kg), with most hops selling in the middle range. **Millennium** sold at approx. 1.40 USD/lb alpha (0.50 USD/kg) higher. The variety **Nugget**, which was completely sold out for crop 2004, was pre-sold by summer to close to its production capacity at prices ranging between 1.60 to 2.00 USD/lb plus premiums (3.50 to 4.40 USD/kg). Similarly, the variety **Galena** also was pre-sold to



## Alpha acid table

Variety	2001	2002	2003	2004	2005	Average
Willamette	4.9%	4.4%	4.0%	4.2%	4.2%	4.3%
Mount Hood	5.1%	4.3%	4.5%	4.3%	4.4%	4.5%
Cascade	6.2%	5.5%	5.0%	5.5%	5.8%	5.6%
Cluster	7.1%	6.5%	6.3%	6.4%	6.0%	6.5%
Galena	12.3%	12.2%	11.9%	11.9%	12.1%	12.1%
Nugget	13.9%	12.4%	12.7%	12.7%	12.3%	12.8%
Chinook	12.0%	11.6%	12.8%	12.9%	11.5%	12.2%
Super-High Alpha	15.1%	14.9%	14.5%	14.3%	14.4%	14.6%

close of its production capacity at prices between 1.65 USD/lb and 1.75 USD/lb plus premiums (3.60 to 3.85 USD/kg). **Cascade** rebounded from a below of production cost spot market in 2004 to a crop 2005 pricing of 1.60 plus premiums (3.30 USD/kg). The market for **Willamette** became active in late fall of 2004 with significant quantities selling at 2.85 USD/lb plus premiums (6.30 USD/kg) and again in spring with most of the remaining hops selling at 3.10 USD/lb plus premiums (6.85 USD/kg) in a brewery direct programme.

### Spot Market

With news of poor yields in the early harvested aroma varieties spreading, growers were concerned with their ability to make up all of their contracted quantities. At the same time, reports about a record crop in Germany dampened hopes of high spot prices from the start. In the end, the volume harvested was approx. 2,250 mt lower than expected, allowing only a small amount of spot hops onto the market. As a result, the start of the spot market occurred only after individual varieties had been harvested and continued at a lacklustre pace into the late autumn.

- **Willamette:** With only few spots available, most spots sold quickly with most quantities selling at or near 3.10 USD/lb plus premiums (6.85 USD/kg). A few lots lingered on the market until November.
- **Galena:** This variety significantly underperformed in yield, resulting in short deliveries that far exceeded available spot quantities. The few available lots sold at 1.80 to 2.00 USD/lb (4.00 to 4.40 USD/kg).
- **Nugget:** The market began with 2.00 USD/lb plus premiums, but dropped back to 2.00 USD/lb flat until all hops were sold by the end of September at this price level.
- **Cascade:** With new interest in this variety coming into the market during

harvest, spots sold initially for 1.65 USD/lb flat and then moved up 1.75 USD/lb (3.65 to 3.85 USD/kg). Most spots were sold by October.

- **CTZ:** With a shortfall of close to 1,400 mt from the expected production volume, the few available spots had so little impact that the market had difficulty in finding a spot price. Some growers entered into special pricing arrangements while others eventually sold at 8.00 USD/lb alpha (2.80 USD/kg) by late October.
- **Millennium:** Initial market activity priced this variety at 1.50 USD/lb flat. At the end of the year, however, the last remaining spots were sold, depending on the alpha contents, at 1.30 to 1.40 USD/lb (2.85 to 3.10 USD/kg).

### Grower initiatives

On 20.6.2005, the US Department of Agriculture (USDA) announced that it had terminated the proceedings to establish a Hop Marketing Order for the US commercial hop growing states. Efforts to establish a new Hop Marketing Order began in 2002 and went to a public hearing in October 2003. After considering the entire rule-making record, testimony and evidence presented at the hearing, as well as briefs filed following the hearing along with additional post-hearing arguments, the USDA said that the record failed to demonstrate a need for such an order.

### Markets for US Alpha

The USA produced approx. 2,200 mt of alpha derived from high-alpha varieties. **CTZ**, the largest and most efficient alpha-producing variety complex, contributed approx. half, or 1,100 mt of alpha, followed by **Galena** (approx. 440 mt alpha) **Nugget** (approx. 260 mt alpha) and **Millennium** (170 mt alpha). Historically, demand for alpha varieties was based on the speci-

fic demand for alpha used in brewing formulas either in form of hops, pellets or extracts. With the advent of modified hop products, such as isomerized pellets or extracts, the demand structure changed. The obvious conclusion for the last few years was that these modified or advanced hop products reduced the overall need for alpha due to their more efficient use in the brewing process.

