

The Top 40 Breweries in the World as of 31.12.2003

The beer market has long been a global market, governed by cross-border takeovers and growth through acquisition. Recently the number of mergers among the top 40 breweries has increased.

Several more changes can therefore be expected by the end of 2004. The process of concentration will continue. The ten largest brewing groups meanwhile account for 53.3% of the world beer market.

Rang	Brauerei	Land	Produktionsvolumen 2003 in Mio. hl	Anteil an der Welthier- produktion in %
1	Anheuser-Busch	USA	152.0	10.3%
2	SAB-Miller	South Africa/USA	137.8	9.3%
3	Heineken	Netherlands	99.0	6.7%
4	Interbrew	Belgium	97.9	6.6%
5	Carlsberg	Denmark	88.8	6.0%
6	AmBev	Brazil	67.4	4.6%
7	Modelo	Mexico	41.9	2.8%
8	Coors	USA	38.6	2.6%
9	Tsingtao	China	32.6	2.2%
10	Scottish & Newcastle	United Kingdom	31.8	2.2%
11	Asahi	Japan	25.9	1.8%
12	Femsa (Cauahatemoc)	Mexico	24.6	1.7%
13	Santo Domingo (Bavaria)	Columbia	23.5	1.6%
14	Kirin	Japan	23.1	1.6%
15	Yan Ying	China	22.3	1.5%
16	Molson	Canada	21.0	1.4%
17	Baltika	Russia	16.1	1.1%
18	Schincariol	Brazil	15.0	1.0%
19	San Miguel	Philippines	14.8	1.0%
20	Diageo/Guinness	United Kingdom/Ireland	13.0	0.9%
21	Foster's	Australia	12.7	0.9%
22	BGI/Castel	France	12.6	0.9%
23	Efes	Turkey	11.8	0.8%
24	Harbin	China	11.7	0.8%
25	Chang	Thailand	11.1	0.8%
26	Polar	Venezuela	11.0	0.7%
27	Lion Nathan	New Zealand/Australia	10.6	0.7%
28	Mahou – San Miguel	Spain	10.3	0.7%
29	Hite	South Korea	10.0	0.7%
30	Gold Star	China	9.4	0.6%
31	Chong Qing	China	9.1	0.6%
32	Zhu Jiang	China	8.8	0.6%
33	Holsten	Germany	8,8	0.6%
34	Sapporo	Japan	8.5	0.6%
35	Radeberger	Germany	7.6	0.5%
36	Brau und Brunnen	Germany	7.2	0.5%
37	Suntory	Japan	6.8	0.5%
38	Damm	Spain	6.1	0.4%
39	Otschakovo	Russia	6.0	0.4%
40	Bitburger	Germany	5.8	0.4%
1-4	Total		1,173.0	79.3%
World Beer Production 2003			1,478.5	100.0%

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

The Barth Report

Hops

2003/2004



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Conversion Table

Area:	
1 hektare (ha) = 10.000 m ²	= 2.934 bayerische Tagwerk
1 hektare (ha) = 10.000 m ²	= 2.471 acres
1 bayerisches Tagwerk	= 0.341 ha
1 acre	= 0.4047 ha

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

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 Ztr. = 2,204.6 lbs
1 Zentner (Ztr.) = 50 kg	= 110.23 lbs = 1.102 cwt (USA)
	= 110.23 lbs = 0.984 cwt (GB)
1 hundredweight (cwt/USA)	= 100 lbs = 45.36 kg
	= 0.9072 Ztr.
1 hundredweight (cwt/GB)	= 112 lbs = 50.800 kg
	= 1.0160 Ztr.
1 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

$$86\text{ }^{\circ}\text{F} = \frac{(86 - 32) \times 5}{9} = 30\text{ }^{\circ}\text{C} \quad 30\text{ }^{\circ}\text{C} = \frac{30 \times 9}{5} + 32 = 86\text{ }^{\circ}\text{F}$$

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New Zealand

Variety Group	Development of Acreage			Development of Production			
	2003	+/-	2004	2003	2004	2003	2004
	Acreage ha			Ø-Yield mt/ha		Production mt	
Aroma	234	23	257	1.70	1.73	398.3	444.8
High Alpha	193	-28	165	1.98	2.11	382.5	347.3
NEW ZEALAND TOTAL	427	-5	422	1.83	1.88	780.8	792.1

Farm Structure

In 2004 19 farms grew hops on an average area of 22.2 ha respectively.

Growth and Quality

The weather conditions in the spring were colder than usual. From early to mid-summer it was very dry. In February, the most

important month for the ripening process, it was cold and windy. As a result the production volume failed to come up to expectations. The alpha acids content in the hops was considerably below the average of the last five years: **NZ Hallertau Aroma** 6.8% (7.8%), **NZ Pacific Gem** 12.7% (14.5%), **NZ Super Alpha** 10.3% (12.3%).

Market Situation

By the end of April 97% of the 2004 crop had been sold. Forward contracts already account for 70% of the 2005 crop.

Plant Development 2004

Germany

In the autumn of 2003 work in the hop gardens was completed in dry conditions. After a long but not too cold winter, spring work began a little later than usual, but in good conditions.

Due to the warm weather in late April the early development of the hop plants progressed rapidly, which meant that training could begin in calendar week 18. This was followed by two weeks of very cool temperatures in early May, which slowed the growth of the hop plants somewhat. By the end of calendar week 19 all the hop plants

had been trained. All the varieties had reached a height of 2.50 to 3.00 metres at the time of going to press at the end of May - a normal development for the time of year. The water supply in the soil can be described as adequate. The volume of precipitation in the winter months was significantly below that of the previous year, however, indicating that there are lower water reserves in the soil. There was only isolated precipitation in April, whereas in May there was as much as 50 l/m² of rainfall in some areas.

Daytime temperatures in late April were 15 - 20 °C, with night-time temperatures of

5 - 10 °C. In May temperatures were 12 - 22 °C during the day and 0 - 7 °C at night.

USA

Although the level of precipitation in Washington in the winter months was inadequate, which will lead to some water rationing during the vegetation period, normal hop growth is expected nevertheless. In Oregon, thanks to above-average temperatures, the vegetation period got off to a good start. There was only slight incidence of disease and pests in all the growing regions in the spring.

Outlook 2004

Germany

According to the acreage survey for the year 2004, hops are grown in Germany on an area totalling 17,476 ha. This constitutes a year-on-year reduction of 86 ha. An increase of 221 ha was registered for the aroma variety group. Bitter varieties, on the other hand, were cut back by 209 ha and high alpha variety acreage was reduced by 112 ha. The area planted with young hops is slightly over 700 ha.

USA

The official hop acreage survey conducted by the US Department of Agriculture (USDA) and published at the beginning of

June reports a reduction in acreage of 292 ha compared with 2003. The reduction is a combination of an increase in high alpha varieties of 71 ha and a decrease in aroma varieties of 364 ha. Cascade was affected in particular, with a reduction of 339 ha.

The US hop industry is still working on a hop marketing order, but the USDA has not yet decided whether a referendum should be held.

World Outlook

Crop year 2003 will lead to large-scale clearance of stocks of aroma hops in the brewing industry. The hop merchants are also virtually out of stock in this variety category.

The situation is less tense in the high alpha sector, but here, too, stocks have been run down to a considerable extent.

World hop acreage is going to contract even further. According to current information, 1,000 to 1,500 ha mainly of bitter and high alpha varieties are being taken out of production.

Despite these conditions, at the time of going to press the brewing industry at national and international level had shown great restraint in entering into forward contracts, electing instead to meet its needs from the 2004 spot market. Experience shows that this approach can produce surprises.

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.

Foreword

Dear Reader,

The 2003 crop clearly demonstrated that hops are a natural product and therefore dependent on the weather. Not since 1947 has there been a comparable drought. The brewing industry had become too accustomed to normal harvests being brought in, although the general weather conditions had already caused shortfalls in production in the years 1990, 1992 and 1994.

Nobody – neither growers, traders, processors nor breweries – can be satisfied with the underlying conditions affecting last year's crop. Nevertheless, together, in an

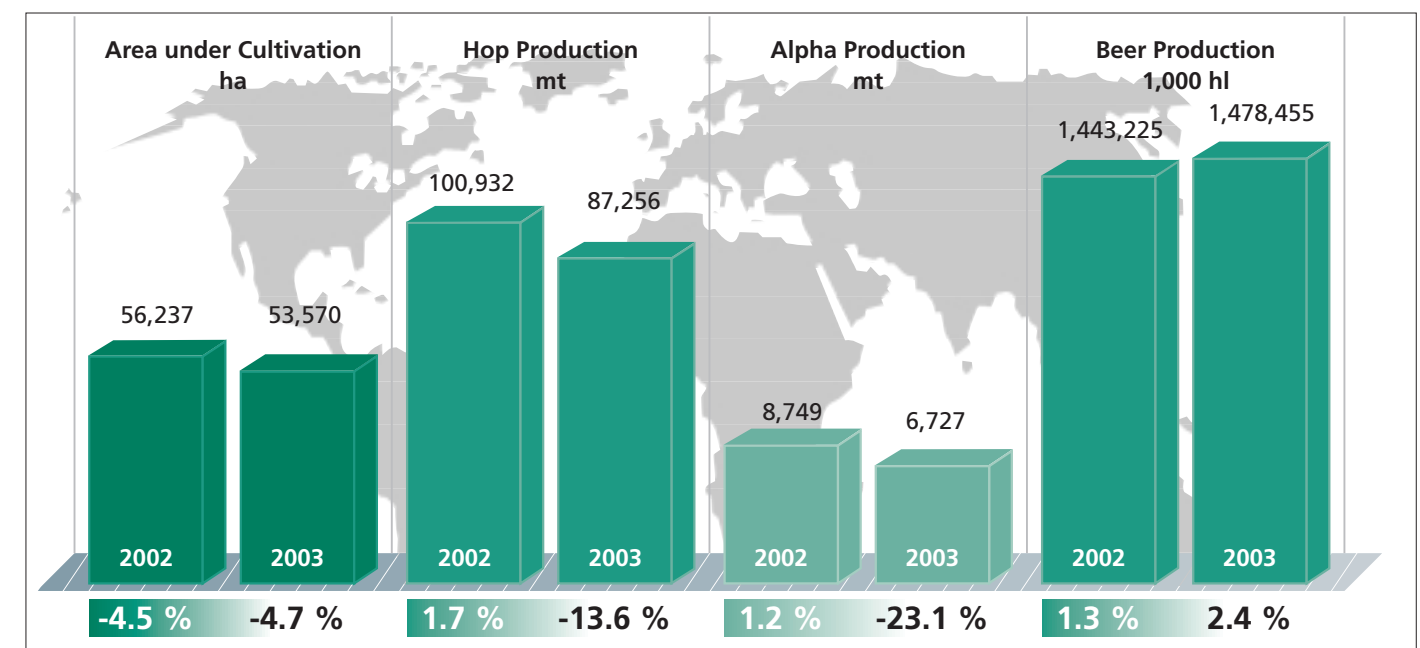
unprecedented act of partnership, the hop and brewing industries showed that practical solutions can be found even in times of extreme difficulty.

This year's issue is being sent to you once again in its customary printed form. As of next year, however, keeping up with technical progress, the Barth Report will be made available to you in digital form.



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

World Market Key Data



Title photograph

In 2003/2004, for the first time, two Hop Queens with equal status reign in the Hallertau hop region. Nine candidates stood for election. In a close

contest, with 2,500 voting cards issued, Sandra Finkenzeller and Anita Penger each received 567 votes. It was decided not to hold a run-off – a Hallertau compromise.

The election of the Hallertau Hop Queen takes place every year in the second week of August during the Wolnzach summer fair.



Political Situation

The consequences of the second Gulf War have been the determining factor in international events. One year after the official ceasefire, there is still no end in sight to the violence in **Iraq**. Hardly a day passes without attacks on the US-led occupying forces, international organisations and the local population, while sporadic uprisings make it all the more difficult to re-establish stability in this long-suffering country. The events in the Middle East have led to an escalation in the violence between **Israel** and the **Palestinians**, erupting into suicide bombings, the temporary occupation of

Palestinian areas, the liquidation of leading Hamas activists and – despite international protests – the building of a wall separating Israel and Palestine. Islamic terrorists were responsible for bombings in **Madrid, Istanbul** and **Saudi Arabia**, claiming a large number of civilian lives. With civil unrest out of control in **Kosovo**, NATO had to send in additional troops to restore order. In the presidential election in **Russia** President Vladimir Putin was virtually unchallenged, thus securing the mandate for a

second period in office. In the parliamentary election in **Spain** the opposition party (PSOE) emerged victorious over the incumbent conservative party (PP). Both President Aristide in **Haiti** and President Shevardnadze in **Georgia** were forced out of office as a result of unrest in their respective countries. In a historic step for **NATO** the military alliance was expanded on 7 June 2004 to include seven East European states: **Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia** and **Slovenia**.

Economic Situation

The global economy has picked up speed in the last 12 months. Average gross domestic product (GDP) in **2003** was **+2.6%** (1.8% in the previous year). Decisive stimuli for world trade came from the **USA** as its economy recovered. However, they came at the cost of rising deficits in the balance of payments and the current account. The world's highest economic growth in 2003 was recorded in **China**, with 9.1% (up from 8.0% in 2002). In 2003 China increased its share of world trade year on year from 5% to over 6%. For the first time in years, **Japan** also managed to achieve robust growth. This

was mainly due to exports, particularly to China. In **Eastern Europe**, the **Russian** economy, assisted by rising oil prices, was the driving force in the region with strong growth. Its GDP grew by 7.3% in 2003 alone. Continuing the trend in recent years, the **Western European** economies lagged behind. The Franco-German axis in particular has become a major cause for concern within the EU. In 2003 several EU member states exceeded the Maastricht deficit ceiling of 3% of GDP. **Germany** has seen its economy enter a phase of slight recovery only since the

autumn of 2003. The main factor contributing to Germany's economic growth is exports, while domestic consumption continues to stagnate. Nearly all the major economies have been trying to counter the recessive trend in the world economy over the past two years by means of low interest rates. In the event of a sustained recovery, a rise in interest rates is to be expected. Developments in the bond market are already pointing in this direction. As a result of rising energy demand and political instability in the Middle East, oil prices had risen sharply to more than US\$40 a barrel by the end of May 2004. This is likely to disrupt the world economy.

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	2001	0.3%	-393.7	-411.9	2.8%	5.02%	5.8%
	2002	2.2%	-480.9	-468.3	1.6%	4.61%	5.8%
	2003	3.1%	-549.4	-535.7	2.3%	4.02%	6.0%
Japan	2001	-0.2%	87.8	54.0	-0.7%	1.34%	5.0%
	2002	-0.3%	112.5	78.9	-0.9%	1.28%	5.4%
	2003	2.7%	136.2	88.3	-0.3%	0.99%	5.3%
Germany	2001	0.7%	3.7	85.4	2.5%	4.81%	9.6%
	2002	0.2%	59.2	125.1	1.3%	4.79%	9.8%
	2003	-0.1%	57.4	146.3	1.0%	4.09%	10.5%
China	2001	7.3%	17.4	22.5	0.9%	-	3.6%
	2002	8.0%	35.4	30.4	-0.7%	-	4.0%
	2003	9.1%	28.9	25.4	1.2%	-	4.5%

The figures for 2001 and 2002 have been revised according to the latest statistics. *) Interest rate for 10-year bonds

World Beer Production 2002/2003

figures in 1,000 hl

Europe		
Country	2002	2003
Germany	108,400	106,304
Russia (CIS)	70,200	73,200
Great Britain	56,672	58,014
Spain	27,860	30,671
Poland	26,100	27,300
Netherlands	24,898	25,124
Czech Republic	18,178	18,548
France	18,117	18,100
Ukraine (CIS)	14,900	16,645
Belgium	15,696	15,650
Italy	12,592	13,672
Romania	11,474	12,514
Austria	8,731	8,891
Denmark	8,534	8,351
Ireland	9,157	8,023
Turkey	7,360	7,840
Hungary	7,398	7,500
Portugal	7,129	7,350
Serbia/Montenegro	4,814	4,935
Bulgaria	3,939	4,693
Slovak Republic	4,850	4,676
Finland	4,136	4,564
Greece	4,550	4,400
Sweden	4,165	3,979*
Croatia	3,728	3,774
Switzerland	3,493	3,645
Latvia	2,587	2,466
Slovenia	2,536	2,200
Norway	2,221	2,180
White Russia (CIS)	2,026	2,000
Bosnia-Herzegovina	1,400	1,458*
Lithuania	1,337	1,453
Estonia	951	970
Macedonia	657	680
Moldova	460	566
Georgia (CIS)	550	500
Cyprus	390*	440*
Albania	160	390
Luxembourg	383	375
Other CIS-countries	300*	300*
Iceland	121	120
Malta	150	78*
Armenien	100*	73
Total	503,400	514,612

America		
Country	2002	2003
USA	234,562	232,216
Brazil	86,000*	82,200**
Mexico	63,700	66,420
Canada	21,369	23,443
Columbia	12,000*	15,074**
Venezuela	16,000	15,000*
Argentina	13,986**	12,725**
Peru	5,982**	6,044*
Chile	4,000*	4,168**
Dominican Republic	2,700*	3,370**
Ecuador	2,731**	2,994**
Cuba	2,475	2,305*
Bolivia	1,721**	1,881**
Paraguay	1,726**	1,600*
Panama	1,396**	1,426**
Guatemala	1,100**	1,310**
Costa Rica	1,292**	1,260**
Honduras	972**	961**
Jamaica	950*	900*
Uruguay	800*	800*
El Salvador	800	763**
Nicaragua	600*	665**
Puerto Rico	400*	500*
Guyana	400*	400*
Trinidad	300*	300*
Bahamas	140*	140*
Dutch Antilles	127*	127*
Belize	120*	120*
Haiti	190*	100*
Surinam	97*	97*
Barbados	70*	70*
Martinique	70*	70*
St. Lucia	60*	60*
Macedonia	35*	35*
Grenada	35*	35*
St. Vincent	38	29
Antigua	22	22
St. Kitts	17	17*
Dominica	13	17
Aruba	16*	16
Cayman Islands	4	4*
Total	478,981	479,649

Asia

Country	2002	2003
China	235,580	254,048
Japan	69,304	64,970
South Korea	18,848	19,802
Thailand	12,524	15,239
Philippines	11,000*	12,700*
Vietnam	8,930	10,498
India	6,000	6,000*
Taiwan	3,850	3,600
Kazakhstan (CIS)	2,036	2,360
Indonesia	1,485	1,485*
Malaysia	1,400	1,250
Uzbekistan (CIS)	1,000*	900*
Singapur	735	735*
Israel	850	722
Sri Lanka	428	429
Cambodia	422	422*
Hong Kong	510	328
Aserbaidshjan (CIS)	340*	300*
Nepal	200*	231
Iran	150*	150*
Lebanon	100*	150
Syria	100	91
Laos	65	70
Myanmar (Burma)	60*	60*
Jordan	50*	50*
Mongolia	34	30
Pakistan	15	18
Iraq	100*	0
Total	376,116	396,638

Africa		
Country	2002	2003
South Africa	24,400	25,200
Nigeria	7,000*	8,600*
Cameroon	4,392	4,600
Kenya	2,650	2,100
Tanzania	1,804	2,015
Egypt	1,250	1,750
Angola	1,450	1,598
Dem. Rep. Kongo (Zaire)	1,445	1,496
Ivory Coast	974	1,210
Zimbabwe	1,400	1,182
Namibia	1,206	1,168
Uganda	1,137	1,098
Ethiopia	1,197	1,064
Tunesia	1,102	1,000
Mozambique	911	977
Ghana	946	950*
Morocco	927	877
Burundi	752	875
Algeria	680	814
Gabon	783	750
Madagascar	510	725
Congo	661	660
Benin	572	560
Botswana	597	559
Zambia	558	550
Burkina Faso	543	550
Ruanda	563	434
Mauritius	357	388
Lesotho	330	310
Togo	270	294
Chad	189	216
Eritrea	200	200
Réunion	200	198
Malawi	190	190
Swaziland	178	188
Senegal	160	155
Guinea	146	150
Central African Republic	131	122
Sierra Leone	80	79
Mali	76	77
Seychelles	76	71
Niger	66	65
Gambia	26	32
Liberia	32	30
Guinea Bissau	30*	30*
Cape Verde Islands	17	20*
Total	63,164	66,177

WORLD TOTAL	
2002	2003
1,443,225	1,478,455

In italics: corrections for 2002 as stated in last year's report; these figures became available after going to press.

* estimate
** Source: Alaface

Output Development

	2002 1,000 hl	2003 1,000 hl	2002 +/- % rel.	2003 +/- % rel.
European Union	311,021	313,468	0.4%	0.8%
Rest of Europe	192,379	201,144	5.9%	4.6%
Europe total	503,400	514,612	2.4%	2.2%
North America	255,931	255,659	-0.4%	-0.1%
Central America/Caribbean	77,864	81,634	1.6%	4.8%
South America	145,186	142,356	-1.9%	-1.9%
America total	478,981	479,649	-0.5%	0.1%
Asia	376,116	396,638	1.7%	5.5%
Africa	63,164	66,177	5.0%	4.8%
Australia/Oceania	21,564	21,379	0.8%	-0.9%
WORLD TOTAL	1,443,225	1,478,455	1.3%	2.4%

In 2003 there was a year-on-year increase in beer output of 2.4%. As in the previous

year, by far the greatest growth in terms of volume was recorded in China. As a result

of errors discovered in the figures reported, beer output in the USA for 2002 has had to be corrected downwards to a considerable extent from the figure quoted in last year's report.