In the case of US-grown alpha, however, there is another factor to be considered. The feedstock for most of the world's advanced hop products is based on US alpha varieties. While advanced hop products disproportionately displace raw hop volume, they primarily displace hop volume from countries other than the USA. Consequently the demand for US alpha has actually increased in recent years, as the demand formula for these alpha varieties is now based on "direct brewing needs" plus "feedstock material for advanced products". For crop 2005, the total alpha converted into advanced hop products for use both in and outside the brewing industry is estimated to exceed 600 mt alpha per annum, or approx. of the total high-alpha varieties grown in the USA.



# China

Area	Variety	Development of acreage			Development of production			
		2004	+/-	2005	2004	2005	2004	2005
		Acreage ha			Ø-Yield	mt/ha	Production mt	
Xinjiang	Tsingdao Flower	1,200	-163	1,037	2.80	2.99	3,360.0	3,100.0
	Marco Polo	287	13	300	2.61	3.33	750.0	1,000.0
	SA-1	281	-1	280	2.06	2.86	580.0	800.0
	Kirin Flower	160	-27	133	2.50	3.01	400.0	400.0
	Others	128	-48	80	1.33	2.50	170.0	200.0
	<b>Total Xinjiang</b>		<b>2,056</b>	<b>-226</b>	<b>1,830</b>	<b>2.56</b>	<b>3.01</b>	<b>5,260.0</b>
Gansu	Tsingdao Flower	1,378	-40	1,338	2.87	2.94	3,960.0	3,933.0
	Nugget	206	0	206	0.87	0.67	179.2	139.0
	Kirin Flower	72	0	72	2.70	1.71	194.1	123.0
	Others	40	0	40	1.63	1.94	65.1	77.5
	<b>Total Gansu</b>	<b>1,696</b>	<b>-40</b>	<b>1,656</b>	<b>2.59</b>	<b>2.58</b>	<b>4,398.4</b>	<b>4,272.5</b>
<b>Total Aroma</b>		<b>449</b>	<b>-49</b>	<b>400</b>	<b>1.82</b>	<b>2.69</b>	<b>815.1</b>	<b>1,077.5</b>
<b>Total Bitter</b>		<b>2,810</b>	<b>-230</b>	<b>2,580</b>	<b>2.82</b>	<b>2.93</b>	<b>7,914.1</b>	<b>7,556.0</b>
<b>Total High Alpha</b>		<b>493</b>	<b>13</b>	<b>506</b>	<b>1.88</b>	<b>2.25</b>	<b>929.2</b>	<b>1,139.0</b>
<b>CHINA TOTAL</b>		<b>3,752</b>	<b>-266</b>	<b>3,486</b>	<b>2.57</b>	<b>2.80</b>	<b>9,658.4</b>	<b>9,772.5</b>

## Farm structure

A total of 46 farms grow hops in China. There are 27 farms in the Xinjiang region (of which 11 are privately owned farms) and 19 in Gansu. The average hop acreage per farm fell to 76 ha, compared with 83 ha in 2004.

## Acreage/Production/Alpha Content

Year on year, there was a 7 % reduction in acreage in 2005. This decrease mainly affected the **Tsingdao Flower** variety.

Although the hop plants in Southern Xinjiang were exposed to severe frost in May and those in Northern Xinjiang were affected by hail at the same time, a good crop was harvested in terms of both volume and alpha. In Gansu, a severe sandstorm affected the hops in late April and early May. As the vegetation period progressed, temperatures were at times very high. Yields remained below the long-term average.

The average alpha content recorded for the main variety **Tsingdao Flower** came to 6 %.

## Market situation

The average purchase price for **Tsingdao Flower** was approx. 15 renminbi (CNY)/kg, which corresponds to about 1.50 EUR/kg. It therefore rose around 15-20 % year on year and was considerably higher than the growers' production costs. No stocks of the 2005 crop are available. Only very small quantities of the stocks of hops from 2004 and previous crop years that were still on the market remained unsold. As a consequence of demand exceeding supply in China since crop year 2004, the Chinese brewing industry can be seen to have allowed its quality standards to drop with regard to hops as a raw material. This manifests itself in rapidly falling quality requirements, especially in the processing of hops to type-90 pellets, which are mainly used in the domestic brewing industry.

According to estimates, acreage should increase by approx. 200 ha in 2006.

By the end of April, 30 – 40 % of this year's crop had already been sold to breweries.

## Hop statistics

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

## The brewing industry

In the 2004/2005 period, beer output grew by 5.2 % to just over 306m hectolitres. According to estimates, growth rates could continue to be 5-6 % per year in the foreseeable future. It is considered possible that within ten years China will have a brewing industry with an output of about 500m hectolitres. The average hopping rate in the Chinese brewing industry is between 2.5 and 3 g  $\alpha$ /hl. This unusually low hopping rate is a consequence of the generally low utilization of bitter substances in Chinese beers. In the North, bitterness levels are somewhat higher than in the South.

The availability of hops as a raw material will be insufficient to meet the demand of the Chinese brewing industry in crop year 2006.

# Contract Rates

## Forward contract rates in % (as per spring 2006)

Country	2006	2007	2008	2009
Germany	60%	40%	25%	10%
USA	70%	35%	25%	15%
Czech Republic	85%	60%	50%	10%
China	35%	20%	20%	20%
Poland	70%	30%	20%	15%
Slovenia	65%	25%	15%	0%
England	80%	65%	60%	26%

Contract rates are based on the hop acreage estimated for 2006 and a long-term average yield.



# Crop 2006

## South Africa

Variety	Development of acreage			Development of production			
	2005	+/-	2006	2005	2006	2005	2006
	Acreage ha			Ø-Yield	mt/ha	Production mt	
Southern Star	258	15	273	1.88	1.71	484.1	468.0
Southern Promise	128	-20	108	2.03	1.53	260.4	165.0
Outeniqua	74	-37	37	1.56	1.08	115.8	40.0
Southern Brewer	46	-34	12	1.67	0.75	76.7	9.0
<b>SOUTH AFRICA TOTAL</b>	<b>506</b>	<b>-76</b>	<b>430</b>	<b>1.85</b>	<b>1.59</b>	<b>937.0</b>	<b>682.0</b>

### Farm structure

The number of hop-growing farms remained unchanged at 15, of which 11 are private producers, 3 are commercial farms and one is a research establishment. Due to marketing difficulties, 15 % of the hop acreage was taken out of production after the 2005 harvest. The average hop acreage per farm fell from 33.7 ha in 2005 to 28.7 ha in crop year 2006.

### Growth and quality

As a result of extremely dry conditions yields in crop year 2006 were far below the average. Due to water shortages, many farms were unable to irrigate their hops during the final weeks of the vegetation period. There has not been a comparable drought in the last 25 years.

The average alpha contents in 2006 were surprisingly good and finished up slightly

above the values recorded in previous years:

**Southern Promise** 11.5 %, **Outeniqua** 13.7 %, **Southern Star** 14.2 %.

### Market situation

As a result of acreage reduction and the low production volume, there are no stocks of the 2006 crop available. The hop acreage set aside last year will not be strung again in crop year 2007.

## Australia

Area	Variety	Development of acreage			Development of production			
		2005	+/-	2006	2005	2006	2005	2006
		Acreage ha			Ø-Yield	mt/ha	Production mt	
Tasmania	Pride of Ringwood	105	-15	90	3.03	3.00	318.0	269.0
	Cluster	9	0	9	2.00	1.93	18.0	17.0
	Super Pride	117	-14	103	2.13	2.81	249.0	290.0
	Victoria	33	-21	12	3.03	3.57	100.0	43.0
	Opal	14	-8	6	2.86	3.48	40.0	20.0
	Millenium	8	16	24	3.38	2.51	27.0	61.0
	Others	6	5	11	1.00	0.95	6.0	11.0
	<b>Total Tasmania</b>	<b>292</b>	<b>-37</b>	<b>255</b>	<b>2.60</b>	<b>2.79</b>	<b>758.0</b>	<b>711.0</b>
Victoria	Pride of Ringwood	12	1	13	2.00	2.23	24.0	29.0
	Cluster	10	0	10	2.00	2.00	20.0	20.0
	Victoria	55	-55	0	2.84	0.00	156.0	0.0
	Topaz	41	4	45	4.10	3.51	168.0	157.0
	Super Pride	39	7	46	2.85	2.61	111.0	119.0
	Others	0	1	1	3.33	2.93	1.0	4.0
	<b>Total Victoria</b>	<b>157</b>	<b>-42</b>	<b>115</b>	<b>3.05</b>	<b>2.86</b>	<b>480.0</b>	<b>329.0</b>
	<b>Total Bitter</b>	<b>136</b>	<b>-14</b>	<b>122</b>	<b>2.79</b>	<b>2.75</b>	<b>380.0</b>	<b>335.0</b>
	<b>Total High Alpha</b>	<b>307</b>	<b>-71</b>	<b>236</b>	<b>2.77</b>	<b>2.92</b>	<b>851.0</b>	<b>690.0</b>
	<b>Total Others</b>	<b>6</b>	<b>6</b>	<b>12</b>	<b>1.11</b>	<b>1.25</b>	<b>7.0</b>	<b>15.0</b>
	<b>AUSTRALIA TOTAL</b>	<b>449</b>	<b>-79</b>	<b>370</b>	<b>2.76</b>	<b>2.81</b>	<b>1,238.0</b>	<b>1,040.0</b>