While the greatest growth in Europe was recorded in Russia (3.0m hl / 4.3%), the sharpest fall was in Germany (2.1m hl / 1.9%). Mexico's growth of +2.7m hl / 4.3% was the main factor in the significant rise in output in Central America.

In Asia, growth in China (18.5m hl / 7.8%) was offset by the sharp fall in Japan (-4.3m hl / -6.3%).

The large increase in Africa comes mainly from Nigeria (1.6m hl / 22.9%).

Market Analysis

The 2003 crop year will go down in the history of European hop growing as the one with the worst hop harvest since 1947. The negative effects of the exceptional summer in Central Europe left the hop industry – both the hop producers and the hop products dealers – throughout Europe facing serious challenges. In the European growing regions a total of some 35% less alpha acid was produced than in the year before. World alpha production amounted to approx. 6,727 metric tons. The volume of alpha required by the international brewing industry for beer production in 2004 is around 7,691 tons. On the basis of these figures there was a purely arithmetical alpha acid deficit of 964 tons.

The world hop market in the past three years had been characterised by extremely damaging overproduction. As a result, the price level for the producers had been below their production costs for years. The tendency of the brewing industry to enter into forward contracts running for several years, had declined in line with the steady fall in the price level on the spot market.

As a consequence, immediately after the 2001 harvest producers in Germany and the USA – the two most important growing regions in the world market – began cutting back acreage on a large scale. A similar

picture presented itself in other growing regions too. In Germany mainly aroma hop acreage was grubbed up, while in the USA the acreage reduction measures were concentrated on high alpha hops. In this way, 5,333 ha (9.1%) of the world hop growing area has been taken out of production since 2001. On the basis of long-term average yields prior to the 2003 harvest it had been expected that supply and demand would balance out in the aroma hop sector, whereas there would still be overproduction in the high-alpha segment. The impact of the actual climatic conditions, however, made a mockery of these expectations. Consequently the effects of the 2003 crop caught both the hop dealers and the brewing industry totally unawares. Although it proved possible to compensate for the global shortfall in hop supplies of 964 tons of alpha by reducing stocks from the 2001 and 2002 crops in the USA and by running down stocks held by the brewing industry, the situation was considerably more difficult with regard to specific varieties.

As far as aroma hops were concerned, it had simply been impossible to produce enough of that commodity to meet the supply commitments to the brewing industry. The fact that forward contracts were settled in an orderly manner was only pos-

sible thanks to the brewing industry and the hop dealers acting as partners in operations involving a great number of tailored solutions. Due to the crop failure in Central Europe trading of aroma hops on the spot market began briskly as of mid-September, with prices rising sharply. Prices remained constant at a high level until farm gate selling ended as produce sold out. The prices quoted for bitter hops also rose after the harvest. However, stocks available in the USA very quickly made up for this supply shortfall, thus preventing a disproportionate rise in prices. On the whole, considering the scarcity resulting from the crop failure, the 2003 crop was marketed with a rare display of calm and with little speculative trading. The high price levels on the spot market gave rise to great restraint on the part of the brewing industry once by December 2003/January 2004 only the absolute minimum of additional stocks for their brewing needs in 2004 had been purchased. One reason for the great reluctance of the brewers to enter into forward contracts was the rise in prices in contracts with growers for future crops as a consequence of crop year 2003. Thus, after a year marked by crop failure, the hop market is faced with the following grotesque situation:

- continuing world-wide reduction in acreage
- widespread clearance of stocks of aroma hops
- reduction of stocks of bitter and high alpha hops
- declining rate of contracting between breweries - dealers - growers

Therefore there is potential for trouble on the spot markets.

Forward contact rates in % (as per spring 2004)

Country	2004	2005	2006	2007
Germany	56%	45%	25%	13%
USA	81%	52%	35%	22%
Czech Republic	97%	60%	55%	10%
England	60%	34%	24%	24%
Slovenia	60%	50%	25%	10%
Poland	85%	60%	35%	20%
China	60%	12%	12%	12%

Hop Acreage and Production 2002/2003

		2002				2003			
		Acreage ha	Production mt	Ø-Alpha %	Alpha mt	Acreage ha	Production mt	Ø-Alpha %	Alpha mt
Germany	Hallertau	14,967	27,318.0	9.3%	2,532	14,391	21,041.3	6.6%	1,388
	Elbe-Saale	1,396	2,200.7	11.7%	258	1,402	2,180.6	9.1%	199
	Tettngang	1,444	1,963.8	4.4%	86	1,256	1,552.6	2.4%	37
	Spalt	427	625.2	4.9%	30	395	446.7	2.9%	13
	Hersbruck	98	128.0	6.1%	8	98	96.3	4.0%	4
	Others	20	35.3	8.0%	3	20	38.7	5.1%	2
	Total	18,352	32,271.0	9.0%	2,917	17,562	25,356.2	6.5%	1,643
England		1,819	2,554.5	9.2%	235	1,455	1,928.6	8.2%	159
France		817	1,549.9	2.6%	41	817	1,389.1	1.8%	25
Spain		661	1,211.3	10.3%	125	673	1,304.9	10.7%	140
Belgium		250	438.0	8.4%	37	209	403.4	8.5%	34
Austria		217	297.4	6.7%	20	207	292.0	5.5%	16
Portugal		38	57.0	8.8%	5	24	35.0	8.3%	3
European Union		22,154	38,379.1	8.8%	3,380	20,947	30,709.2	6.6%	2,020
Czech Republik	Saaz	4,587	5,027.8	3.2%	160	4,481	3,864.6	3.2%	123
	Auscha	639	682.0	2.8%	19	746	716.4	2.8%	20
	Tirschtitz	742	732.2	2.7%	20	715	945.8	3.4%	32
	Total	5,968	6,442.0	3.1%	199	5,942	5,526.8	3.2%	175
Poland		2,198	3,002.8	5.7%	171	2,172	3,121.4	6.3%	197
Ukraine		1,809	745.5	3.6%	27	1,985	1,300.0	5.1%	66
Slovenia		1,816	2,160.0	6.8%	147	630	320.0	4.8%	15
Russia		862	440.0	4.7%	21	630	320.0	4.8%	15
Serbia/Montenegro		493	625.0	6.0%	37	389	305.0	6.0%	18
Slovak republic		350	302.0	3.6%	11	320	323.4	3.6%	12
Turkey		326	223.6	8.6%	19	317	245.3	8.6%	21
Romania		200 *	100.0 *	6.5%	7	270 *	300.0 *	3.8%	11
Bulgaria		239	303.0	9.5%	29	221	303.0	9.5%	29
Hungary		34	45.0 *	8.7%	4	37	49.7	9.7%	5
Switzerland		23	45.5	8.4%	4	20	24.0	9.2%	2
White Russia		22	22.0	9.0%	2	22 *	22.0 *	9.0%	2
Rest of Europe		14,340	14,456.4	4.7%	678	13,977	13,166.6	4.8%	628
EUROPE		36,494	52,835.5	7.7%	4,058	34,924	43,875.8	6.0%	2,648
USA	Washington	8,228	19,677.0	12.2%	2,406	7,888	18,121.5	11.4%	2,071
	Oregon	2,256	4,281.1	8.7%	371	2,326	4,240.0	8.4%	355
	Idaho	1,375	2,503.3	8.3%	207	1,388	2,388.8	8.6%	204
	Total	11,859	26,461.4	11.3%	2,984	11,602	24,750.3	10.6%	2,630
Argentina		129	194.0	7.6%	15	160	191.0	8.0%	15
AMERICA		11,988	26,655.4	11.3%	2,999	11,762	24,941.3	10.6%	2,645
South Africa		493	961.0	12.1%	116	503	912.2	13.1%	119
AFRICA		493	961.0	12.1%	116	503	912.2	13.0%	119
China	Xinjiang	3,563	10,458.0	7.3%	763	2,850	8,691.0	7.2%	629
	Gansu	2,067	6,161.0	6.6%	407	2,308	6,236.0	6.9%	431
	Total	5,630	16,619.0	7.0%	1,170	5,158	14,927.0	7.1%	1,060
Japan		293	554.5	6.2%	34	286	504.2	6.0%	30
India		70	38.6	10.0%	4	71	42.6	10.3%	4
ASIEN		5,993	17,212.1	7.0%	1,208	5,515	15,473.8	7.1%	1,094
Australia		862	2,384.4	11.7%	279	439	1,271.8	11.1%	142
New Zealand		407	884.0	10.1%	89	427	780.8	10.1%	79
AUSTRALIA/OCEANIA		1,269	3,268.4	11.3%	368	866	2,052.6	10.8%	221
WORLD		56,237	100,932.4	8.7%	8,749	53,570	87,255.7	7.7%	6,727

* estimate

Kursiv-Korrektur 2002 gegenüber letztjährigem Bericht

Alpha Acid Production

Alpha acid production world-wide has been redefined to correspond to market conditions and divided into completely new variety groups.

Group I:	Fine aroma hops	Hops with a long-term average alpha content of up to 4.5%, such as Hallertau, Hersbruck, K 18, Lublin, Saaz, Saphir, SA-1, Spalt, Styrian Golding, Strisselspalt, Tettngang.
Group II:	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, Kirin Flower, Mount Hood, NZ Hallertau, Perle, Spalt Select, Sterling, Willamette.
Group III:	Bitter hops/ high alpha hops	such as Admiral, Chelan, Chinook, Cluster, Columbus/Tomahawk/Zeus (CTZ), Galena, Hallertau Magnum, Hallertau Taurus, 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	2002			2003				
			Alpha Ø	Alpha mt	Alpha Share	Crop Share	Crop mt	Alpha Ø	Alpha mt	Alpha Share
I	16.4%	16,565	3.1%	511	5.8%	16.0%	13,992	2.6%	362	5.4%
II	24.6%	24,818	6.4%	1,592	18.2%	23.6%	20,606	4.5%	927	13.8%
III	59.0%	59,549	11.2%	6,646	76.0%	60.4%	52,658	10.3%	5,438	80.8%
Total	100.0%	100,932	8.7%	8,749	100.0%	100.0%	87,256	7.7%	6,727	100.0%

The total figures for 2002 were amended compared to last year's report.

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

The heat and drought in Europe during the growing period in 2003, combined with a 4.7% reduction in hop acreage compared with 2002, caused a veritable collapse both in hop production (-13.6%) and in alpha acid production (-23.1%).

Three countries, USA, Germany and China, determined world alpha production in 2003 with a combined share of 79.3% (previous year: 80.8%). The most important alpha producer by a wide margin was the USA with 39.1%. Its share of total produc-

tion in 2002 was only 34.1%. Germany held its ground in second position, although its share fell from 33.3% to 24.4%. The market share commanded by these two countries together dropped from 67.5% to 63.5%. China was able to consolidate its position. Its share of world alpha production increased from 13.4% to 15.8%.

In 2003 the Czech Republic regained the position of biggest alpha producer in Group I, having lost it to Germany in 2002, with a

share of 40.6%. Germany's share dropped to 27.4%.

Germany also had to relinquish its leadership of Group II. After achieving a share of 51.5% in 2002, the volume of alpha acids produced in Germany in 2003 accounted for only 30.2%. This table is now headed by the USA with 34.5%.

As in the previous year, first place in Group III goes to the USA with 42.5% followed by Germany with 23.3%.

Alpha Acid Balance

Calendar year	Alpha demand		Alpha Production		Alpha supply	
	Hopping rate	Demand	Crop year	Production	Surplus	Deficit
2000	5.6 g α/hl	7,794 mt α	1999	7,290 mt α	---	504 mt α
2001	5.5 g α/hl	7,834 mt α	2000	8,020 mt α	186 mt α	---
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	7,691 mt α	2003	6,727 mt α	---	964 mt α

* Estimated demand

Due to amendments of beer production and alpha acid production in 2001 the alpha supply is different to last year's report.

Due to unfavourable weather conditions in Central Europe, both the production volume and the alpha yields for the 2003 crop worldwide were below average. The total

alpha volume yielded by the 2003 hop harvest was 6,727 mt, which constituted an arithmetical alpha shortfall amounting to 964 mt. The market's requirements were

met by means of alpha stocks from previous crop years. This calculation does not allow for alpha degradation between processing and actual usage in the breweries.

European Union (EU)

The accession of ten new countries on 1 May 2004 marked a further step in the process of expansion begun by the EU and its predecessors long ago. For the record, here are the full details of how membership has developed:

1957 Foundation of the European Economic Community (EEC) by **Belgium, Luxembourg, the Netherlands, Italy, France** and the **Federal Republic of Germany**

The following countries have successively acceded to the EU:

1973 **Denmark, Ireland** and the **United Kingdom**

1981 **Greece**

1986 **Spain** and **Portugal**

1995 **Austria, Finland** and **Sweden**

2004 **Estonia, Latvia, Lithuania, Malta, Poland, Hungary, Slovakia, Slovenia, the Czech Republic** and **Cyprus***

* The UN had submitted a plan for the reunification of the Mediterranean island of Cyprus which has been divided since 1974. In separate referendums held on 24 April 2004 the Greek Cypriots voted against the plan while the Turkish Cypriots voted in favour. As a result of this failure to reunify the island only the Greek part joined the EU.

In order to become members of the Union, candidates for accession have to meet certain economic and political requirements, known as the "Copenhagen criteria":

- stability of the country's institutions, democracy, maintenance of the rule of law, human rights, respect for and protection of minorities;
- a functioning market economy as well as exchange rate stability;
- adoption of the "acquis communautaire", i.e. the adoption of all legally relevant acts (treaties, directives, guidelines, etc.), which are binding for the member states of the European Union.

The European Union now has 25 member states. With the accession of the new countries, the population of the EU has now grown by nearly 20% from 380.8 to 454.9 million. The area covered by the enlarged EU has risen by 739,000 km to 3,895,000 km.

The first draft of the EU constitution was rejected in December 2003 due to differences of opinion regarding future power sharing within the EU. At the moment compromise solutions are still being sought. It is supposed to be adopted by the heads of state and government in June 2004.

The next round in the enlargement process is already in sight. In 2007, **Bulgaria** and **Romania**, two further former Eastern bloc states, are expected to join the EU. **Turkey**, too, has applied for admission, but negotiations cannot begin until the necessary criteria have been met. This would leave only a small group of Western and Northern European countries – **Switzerland, Liechtenstein, Monaco, Norway** and **Iceland** – outside the EU.

It is to be hoped that this vigorous expansion will prove to be economically and politically manageable.

European Hop Marketing Order

At a special conference of the Council of Ministers in Luxembourg on 21 and 22 April 2004 it was decided to radically reform the system of support payments allowed for tobacco, olive oil, eating olives, cotton and hops within the framework of the Common Agricultural Policy (CAP). These reforms are intended to result in greater competitiveness, greater market orientation, better environmental compatibility, less distortion of competition and, beyond that, more stable incomes for farmers. In future, the major part of the current production-linked support payments will be included in the new single-farm payment scheme,

which is to be decoupled from production. With regard to the hop sector, the Council has basically decided to decouple the support payments completely from production. However, the Council's decision does allow individual member states to continue to grant production-linked support amounting to a maximum of 25% of the total. This share can be allocated fully or in part, either directly to the producers or to the producers' associations. This ruling is intended to take into account the farming conditions or situations in the hop-growing regions. The Council also expressed willingness to allow for so-called reference amounts for hop acreage that has been grubbed up and to take these amounts into account when setting the financial limits.

In order to be entitled to receive support payments, producers will in future no longer be required to be members of a producers' association. The funds allocated to producers will no longer be administered by the producers' associations, as has been the case until now, but will be paid directly to the producers themselves.

Implementation of the reforms is to begin as of 2005.

Area	Variety	Development of Acreage			Development of Production			
		2002	+/-	2003	2002	2003	2002	2003
		Acreage ha			Ø-Yield mt/ha		Production mt	
Hallertau	Perle	3,193	-549	2,644	1.84	1.40	5,866.37	3,694.46
	Hallertau Tradition	1,751	-59	1,692	1.99	1.57	3,487.76	2,652.52
	Hallertau	838	496	1,334	1.14	0.50	953.68	665.54
	Hersbruck Spaet	1,359	-105	1,254	1.83	1.69	2,490.70	2,120.29
	Spalt Select	852	-122	730	2.00	1.69	1,700.83	1,237.01
	Saphir	59	69	128	0.80	0.64	47.25	82.28
	Other Aroma	12	-11	1	1.66	0.85	19.91	0.85
	Total Aroma	8,064	-281	7,783	1.81	1.34	14,566.50	10,452.95
	Northern Brewer	922	-298	624	1.58	1.03	1,457.46	640.48
	Other Bitter	72	-30	42	2.46	2.17	177.28	91.20
	Total Bitter	994	-328	666	1.64	1.10	1,634.74	731.68
	Hallertau Magnum	4,053	6	4,059	1.84	1.70	7,452.45	6,909.72
	Hallertau Taurus	1,199	43	1,242	1.93	1.52	2,318.22	1,888.87
	Nugget	463	-40	423	2.30	1.81	1,065.17	767.53
	Hallertau Merkur	109	35	144	0.94	1.17	102.05	168.55
	Other High Alpha	56	-12	44	2.21	1.90	123.84	83.60
	Total High Alpha	5,880	32	5,912	1.88	1.66	11,061.73	9,818.27
Others	29	1	30	1.90	1.28	55.04	38.43	
Total Hallertau	14,967	-576	14,391	1.83	1.46	27,318.01	21,041.33	
Elbe-Saale	Perle	143	-6	137	1.46	1.20	208.48	164.35
	Hallertau Tradition	9	0	9	1.35	1.49	12.14	13.43
	Total Aroma	152	-6	146	1.45	1.22	220.62	177.78
	Northern Brewer	315	-69	246	1.31	0.97	413.91	237.79
	Total Bitter	315	-69	246	1.31	0.97	413.91	237.79
	Hallertau Magnum	778	73	851	1.68	1.78	1,310.69	1,511.70
	Nugget	82	-4	78	1.93	1.51	158.40	117.43
	Hallertau Taurus	41	-2	39	1.68	1.94	68.75	75.64
	Hallertau Merkur	20	14	34	0.71	1.32	14.19	44.79
	Other High Alpha	8	0	8	1.76	1.93	14.11	15.45
	Total High Alpha	929	81	1,010	1.69	1.75	1,566.14	1,765.01
	Total Elbe-Saale	1,396	6	1,402	1.58	1.56	2,200.67	2,180.58
	Tettngang	Tettngang	921	-99	822	1.29	1.24	1,189.35
Hallertau		515	-89	426	1.49	1.22	766.60	520.98
Other Aroma		7	0	7	0.90	1.91	6.30	13.36
Total Aroma		1,443	-188	1,255	1.36	1.23	1,962.25	1,549.92
High Alpha		1	0	1	1.55	2.63	1.55	2.63
Total Tettngang	1,444	-188	1,256	1.36	1.24	1,963.80	1,552.55	
Spalt	Hallertau	126	-9	117	1.34	1.01	168.80	117.99
	Spalt	138	-22	116	1.19	0.92	163.60	107.28
	Spalt Select	115	-1	114	1.95	1.37	223.85	155.87
	Perle	18	-1	17	1.88	1.62	33.76	27.50
	Hallertau Tradition	11	1	12	1.54	1.60	16.96	19.15
	Hersbruck Spaet	11	-2	9	1.33	1.07	14.58	9.64
	Total Aroma	419	-34	385	1.48	1.14	621.55	437.43
	High Alpha	8	2	10	0.46	0.93	3.66	9.27
Total Spalt	427	-32	395	1.46	1.13	625.21	446.70	
Hersbruck	Hallertau	27	-2	25	1.18	0.99	31.89	24.63
	Spalt Select	21	0	21	1.72	1.08	36.18	22.67
	Perle	20	-1	19	1.15	0.76	22.92	14.37
	Other Aroma	17	2	19	1.25	0.92	21.28	17.51
	Total Aroma	85	-1	84	1.32	0.94	112.27	79.18
	Bitter	2	0	2	1.96	1.39	3.92	2.78
High Alpha	11	1	12	1.08	1.20	11.83	14.36	
Total Hersbruck	98	0	98	1.31	0.98	128.02	96.32	
Rheinpfalz/	Aroma	15	0	15	1.62	1.79	24.37	26.92
Bitburg/Baden	High Alpha	5	0	5	2.18	2.36	10.89	11.80
Total Rhine./Bitb.	20	0	20	1.76	1.94	35.26	38.72	
Total Aroma	10,178	-510	9,668	1.72	1.32	17,507.56	12,724.18	
Total Bitter	1,311	-397	914	1.57	1.06	2,052.57	972.25	
Total High Alpha	6,834	116	6,950	1.85	1.67	12,655.80	11,621.34	
Total Others	29	1	30	1.90	1.28	55.04	38.43	
GERMANY TOTAL	18,352	-790	17,562	1.76	1.44	32,270.97	25,356.20	

Growth, Crop Estimate and Weights

The autumn of 2002 brought plentiful rainfall and was followed by a cold winter. In February 2003 in particular it was relatively cold, with an average temperature of -4.7 °C. In March it began to get significantly warmer and there was little rainfall. As a result, all the work that had no longer been possible due to the wet conditions in the autumn could be completed without any time pressure in the spring thanks to good ground conditions. Due to the warm weather conditions stringing had already begun by the end of April and by the end of week 19 all the plants had been trained. The stage of development recorded for all varieties in late May/early June was about one week ahead of the average in recent years, the one exception being **Perle**, whose growth was more or less on a par with the long-term average. On 14 June the northern part of the Hallertau region in particular was struck by heavy thunderstorms bringing hail and gale-force winds and causing serious damage in places.