### Farm structure

In Australia hops are grown on 13 farms (3 of which belong to Hop Products Australia). The total production area has been cut back further (-18 %) and reached an historic low in 2006. Producers farmed an average hop acreage of 28 ha per farm, which was 4 ha lower than the 2005 average.

### Growth and quality

Ample rainfall and sufficient irrigation had a positive effect on hop growth in Tasmania. Harvesting ended with slightly above-average yields and average alpha acid content. In Victoria, on the other hand, January was very hot and dry. The subsequent vegetation conditions proved to be favourable for the hops, however, producing a crop with average yields and alpha content.

Alpha acid levels in 2006 mostly fell short of the very good average content of the previous year's crop (2005 results in brackets): **Pride of Ringwood** 8.8 % (8.8 %) **Super Pride** 12.6 % (12.7 %), **Millennium** 12.1 % (12.6 %), **Topaz** 14.8 % (16.7 %).

### Market situation

By early June 2006, contract sales accounted for 84 % of crop volume.

# New Zealand

Variety Group	Development of acreage			Development of production			
	2005	+/-	2006	2005	2006	2005	2006
	Acreage ha			Ø-Yield mt/ha		Production mt	
Aroma	253	-29	224	2.07	1.88	523.9	421.6
High Alpha	150	-21	129	2.14	1.90	320.6	245.5
<b>NEW ZEALAND TOTAL</b>	<b>403</b>	<b>-50</b>	<b>353</b>	<b>2.09</b>	<b>1.89</b>	<b>844.5</b>	<b>667.1</b>

## Farm structure

With one major producer having discontinued hop farming, there were only 18 hop farmers left in New Zealand in hop year 2006. The average hop acreage per farm was 19.6 ha.

## Growth and quality

The 2005/2006 growing season began relatively early with mild temperatures. Very cold weather followed in the late spring. Throughout the summer, favourable

weather conditions allowed the hops to develop normally until harvest time. During the first part of the harvest, strong warm winds and lack of rain caused the hops to mature faster.

While the alpha content of the aroma varieties in 2006 decreased year on year, the results for the alpha varieties were considerably better. The average values of the most important varieties were as follows (2005 figures in brackets): **NZ Hallertau Aroma** 6.8 % (7.1 %), **NZ Pacific Gem** 14.1% (13.1 %).

## Market situation

In April 2006, 100 mt of aroma hops and 5 mt of alpha hops from the previous year's crop remained unsold. When picking began in 2006, 95 % of the anticipated crop volume had already been contracted. Over the next few years, the remaining hop farmers in New Zealand intend to make up for the fall in acreage and volume that resulted from one grower discontinuing hop production.

# Plant Development 2006

## Germany

The vegetation period in crop year 2005 was followed by an autumn that was relatively mild and dry in comparison with the wet and cold summer. Winter began unusually early, with the first falls of snow already coming in mid-November. Both temperatures and precipitation in the winter months were within the long-term average. The winter lasted until mid to late March.