The hop plants had already reached or were only a little short of full trellis height by calendar week 24. At this point the hops of the **Hallertau** and **Northern Brewer** varieties came into burr; cone development began in calendar week 26. The other varieties came into burr at the

beginning of July; the cone development phase began in or around calendar week 30. The common diseases and pests were kept under control using the fungicides and pesticides available. Harvesting of the **Hallertau** variety had already started by 10 August. Picking of all the other varieties began approximately one week earlier than usual.

The dry, hot summer was responsible for a considerable reduction in the volume of hops harvested.

The late-maturing varieties, **Hersbruck**, **Nugget** and in some cases also **Hallertau Magnum**, benefited from occasional rainfall in late August, which had a positive effect on their cone development.

The final total recorded as the officially certified hop volume for crop year 2003 was 3,710 mt higher than the crop estimate prior to harvest. Hop production in Germany was therefore 6,915 mt, or 21.43 %, lower than in the previous year.

Area	Estimate 08/2003 mt	Weight 31.03.04 mt
Hallertau	17,850.00	21,041.33
Elbe-Saale	1,782.00	2,180.58
Tettngang	1,500.00	1,552.55
Spalt	382.50	446.70
Hersbruck	99.25	96.32
Rhineland-Pal./Bitburg/Baden	32.00	38.72
TOTAL	21,645.75	25,356.20

Acreage/Variety development

In 2003 the acreage planted in Germany fell by 790 ha or 4.3% from its 2002 level. There were major differences within the varieties and variety groups. Aroma hop acreage decreased by 510 ha (-5.0%). With the exception of the aroma variety **Hallertau Mittelfrüh** whose acreage was expanded by 395 ha, all the other traditio-

nal aroma varieties, in particular **Perle** (-556 ha) were cut back.

Bitter varieties were also reduced by 397 ha (-30.3%); this reduction mainly affected **Northern-Brewer**.

The acreage allotted to high alpha varieties was increased by 116 ha (+1.7%).

Nugget, however, saw its share of acreage fall by 44 ha, while the other varieties increased accordingly.

Over the last five years the acreage of the main varieties in the German regions developed as follows:

Variety	1999 ha	2000 ha	2001 ha	2002 ha	2003 ha
Perle	3,251	3,373	3,606	3,385	2,829
Hallertau	1,398	1,437	1,411	1,508	1,903
Hallertau Tradition	1,712	1,746	1,849	1,783	1,727
Hersbruck Spaet	2,003	1,888	1,643	1,378	1,270
Spalt Select	1,107	1,079	1,080	990	867
Tettngang	1,060	1,025	994	921	822
Spalt	180	170	156	140	116
Other Aroma *	26	15	34	73	134
Total Aroma	10,737	10,733	10,773	10,178	9,668
Northern Brewer	2,009	1,858	1,695	1,237	870
Other Bitter **	178	153	130	74	44
Total Bitter	2,187	2,011	1,825	1,311	914
Hallertau Magnum	3,768	4,179	4,535	4,847	4,929
Hallertau Taurus	891	980	1,154	1,243	1,284
Nugget	611	578	581	545	501
Other High Alpha ***	65	78	118	199	236
Total High Alpha	5,335	5,815	6,388	6,834	6,950
Others ****	40	39	37	29	30
Total	18,299	18,598	19,023	18,352	17,562

* Other aroma include: Huell, Hersbruck Pure, Saphir

** Other bitter include: Brewers Gold, Orion

*** Other high alpha include: Columbus, Hallertau Merkur, Target

**** Others include: Record, others

Growing Conditions in 2003

Alpha acid table

Area	Variety	1999	2000	2001	2002	2003	Average
Hallertau	Hersbruck Spaet	1.6%	4.3%	2.5%	2.8%	1.7%	2.6%
Hallertau	Saphir	--	--	3.4%	3.8%	2.0%	3.1%
Hallertau	Hallertau	3.7%	4.2%	4.2%	4.1%	2.7%	3.8%
Hallertau	Spalt Select	4.0%	5.8%	4.2%	5.1%	2.7%	4.4%
Hallertau	Hallertau Tradition	5.5%	6.5%	6.0%	6.6%	3.7%	5.7%
Hallertau	Perle	6.2%	7.4%	6.7%	7.9%	3.6%	6.4%
Hallertau	Northern Brewer	8.1%	9.2%	8.9%	9.3%	5.5%	8.2%
Hallertau	Nugget	9.3%	11.3%	10.9%	11.3%	7.9%	10.1%
Hallertau	Hallertau Merkur	--	13.0%	12.3%	12.1%	8.3%	11.4%
Hallertau	Hallertau Magnum	12.3%	13.2%	13.1%	13.3%	10.6%	12.5%
Hallertau	Hallertau Taurus	14.0%	14.6%	14.6%	15.1%	11.2%	13.9%
Elbe-Saale	Northern Brewer	7.0%	8.8%	7.0%	8.2%	5.4%	7.3%
Elbe-Saale	Hallertau Magnum	11.2%	12.8%	12.8%	13.4%	10.4%	12.1%
Spalt	Spalt	3.4%	4.2%	4.0%	4.5%	2.7%	3.8%
Tettngang	Tettngang	3.3%	4.2%	4.0%	4.2%	2.2%	3.6%

Market Development

The disappointing harvest in Germany, and in the Hallertau region in particular, caught both the hop industry and the brewing industry unawares. Essentially, the development of the market for the 2003 crop was determined by the following factors:

Before the harvest:

- Implementation of urgently needed structural measures to reduce acreage in the aroma variety segment and eliminate the long-standing surplus: **Perle** (minus 556 ha, or 16.4%), **Spalt Select** (minus 123 ha, or 12.4%), **Hersbruck** (minus 108 ha, or 7.8 %) and **Tettngang** (minus 99 ha, or 10.7%).
- Euro exchange rate against the US dollar: rise in value of the euro by +11.8% between August 2002 and August 2003.
- Large stocks, especially in the alpha hop segment, held by the hop industry and the brewing industry worldwide.

After the harvest:

- Due to the weather conditions, extremely low yields in all hop varieties, in particular among the aroma varieties (-27,3% year on year).

- Due to the weather conditions, dramatic fall in alpha values among the aroma varieties (-49,5% compared to 2002) and among the early-maturing bitter varieties (-39,5%).
- All existing contracts between the hop merchants and the brewing industry had to be adjusted.

Depending on the individual stock levels of the brewers, the hop merchants were required to re-establish supply stability by means of repurchases, transfers, cancellations of orders and substitute delivery of contracted hops on an unprecedented scale.

In terms of purchasing activity, the spot market for hops in 2003 fell into two categories. While the spot market price for the varieties **Perle**, **Spalt Select** and **Hallertau Tradition** remained constant from September to March at 4.50 euros/kg, as did **Northern Brewer** at 4.00 euros/kg, there was no spot market activity worth mentioning for any of the other varieties. Although there was some heavy purchasing initially of **Hallertau Magnum** and **Hallertau Taurus** at 4.00 euros/kg from 16 to 23 September, all the other varieties were taken up by the hop pools established by the hop growers' association and the trading companies.

At the beginning of September the first hops were taken into pools without any advance payment guarantee. In the course

of the month of September advance payments were subsequently offered for all varieties. The advance payments offered were 3.50 euros/kg for **Perle**, **Hallertau Tradition**, **Spalt Select**, **Tettngang Tettngang** and **Tettngang Hallertau** and 3.00 euros/kg for all the other varieties. Considerable quantities were taken in on these terms.

As the market developed, it became very clear that the sales potential for German high alpha hops was considerably worse than had been expected when the harvest began. This resulted on the one hand from German high alpha varieties being relatively easier to substitute with US high alpha varieties than aroma varieties, and on the other hand from the relatively low prices for US high alpha hops due to the euro/USD exchange rate. This also explains why pools were needed once again for the entire marketing of the German crop in spite of the shortfalls in the harvest.

In January, February and March, with alpha prices in the high-alpha segment beginning to fall sharply, two further hop pools with significantly lower advance payment prices were established for the high alpha hops still remaining unsold on the spot market.

Exceptional Summer in Central Europe

In the spring of 2003 there was a high level of moisture in the soil, which had a favourable influence on initial hop growth. The weather conditions in Germany and the rest of Europe during the hops' main growing phase in the months from May to August were characterised by low rainfall and high temperatures. This had a negative impact on plant and cone development. The weather data for the Hallertau region provide a representative picture. Compared

with the 10-year average, the rainfall was 53% lower, the temperatures were 2.6 °C higher and there were 3.5 times the number of days with temperatures reaching 30°C.

The specific production yields were disappointing. The production figures for the aroma varieties in particular were far below average.

Above all the weather conditions resulted in the totally unsatisfactory development of the alpha acids. In comparison to normal years the alpha acid yields per hectare for aroma hops in the Hallertau region were

only between 40% and 60%. The main alpha varieties, **Hallertau Magnum** and **Hallertau Taurus** produced only about 75% of the normal alpha acid yields per hectare. The results in other European hop-growing regions were similar to those in Hallertau. The only exceptions were some Eastern European regions in which there was occasional rainfall.

It is interesting to note that less or even no harm was done to other important substances contained in the aroma hops, such as hop oil and polyphenols, by these extreme weather conditions.

England

Variety	Development of Acreage			Development of Production			
	2002	+/-	2003	2002	2003	2002	2003
	Acreage ha			Ø-Yield mt/ha		Production mt	
Goldings	312	-78	234	1.50	1.48	468.0	346.4
Fuggles	228	-49	179	1.22	1.30	278.4	231.7
First Gold	170	-1	169	1.19	1.01	203.4	171.4
Challenger	123	-21	102	1.40	1.36	172.0	138.0
Other Aroma	143	-41	102	1.22	1.17	174.2	119.3
Total Aroma	976	-190	786	1.33	1.28	1,296.0	1,006.8
Target	475	-146	329	1.73	1.61	822.8	527.3
Other Hochalpha	341	-11	330	1.24	1.15	423.0	380.0
Total Hochalpha	816	-157	659	1.53	1.38	1,245.8	907.3
Others	27	-17	10	0.47	1.49	12.7	14.5
ENGLAND TOTAL	1,819	-364	1,455	1.40	1.33	2,554.5	1,928.6

Farm Structure

Since crop year 2002 nine farmers have given up hop growing. In 2003 the remaining 76 growers farmed an average hop acreage of slightly more than 19 ha per farm.

Acreage/Production/Alpha Content

Between 2002 and 2003 there was an overall reduction in hop acreage of 20%. This reduction affected aroma varieties and high alpha varieties equally. The average yield per hectare was 5% down on the previous year. The levels of alpha content in 2003 were in part significantly below the average levels recorded for the 2002 crop.

Market Situation

Some 80% of the total volume produced had already been sold when harvesting

began, and in the case of certain varieties the figure was in fact close to 100%. With the exception of a very small quantity of bitter hops, the 2003 crop has been sold in its entirety. Approximately 60% of the 2004 crop is already under contract.

Hop research

For several dwarf varieties in farm trials conducted through the National Hop Association of England, 2003 was the first assessment season. All varieties were selected as alpha-types with resistance to wilt disease. Each variety demonstrated positive attributes with **RJ13** showing most promising traits. It produced big heavy cones giving a good yield of up to 2 tons per ha at 10-12% alpha. **SW199** performed with good alpha potential up to 13.4%, and **XG38** produced a heavy yield and exhibited very strong resistance to downy mildew. Conventional-height trial variety **P6**, grow-

ing from more mature rootstocks, produced an exceptional yield of alpha with 12.7 - 15.7% and more than 2.45 tons per ha at five of the trial sites.

A further selection, coded **TA200**, was established on several farms during 2003. This dwarf aroma-type progressed to farms directly as a result of the positive reception given by the brewing trade to pilot brews.

Alpha Acid Table

Variety	2002	2003
Fuggles	5.6%	4.8%
Goldings	5.6%	5.1%
Challenger	8.1%	6.2%
Northdown	8.2%	7.0%
First Gold	8.1%	7.9%
Pilgrim	11.6%	9.7%
Phoenix	11.3%	10.5%
Target	11.5%	10.5%
Herald	14.0%	12.0%
Admiral	15.3%	13.4%

France

Area	Variety	Development of Acreage			Development of Production			
		2002	+/-	2003	2002	2003	2002	2003
		Acreage ha			Ø-Yield mt/ha		Production mt	
Alsace	Strisselspalt	749	6	755	1.90	1.70	1,426.4	1,281.9
	Other Aroma	14	0	14	1.82	1.64	25.7	23.4
	Total Aroma	763	6	769	1.90	1.70	1,452.1	1,305.3
	Bitter	2	-1	1	3.48	2.98	7.0	2.1
	High Alpha	21	-6	15	2.21	1.88	46.6	27.9
	Total Alsace	786	-1	785	1.92	1.70	1,505.7	1,335.3
Nord	Aroma	9	-1	8	1.44	1.66	12.3	12.8
	Bitter	6	-1	5	1.42	1.82	8.5	8.7
	High Alpha	16	3	19	1.45	1.67	23.4	32.3
	Total Nord	31	1	32	1.44	1.69	44.2	53.8
FRANCE TOTAL	817	0	817	1.90	1.70	1,549.9	1,389.1	

Farm Structure

Now that eleven growers have given up hop farming, the average acreage strung with hops on each of the 100 remaining farms has risen from 7.4 ha to 8.2 ha.

Acreage/Production/Alpha Content

Despite minor changes in variety structure, acreage remained stable. In May and June approx. 180 ha of hop yards were affected by hail, some 45 ha severely. Rainfall at the end of August saved the situation for cone development and consequently for the quantitative production figure. The average alpha content of the main variety **Strisselspalt** was only 1.3%, however, as opposed to 2.1% for crop 2002.

Market Situation

Before crop 2003 was harvested approx. 90% of the hops had been sold by forward contract. Small stocks of high alpha hops are still available. Apart from an insignificant increase in aroma varieties, acreage should remain stable in 2004. Approximately 80% of crop 2004 has already been contracted.

Spain

Variety	Development of Acreage			Development of Production				
	2002	+/-	2003	2002	2003	2002	2003	
		Acreage ha			Ø-Yield mt/ha		Production mt	
Nugget	651	14	665	1.84	1.94	1,196.5	1,288.8	
Magnum	6	0	6	1.93	2.05	11.6	12.3	
Total High Alpha	657	14	671	1.84	1.94	1,208.1	1,301.1	
Others	4	-2	2	0.80	1.90	3.2	3.8	
SPAIN TOTAL	661	12	673	1.83	1.94	1,211.3	1,304.9	

Farm Structure

In Spain hops are grown by 400 farmers. The average hop acreage per farm is therefore 1.7 ha.

Acreage/Production/Alpha Content

The total hop acreage increased by 12 ha from 2002 to 2003. In 2003 the share of total acreage devoted to **Nugget** was 98.8%. Although there was a year-on-year improvement in yield, the final figure still remained below average. The alpha content of the **Nugget** hops was lower than hoped for, averaging only 10.7%.

Market Situation

The 2003 crop was sold in its entirety to the domestic brewing industry. The growers were paid an average of 3.11 EUR/kg for the main variety **Nugget**. No changes in acreage are anticipated this year. 1,275 mt of the 2004 crop are already under contracted.

Czech Republic

Variety	Development of Acreage			Development of Production				
	2002	+/-	2003	2002	2003	2002	2003	
		Acreage ha			Ø-Yield mt/ha		Production mt	
Saaz	5,651	-77	5,574	1.06	0.89	5,992.3	4,958.9	
Sládek	140	23	163	1.55	1.57	217.4	256.3	
Premiant	141	8	149	1.38	1.83	193.9	272.6	
Bor	19	-1	18	0.88	0.87	16.7	15.6	
Total Aroma	5,951	-47	5,904	1.08	0.93	6,420.3	5,503.4	
Agnus	3	16	19	2.00	0.89	6.0	17.0	
Total High Alpha	3	16	19	2.00	0.89	6.0	17.0	
Others	14	5	19	1.12	0.34	15.7	6.4	
CZECH REPUBLIC TOTAL	5,968	-26	5,942	1.08	0.93	6,442.0	5,526.8	

Farm Structure

The 165 hop growers in the Czech Republic each cultivated an average of 36 ha of hops in 2003.

Acreage/Production/Alpha Content

Because the hops in the Auscha region that could not be harvested due to flooding had been left out of the acreage figures for 2002, there was a statistical increase of 107 ha or 16.7% in acreage in that region in 2003. In the Saaz and Tirschtitz regions, on the

other hand, acreage fell by 2.3% and 3.6% respectively.

There were also great differences in average yield: Saaz 0.86 mt/ha, Auscha 0.96 mt/ha, Tirschtitz 1.32 mt/ha. In addition to the generally unfavourable weather conditions, storms and hail in July and August were responsible for the very low yield in the Saaz region.

The **Saaz** variety's average alpha content of 3.0% was more or less on a par with that of the previous year. The results recorded for the other varieties varied widely (results for 2002 crop in brackets): **Sládek** 3.5%

(4.7%), **Premiant** 5.9% (7.3%), **Bor** 4.6% (7.8%), **Agnus** 10.1% (10.5%).

Market Situation

The 2003 crop had already been sold by forward contract when harvesting began. As a result, there are no stocks available. A slight reduction in acreage is expected for 2004. 97% of the 2004 crop has already been contracted.

Poland

Variety	Development of Acreage			Development of Production				
	2002	+/-	2003	2002	2003	2002	2003	
		Acreage ha			Ø-Yield mt/ha		Production mt	
Lubelski	1,022	-188	834	1.10	1.20	1,124.5	1,001.4	
Lomik	45	1	46	1.30	1.10	58.0	50.0	
Others Aroma	6	2	8	1.30	1.20	7.3	9.7	
Total Aroma	1,073	-185	888	1.11	1.19	1,189.8	1,061.1	
Marynka	849	115	964	1.60	1.60	1,358.2	1,542.0	
Others Bitter	122	-59	63	1.45	1.31	177.4	82.2	
Total Bitter	971	56	1,027	1.58	1.58	1,535.6	1,624.2	
Magnum	154	103	257	1.80	1.70	277.4	436.1	
Total High Alpha	154	103	257	1.80	1.70	277.4	436.1	
POLAND TOTAL	2,198	-26	2,172	1.37	1.44	3,002.8	3,121.4	

Farm Structure

In crop year 2003 there were 1,129 farmers actively engaged in hop growing. The average acreage per farm rose from 1.85 ha in 2002 to 1.92 ha in 2003.

Acreage/Production/Alpha Content

The year-on-year reduction in acreage recorded in 2003 was only 26 ha. However, significant changes took place within the variety groups themselves.

Thanks to plentiful rainfall in the second half of July, mainly occurring during thunderstorms, hop growers in Poland produced an above-average volume in comparison with other European hop regions. Alpha acids content was correspondingly good: **Lubelski** 2.8%, **Marynka** 7.6%, **Magnum** 10.4%.

Market Situation

The 2003 crop was sold out from the beginning. Planting of bitter and high alpha varieties continues; partly in exchange for aroma varieties. Forward contracting is expected to account for 85% of the 2004 crop.



Slovenia

Variety	Development of Acreage			Development of Production			
	2002	+/-	2003	2002	2003	2002	2003
	Acreage ha			Ø-Yield	mt/ha	Production mt	
Super Steirer	1,158	-98	1,060	1.23	0.79	1,420.0	841.0
Steirer Golding	348	-36	312	0.95	0.61	332.0	191.0
Bobek	80	-8	72	1.79	0.76	143.0	55.0
Total Aroma	1,586	-142	1,444	1.19	0.75	1,895.0	1,087.0
Magnum	98	4	102	1.07	1.26	105.0	129.0
Others	132	-26	106	1.21	1.04	160.0	110.0
SLOVENIEN TOTAL	1,816	-164	1,652	1.19	0.80	2,160.0	1,326.0

Farm Structure

In Slovenia hops were grown by 186 producers in 2003. The average hop acreage per farm dropped from 9.6 ha in 2002 to 8.9 ha in 2003.

Acreage/Production/Alpha Content

There was a 9% reduction in acreage between 2002 and 2003. The average yield was lower than ever before, falling by as much as 33% year on year. In addition to the extreme heat and drought, the damage caused by several hail storms further reduced production volume. The average alpha content in crop year 2003 was far below the long-term average. The previous year's alpha figures are shown in brackets. **Styrian Golding** 3.2% (3.8%), **Bobek** 3.5% (4.4%), **Super Styrian** 5.6% (7.5%) and **Magnum** 12.0% (12.8%).

Market Situation

The volume of hops produced in 2003 was not sufficient for growers to meet their contractual obligations. The acreage planted with hops in 2004 will be approx. 100 ha smaller than in 2003. Approximately 60% of this year's crop is already under contract.

Serbia/Montenegro

Variety	Development of Acreage			Development of Production			
	2002	+/-	2003	2002	2003	2002	2003
	Acreage ha			Ø-Yield	mt/ha	Production mt	
SERBIA/MONTEN. TOTAL	493	-104	389	1.27	0.78	625.0	305.0

Farm Structure

The number of hop farms fell, leaving only 9 growers. The average acreage cultivated was 43 ha.

Acreage/Production/Alpha Content

Of the eight hop varieties grown, the variety primarily affected by the reduction in acreage was the main variety **Brewers Gold**. Its share of total acreage dropped from 56% to 48%. On average, 39% less was harvested per hectare in 2003 than in the previous year. The average alpha content, however, was above the levels recorded the previous year.

Market Situation

The entire crop was sold at an average price of 3.00 EUR/kg. There are no stocks left. A further decline in acreage is expected.

Slovak Republic

Variety	Development of Acreage			Development of Production			
	2002	+/-	2003	2002	2003	2002	2003
	Acreage ha			Ø-Yield	mt/ha	Production mt	
Saazer	320	-30	290	0.83	0.96	266.0	278.4
Premiant	30	0	30	1.20	1.50	36.0	45.0
SLOVAK REP. TOTAL	350	-30	320	0.86	1.01	302.0	323.4

Farm Structure

13 growers farmed an average hop acreage of 24.6 ha per farm in 2003.