Extremely heavy rainfall in March, April and May caused the soil to be so saturated with water that the spring work could not always be carried out in good ground

conditions. Spring arrived late and due both to late pruning and to the cold and wet weather conditions, the spring growth of the hop plants was varied and correspondingly delayed. Training commenced a good week later than in previous years. A spell of cold weather in the second half of May caused an additional delay in plant growth, significantly holding back the development of Perle and Hallertau Taurus in particular, as both of these varieties require relatively warm conditions, while Hallertau Magnum, Hallertau Mittelfrueh and Spalt Select, being varieties less sensitive to the cold, were better able to withstand the adverse weather conditions.

## USA

In contrast to previous years, plentiful precipitation in the winter months replenished the mountain reservoirs. This ensures sufficient quantities to irrigate the hop yards during the growing period. The temperatures during the spring months remained within the usual range. Diseases and pests are under control. Accordingly, a normal hop crop is expected.

The pattern of weather conditions in July and August is the decisive factor in the further development of the crop, affecting both the quality and the quantity of the hops.

# Outlook 2006

## Germany

The results of the hop acreage survey for 2006 had not been published by early June. In addition to 300 ha being set aside or cleared in connection with a special acreage-based programme (p. 12), there were changes in variety structure, with new acreage being planted, mainly regarding the varieties Herkules, Perle and Hallertau Tradition. Total acreage in Germany will remain unchanged from 2005.

## USA

The official hop acreage survey published by

the US Department of Agriculture (USDA) at the beginning of June reports an acreage reduction of 216 ha compared with the previous year. While acreage in Washington and Oregon remained relatively constant, there was a reduction of 206 ha in Idaho. As Idaho does not report acreage according to variety, but only reports the change as a total figure, it is unclear whether the reduction reported refers mainly to alpha or to aroma varieties. As a result of better growing conditions in comparison with the poor crop produced in 2005, the yield from crop 2006 should turn out slightly better in spite of the reduction in acreage.

## World

Hop acreage will probably decline further worldwide by approx. 400 ha in crop year 2006. Beer output will continue to grow, particularly in China. Stocks of hops and alpha from past crops still on the market, on the other hand, have been virtually cleared. Changes in the availability of hops as a raw material will make their effects felt correspondingly faster and more noticeably than in the past.



# Members of BARTH-HAAS GROUP



Joh. Barth & Sohn GmbH & Co. KG  
Freiligrathstrasse 7/9  
90482 Nuremberg  
Germany

Phone: +49 911 54 89-0  
Fax: +49 911 54 89-330  
E-Mail: info@johbarth.de  
www.barthhaasgroup.com



John I. Haas, Inc. - Corporate Office  
5158 MacArthur Blvd, NW, Suite 300  
Washington, DC 20016  
USA

Phone: +1 202 777-4800  
Fax: +1 202 777-4895  
E-Mail: info@johnihaas.com  
www.barthhaasgroup.com



Botanix Ltd.  
Hop Pocket Lane, Paddock Wood  
Kent, TN12 6DQ  
England

Phone: +44 1892 833415  
Fax: +44 1892 836987  
E-Mail: intray@botanix.co.uk  
www.botanix.co.uk



Hop Products Australia  
313 Macquarie Street, Hobart  
GPO Box 104 Hobart  
Tasmania, Australia 7001

Phone: +61 3 6220 8800  
Fax: +61 3 6223 8316  
E-Mail: info@hopproducts.com.au  
www.hopproducts.com.au



Barth Haas (Beijing) Trade Co. Ltd.  
Unit 1008, Landmark Tower 2  
8 North Dongsanhuan Road  
100004 Beijing  
People's Republic of China

Phone: +86 10 6590 7096  
Fax: +86 10 6590 7095  
E-Mail: jbsbj@163bj.com  
www.barthhaasgroup.com

## Conversion Table

### Area:

1 hectare (ha) = 10.000 m <sup>2</sup>	= 2.934 Bavarian "Tagwerk"
1 hectare (ha) = 10.000 m <sup>2</sup>	= 2.471 acres
1 Bavarian "Tagwerk"	= 0.341 ha
1 acre	= 0.4047 ha

### Length:

1 yard	= 3 feet = 36 inches = 91.44 cm
1 mile	= 1.609km

### Volume:

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

### Weight:

1 metr. ton (mt) = 1,000 kg	= 20 cwt (D) = 2,204.6 lbs
1 Zentner cwt (D) = 50 kg	= 110.23 lbs = 1.102 cwt (USA)
	= 110.23 lbs = 0.984 cwt (GB)
1 hundredweight (cwt/USA)	= 100 lbs = 45.36 kg
	= 0.9072 Ztr.
1 hundredweight (cwt/GB)	= 112 lbs = 50.800kg
	= 1.0160 Ztr.
1 cental (GB)	= 100 lbs = 45.36 kg
	= 0.9072 Ztr.
1 kg	= 2.20462 lbs
1 lb	= 0.4536 kg