Acreage/Production/Alpha Content

Hop acreage declined by 8.6% in 2003. The average yield improved by 17.4%. However, the alpha acids content of the **Saaz** variety averaged only 3.2%, thus falling below the level of 3.4% in the 2002 crop.

Market Situation

The 2003 crop is sold out. A further slight reduction in acreage is expected.

Ukraine

Variety	Development of Acreage			Development of Production			
	2002	+/-	2003	2002	2003	2002	2003
	Acreage ha			Ø-Yield	mt/ha	Production mt	
Aroma	1,176	74	1,250	0.39	0.65	457.30	818.00
Bitter	633	102	735	0.46	0.66	288.20	482.00
UKRAINE TOTAL	1,809	176	1,985	0.41	0.65	745.50	1,300.00

Acreage/Production/Alpha Content

The acreage of aroma hops increased by 6% from 2002 to 2003. The increase in bit-

ter hop acreage amounted to 16%. The average yield of the total production volume improved significantly from 0.41 mt/ha to 0.65 mt/ha. The alpha content was considerably higher

than the levels recorded for the 2002 crop: aroma hops 3.7% (2.6%); bitter hops 7.5% (5.2%).

Russia

Variety	Development of Acreage			Development of Production			
	2002	+/-	2003	2002	2003	2002	2003
	Acreage ha			Ø-Yield	mt/ha	Production mt	
Aroma	570	-208	362	0.46	0.54	261.80	194.0
Bitter	292	-24	268	0.61	0.47	178.20	126.0
RUSSIA TOTAL	862	-232	630	0.51	0.51	440.00	320.0

Farm Structure

The 86 Russian hop-producing cooperatives registered for 2002 remained unchanged in number in crop year 2003. The average acreage cultivated by each one decreased, however, from 10.0 ha to 7.3 ha.

Acreage/Production/Alpha Content

Both the only aroma variety grown in Russia and some bitter varieties were cut back. In total, acreage dropped by 27% from 2002 to 2003. The average yield of the total production volume equalled that of the previous year. The alpha content in 2003 compares with the previous year as follows: aroma hops

4.2% (4.3%), bitter hops 5.6% (5.2%).

Market Situation

Approximately 30% of the 2003 crop was sold by forward contract. At the time of going to press in April, approx. 50 mt were reported to be unsold. No change in acreage is expected. The forward contract rate for the 2004 crop is approx. 35%.



Area	Variety	Development of Acreage			Development of Production			
		2002	+/- Acreage ha	2003	2002 Ø-Yield mt/ha	2003	2002 Production mt	2003
Washington	Willamette	1,473	2	1,475	1.55	1.49	2,279.5	2,202.2
	Cascade	492	366	858	1.96	2.03	964.2	1,738.6
	Horizon	136	-81	55	1.58	1.59	215.4	87.6
	Perle	50	-8	42	1.09	1.03	54.5	43.4
	Mount Hood	43	-30	13	1.44	1.65	61.7	21.4
	Golding	11	-2	9	1.27	1.24	14.0	11.1
	Tettnang	19	-19	0	1.46	0.00	27.8	0.0
	Other Aroma	110	54	164	1.83	1.12	201.2	184.4
	Total Aroma	2,334	282	2,616	1.64	1.64	3,818.3	4,288.7
	Cluster	194	-20	174	2.24	2.25	434.6	390.7
	Total Bitter	194	-20	174	2.24	2.25	434.6	390.7
	CTZ	2,399	-347	2,052	3.27	3.16	7,854.3	6,482.2
	Galena	1,311	-155	1,156	2.13	2.14	2,798.8	2,479.5
	Millennium	589	-28	561	2.63	2.54	1,550.3	1,425.2
	Warrior	400	103	503	2.38	2.38	952.3	1,197.7
	Nugget	521	-150	371	2.35	2.11	1,223.9	783.7
	Chinook	171	12	183	2.13	2.14	364.1	391.0
	Chelan/Tillicum	198	-47	151	2.42	2.73	478.4	412.5
	Other High Alpha	111	10	121	1.82	2.23	202.0	270.3
	Total High Alpha	5,700	-602	5,098	2.71	2.64	15,424.1	13,442.1
Total Washington	8,228	-340	7,888	2.39	2.30	19,677.0	18,121.5	
Oregon	Willamette	774	126	900	1.71	1.53	1,325.2	1,381.2
	Perle	183	-1	182	1.30	1.15	238.4	209.5
	Cascade	88	21	109	1.65	2.07	145.4	225.7
	Mount Hood	98	-10	88	1.94	1.75	190.6	154.4
	Golding	28	10	38	1.53	1.13	42.8	42.9
	Other Aroma	49	170	219	2.00	1.15	97.9	250.8
	Total Aroma	1,220	316	1,536	1.67	1.47	2,040.3	2,264.5
	Nugget	796	-177	619	2.28	2.43	1,813.0	1,504.3
	Millennium	170	-4	166	1.69	2.78	286.6	461.5
	Warrior	6	-1	5	2.03	1.93	12.2	9.7
	Other High Alpha	64	-64	0	2.01	0.00	129.0	0.0
Total High Alpha	1,036	-246	790	2.16	2.50	2,240.8	1,975.5	
Other Oregon	2,256	70	2,326	1.90	1.82	4,281.1	4,240.0	
Idaho*	Total Aroma*	826	-89	737	1.33	1.25	1,098.9	923.2
	Total Bitter*	95	0	95	1.87	1.90	177.8	180.4
	Total High Alpha*	454	102	556	2.70	2.31	1,226.6	1,285.2
	Total Idaho	1,375	13	1,388	1.82	1.72	2,503.3	2,388.8
Total Aroma*	4,380	509	4,889	1.59	1.53	6,957.5	7,476.4	
Total Bitter*	289	-20	269	2.12	2.12	612.4	571.1	
Total High Alpha*	7,190	-746	6,444	2.63	2.59	18,891.5	16,702.8	
USA TOTAL	11,859	-257	11,602	2.23	2.13	26,461.4	24,750.3	

* As growers in Idaho have only indicated total acreage and production figures for 2002, the figures for the individual varieties are estimates. Minor statistical deviations may result from conversion of acres into ha and lbs into metric tons.

Acreage & Production

The overall acreage for 2003 crop contracted by approx. 2% or 640 acres (257 ha) compared to the previous year. This reduction was the result of a decrease of 1,843 acres (746 ha) of high alpha varieties and an expansion of 1,253 acres (509 ha) of aroma varieties. The decision to reduce

almost 10% of the high alpha acreage came in response to excessive alpha inventories worldwide and especially alpha inventories held by growers in the US. In particular, US growers reduced the acreage of **CTZ (Columbus, Tomahawk, Zeus)** by 10%, **Nugget** acreage by approx. 25% and **Galena** along with similar varieties by approx. 11%.

Countering the alpha acreage reductions was a substantial increase in aroma acreage, particularly an expansion of the **Cascade** variety in excess of 1,000 acres (more than 400 ha) that continued the trend from the previous year. An increase in **Willamette** was offset by a reduction in other aroma varieties, such as **Mt. Hood** and **Horizon**. As a result of the overall expansion in

Variety Development

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

Variety	1999 ha	2000 ha	2001 ha	2002 ha	2003 ha
Willamette	2,401	2,390	2,519	2,333	2,424
Cascade	367	403	406	580	994
Perle	275	274	284	233	224
Mount Hood	271	271	252	155	101
Total main Aroma	3,314	3,338	3,461	3,301	3,743
Cluster	703	460	311	289	269
Total main Bitter	703	460	311	289	269
Columbus-Tomahawk-Zeus (CTZ)	-	3,163	3,067	2,598	2,335
Galena	2,391	2,257	1,996	1,513	1,367
Nugget	2,605	2,822	2,605	1,330	1,012
Millennium	-	411	607	759	728
Warrior	-	-	554	406	507
Total High Alpha	4,996	8,653	8,829	6,606	5,949

aroma varieties and the contraction in alpha varieties, the US harvested aroma varieties on a record 42% of the total planted acreage compared to 37% of the year before.

The total volume production of 54.5 million pounds (24,750 to) was in line with long-term yield averages. Because of the overall decrease in acreage (640 acres/257 ha) and the higher degree of lower yielding aroma varieties, crop 2003 produced 3.8 million pounds (1,711 to) less than in 2002, which represents a proportionally greater volume reduction than previous acreage contractions have yielded. Total alpha production of crop 2003 is estimated at approx. 2,630 tons and was approx. 350 tons less than the previous crop.

Crop Development

Washington: By early spring there was sufficient snow pack to supply an adequate amount of water for the 2003-growing season. After a cool spring the weather warmed in time for growers to prepare their crops for the coming season. The summer months were warmer than usual, thus creating ideal growing conditions and keeping powdery mildew in check. Temperatures cooled just before harvest, allowing the bloom to develop and set. However, with cooler temperatures some cones, approximately 5 to 10%, did not fully size, resulting in slightly lower yields in some aroma varieties.

Oregon: The spring of 2003 provided a serious challenge for Oregon growers, as the Willamette Valley recorded rainfall on 53 of 61 days between March 1st and April 30th. May and June were much drier but included periods of widely fluctuating tem-

peratures. Plant growth remained behind schedule until July when temperatures stabilized at above normal levels. Downy mildew was present throughout the early spring but was effectively controlled by fungicide applications. Powdery mildew was also held in check, aided by high temperatures in July. The erratic early temperature fluctuation and late season high temperatures kept the yields below average for most varieties.

Quality

Powdery mildew caused minimal damage due to warm and dry weather and effective fungicide applications. In spite of some mite problems, growers maintained good control and kept discoloration of cones to a minimum. Aphids never became a serious problem throughout the growing season. The average seed content for crop 2003 was 0.50%. This is slightly lower than the 0.63% for crop 2002. Also for crop 2003, growers continued to pick a clean crop, dropping the average leaf and stem content to 0.08% from 0.11% the year earlier.

Spot Market

In July and August, growers received reports of the continuing drought conditions in Europe, the price increased to 1.05 USD per pound and then to a high of 1.20 USD per pound. The high alpha market stopped abruptly when alpha estimates from Europe were revised slightly upwards from their catastrophic lows and demand from breweries did not materialize as expected. By mid-December, the high alpha price was re-established at a level of 0.85 USD per pound.

• **Cascade:** spots started selling for a price of 2.50 USD per pound flat. The Cascade market stopped quickly leaving some

Cascade hops still in growers' inventories.

• **Willamette:** spots sold for prices of 2.75 to 3.00 USD per pound flat, which was close to the current contracted price. All Willamette spots sold at this level.

• **Galena:** spots were selling for prices of 1.60 to 1.65 USD per pound plus premiums in late September. Growers hesitated when prices came out at these levels, but most of the Galena sold at these prices. After a period of time, the remaining Galena sold at a slightly higher price of 1.75 USD per pound plus premiums.