### Pressure:

1 bar = 14.5038 psi	1 psi = 0.06895 bar
86 °F = $\frac{(86 - 32) \times 5}{9} = 30$ °C	30 °C = $\frac{30 \times 9}{5} + 32 = 86$ °F

## EURO

The EURO is legal tender in the following countries:

Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain.

## Currency Exchange Rates

1 EUR equals (reference rates by ECB):

	on 1 June 2005	on 1 June 2006
USA	1.2228 USD	1.2736 USD
Australia	1.6347 AUD	1.7081 AUD
China	10.1205 CNY	10.2155 CNY
Great Britain	0.6755 GBP	0.6847 GBP
Japan	132.8400 JPY	144.1900 JPY
Canada	1.5341 CAD	1.4099 CAD
Poland	4.1622 PLN	3.9383 PLN
Switzerland	1.5310 CHF	1.5628 CHF
Czech Republic	30.4050 CZK	28.2540 CZK

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

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



# The Top 40 brewery groups in the world as of 31 December 2005

The global players continue to increase their ability to influence the world market by means of brewery purchases, equity investments and take-overs. The top

ten alone account for some 926m hectolitres, or 58 % of world beer production. In 2004 they accounted for 865m hectolitres, or 55.7 %.

Rank	Brewery	Country	Production volume 2005 in million hl	Percentage of world beer production
1*	InBev	Belgium	202.1	12.6%
2	SABMiller	United Kingdom	176.0	11.0%
3	Anheuser-Busch	USA	173.5	10.9%
4	Heineken	Netherlands	118.6	7.4%
5	Carlsberg	Denmark	48.3	3.0%
5	Molson-Coors	USA/Canada	48.3	3.0%
7	Modelo	Mexico	45.5	2.9%
8	Baltik Beverage Holding (BBH)	Russia	41.5	2.6%
9	Tsingtao	China	40.9	2.6%
10	Yan Jing	China	31.2	2.0%
11	Scottish & Newcastle	United Kingdom	29.1	1.8%
12	Femsa (Cuahtemoc)	Mexico	27.0	1.7%
13	Asahi	Japan	24.6	1.5%
14	Kirin	Japan	22.6	1.4%
15	Efes	Turkey	18.0	1.1%
16	San Miguel	Philippines	17.0	1.1%
17	Polar	Venezuela	16.5	1.0%
18	Gold Star	China	15.8	1.0%
19	Schincariol	Brazil	15.5	1.0%
20	Radeberger	Germany	15.0	0.9%
21	Chong Qing	China	14.4	0.9%
22	BGI/Castel	France	13.9	0.9%
23	Diageo (Guinness)	Ireland	13.0	0.8%
24	Mahou – San Miguel	Spain	11.2	0.7%
25	Hite	South Korea	9.7	0.6%
26	Foster's	Australia	9.2	0.6%
27	Beer Thai (Chang)	Thailand	9.1	0.6%
28	Sapporo	Japan	9.0	0.6%
29	Xue Jin	China	8.4	0.5%
30	Bitburger	Germany	8.2	0.5%
31	Lion Nathan	New Zealand	8.0	0.5%
32	Kaiser	Brazil	7.4	0.5%
33	Oettinger	Germany	7.0	0.4%
34	Singha	Thailand	6.8	0.4%
35	Suntory	Japan	6.6	0.4%
36	Damm	Spain	6.5	0.4%
37	CCU Cerv. Unidas	Chile	6.4	0.4%
38	San de Li	China	5.6	0.4%
39	Krombacher	Germany	5.3	0.3%
40	Shenzhen Jinwei	China	5.2	0.3%
<b>Total</b>			<b>1,297.9</b>	<b>81.2%</b>
<b>World beer production 2005</b>			<b>1,598.1</b>	<b>100.0%</b>

\* The InBev group is composed of InBev Belgium (186.2m hectolitres) und Quilmes Argentina (15.9m hectolitres).

In a number of cases it was necessary to estimate the production volume due to differences in the data provided by different sources.