• **Nugget:** spot prices at harvest time started at 1.00 USD per pound and later increased to 1.10 USD per pound plus premiums. In December, interest was renewed with additional Nugget spots selling for a price of 1.45 USD per pound. In late December, the price dropped back to 1.25 USD per pound flat. Not all Nugget spots sold.

• **High Alpha:** spot prices started at 1.00 USD per pound at harvest time. Within a couple of weeks, due to the reports coming in on the alpha shortages in Europe, the price increased to 1.05 USD per pound and then to a high of 1.20 USD per pound. The high alpha market stopped abruptly when alpha estimates from Europe were revised slightly upwards from their catastrophic lows and demand from breweries did not materialize as expected. By mid-December, the high alpha price was re-established at a level of 0.85 USD per pound.



Alpha Acid Table

Variety	1999	2000	2001	2002	2003	Average
Willamette	4.5%	4.3%	4.9%	4.4%	4.0%	4.4%
Mount Hood	4.3%	4.6%	5.1%	4.3%	4.5%	4.6%
Cascade	5.4%	5.1%	6.2%	5.5%	5.0%	5.4%
Cluster	6.8%	7.1%	7.1%	6.5%	6.3%	6.8%
Galena	12.1%	12.2%	12.3%	12.2%	11.9%	12.1%
Nugget	12.9%	13.3%	13.9%	12.4%	12.7%	13.0%
Chinook	11.2%	11.0%	12.0%	11.6%	12.8%	11.7%
Super-High Alpha	13.1%	13.5%	15.1%	14.9%	14.5%	14.2%

Contract Market

Throughout spring 2003, growers had little hope that the alpha market would regain its momentum in light of the existing world alpha surplus, which was estimated at approximately 2,000 metric tons at that time. As a result, the market was soft and did not develop during most of the growing season, except for small intermittent transactions.

Some alpha hops were contracted for 2003 crop in March at a price of 0.60 USD per pound. Although this price level is equal only to the cost of idling, other growers were willing to sell more hops at these prices but did not find any takers. In May, three-year contracts were offered starting in 2003, but this time growers refused to sell because the price was too low.

In mid-July **Galena**, growers were offered 1.50, 1.60, 1.65, and 1.70 USD per pound for crop years 2003, 2004, 2005, and 2006 respectively. Since the growers had sold only a small quantity of **Galena** in these years, they elected to accept these prices knowing that they were equal to or only slightly above the growing costs. They also believed they needed hops contracted in

future years to receive the much needed financing from the banks.

The lackluster market situation of the alpha market was mirrored in the aroma market. The fact that very little contracts were entered into, however, was not seen as a problem since most of the 2003 crop aroma acreage had already been contracted previously.

Grower Initiatives

Efforts by the Hop Marketing Order proponents group finally succeeded in convincing the Secretary of Agriculture to allow a hearing to take place on the issue. In October 2003 a weeklong hearing was held both in Portland, Oregon and Yakima, Washington and permitted both sides, the proponents and opponents, to present and defend their positions. All testimony was subsequently published and additional commentary was allowed until February 18.

Typically, several months will pass after the hearing for the USDA to make a formal decision on the proposed marketing order. If the process is allowed to continue, i.e. if the USDA decides in favor of a referendum, several more months will pass before growers

will actually have a chance to vote on the hop marketing order. At the time of this writing, the USDA has made no decision. It is clear, however, that crop 2004 will not be affected by any artificially imposed marketing restrictions.

Quantities Contracted Forward (in mt)

Report as of spring	same Crop Year	Years forward ...		
		1 Year	2 Years	3 Years
2004	19,993	12,760	8,690	5,389
2003	18,214	12,048	8,539	4,428
2002	20,181	14,817	8,930	6,852
2001	21,883	13,610	10,595	7,465
2000	27,539	19,719	13,312	9,735

Degree of Forward Contracting (in %)

Crop	???
2004	81%
2005	52%
2006	35%
2007	22%

China

Area	Variety	Development of Acreage			Development of Production			
		2002	+/-	2003	2002	2003	2002	2003
		Acreage ha			Ø-Yield mt/ha		Production mt	
Xinjiang	Tsingdao Flower	2,240	-380	1,860	2.90	3.12	6,500.0	5,800.0
	Kirin Flower	380	-80	300	3.16	3.00	1,200.0	900.0
	SA-1	402	-122	280	2.55	2.70	1,024.0	755.0
	Marco Polo	446	-176	270	3.43	3.47	1,528.0	936.0
	Others	95	45	140	2.17	2.14	206.0	300.0
Total Xinjiang		3,563	-713	2,850	2.94	3.05	10,458.0	8,691.0
Gansu	Tsingdao Flower	1,983	155	2,138	3.03	2.74	6,011.0	5,850.0
	Others	84	86	170	1.79	2.27	150.0	386.0
	Total Gansu	2,067	241	2,308	2.98	2.70	6,161.0	6,236.0
CHINA TOTAL		5,630	-472	5,158	2.95	2.89	16,619.0	14,927.0

Farm Structure

In 2003, approx. 62 farms were growing hops in China; of these 62, 30 were in Xinjiang and 32 in Gansu. The average acreage planted with hops was 83 ha per farm.

Acreage

The acreage increase planned in the Gansu hop region in 2002 was not carried out. The 2002 acreage had to be corrected down from the figure in the previous year's report.

Growth and Quality

There was adequate precipitation during the vegetation period in 2003. On the

whole, the weather conditions were favourable for growth and quality. The alpha content of 6.5% of the main variety **Tsingdao Flower** was above average.

Market Situation

As a result of repeated overproduction the hop farms could only sell their hops at a price of 5 to 6 Renminbi Yuan (CNY)/kg (0.50 to 0.60 EUR/kg). This price did not even remotely cover their production cost. At the time of going to press in late April, despite the favourable raw material prices for buyers, farms still held unsold stocks amounting to approx. 1,700 mt of 2003 and earlier crops.

Due to this development it is expected that

17 farms will abandon hop growing. It can therefore be assumed that acreage in 2004 will be reduced in total by approx. 1,400 ha. This would lead to a drop in production volume of approx. 4,000 mt. Some breweries and extraction plants anticipate price rises on future hop purchases and are now buying additional quantities of the 2003 crop at bargain prices.

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.

2003 Crop

South Africa

Variety	Development of Acreage			Development of Production				
	2002	+/-	2003	2002	2003	2002	2003	
		Acreage ha			Ø-Yield mt/ha		Production mt	
Southern Star	174	24	198	1.68	2.11	292.8	417.7	
Southern Brewer	113	-41	72	2.07	2.22	234.1	159.8	
Outeniqua	120	-16	104	1.53	1.49	184.0	155.3	
Southern Promise	90	26	116	2.17	2.20	195.4	255.7	
Others	6	7	13	0.98	0.59	5.9	7.7	
SOUTH AFRICA TOTAL		503	0	503	1.81	1.98	912.2	996.2

Farm Structure

As in the previous year, 15 producers farmed hops on an average area of 33.5 ha per farm.

Growth and Quality

The winter was cold and dry and was followed by a warm spring. The poor yields produced by the late-maturing varieties were

caused by cold conditions in December. The summer months (January to March) were very dry. In the Herold region, the water collected was not sufficient to irrigate the hop yards continuously. As a result, the yields per hectare in this region were below average, whereas for yields in general there was a year-on-year improvement. The alpha levels in 2004 failed to equal the record levels recorded the previous year, but were

nevertheless satisfactory: **Southern Brewer** 10.5%, **Southern Promise** 11.0%, **Outeniqua** 13.4%, **Southern Star** 14.5%.

Market Situation

The entire crop has been sold to the domestic brewing industry.



Area	Variety	Development of Acreage			Development of Production			
		2003	+/-	2004	2003	2004	2003	2004
		Acreage ha			Ø-Yield mt/ha		Production mt	
Tasmanien	Pride of Ringwood	108	13	121	2.86	3.07	308.7	371.8
	Cluster	4	6	10	1.85	1.72	7.4	17.2
	Total Bitter	112	19	131	2.82	2.96	316.1	389.0
	Super Pride	92	39	131	2.93	2.26	270.0	295.6
	Victoria	43	8	51	3.72	2.97	160.0	152.9
	Agate	17	10	27	2.65	2.28	45.1	61.0
	Opal	21	-7	14	3.23	2.91	67.8	40.7
	Nugget	35	-34	1	2.40	2.13	84.1	1.7
	Millennium	6	3	9	3.03	2.79	18.2	25.4
	Total High Alpha	214	19	233	3.01	2.48	645.2	577.3
	Others	5	5	10	1.80	0.61	9.0	6.0
Total Tasmanien	331	43	374	2.93	2.60	970.3	972.3	
Victoria	Cluster	10	8	18	1.20	1.94	12.0	35.0
	Pride of Ringwood	14	-1	13	1.43	2.08	20.0	27.0
	Total Bitter	24	7	31	1.33	2.00	32.0	62.0
	Victoria	28	28	56	2.81	2.89	78.7	162.5
	Topaz	38	3	41	3.91	3.92	148.6	159.6
	Super Pride	17	16	33	2.33	2.17	39.6	71.3
	Total High Alpha	83	47	130	3.22	3.03	266.9	393.4
	Others	1	-1	0	2.60	2.67	2.6	0.8
Total Victoria	108	53	161	2.79	2.83	301.5	456.2	
Total Bitter	136	26	162	2.56	2.78	348.1	451.0	
Total High Alpha	297	66	363	3.07	2.68	912.1	970.7	
Total Others	6	4	10	1.93	0.67	11.6	6.8	
AUSTRALIA TOTAL	439	96	535	2.90	2.67	1,271.8	1,428.5	

Farm Structure

There are 14 farmers involved in hop growing in Australia. Now that approximately 100 ha of the acreage set aside after crop year 2002 has been reactivated, the average area per farm devoted to hop growing in 2004 amounts to 38 ha.

Growth and Quality

The 2004 crop was characterised by major differences between the two hop growing regions in terms of yield. Heavy rainfall in January and unusually cool temperatures with frost in February reduced the volume of the Tasmanian hop harvest. Although

the cone set was plentiful, the cones themselves were small in size. The development of the alpha acids likewise was affected by the poor weather conditions – in stark contrast to the State of Victoria. Here, the growing conditions were ideal. Both the yields and the alpha acids content were higher than in the previous year.

Market Situation

Virtually the entire Australian production volume had already been sold before the 2004 harvest began. Only small quantities were available for the spot market.

Alpha Acid Table

Variety	2003	2004
Cluster	7.1%	4.8%
Pride of Ringwood	8.9%	8.6%
Nugget	11.0%	11.0%
Opal	12.0%	11.5%
Super Pride	12.8%	12.3%
Victoria	11.0%	12.4%
Millennium	13.0%	13.3%
Topaz	13.8%	14.9%
Agate	15.4%	15.2%

