

# THE BARTH REPORT

## HOPS

## 1994/95



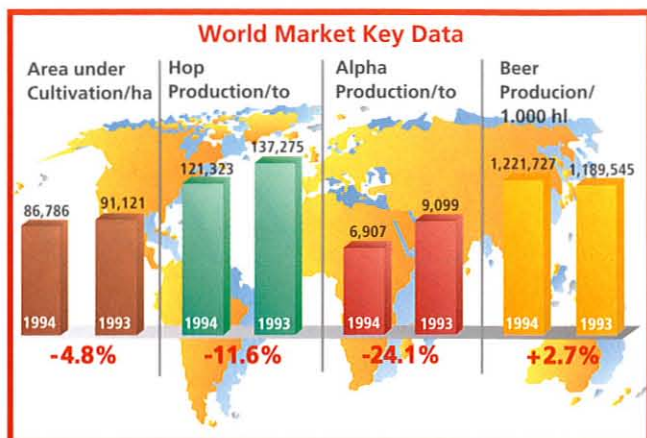
- 1 Mainburg in Hallertau  
*Bavaria/Germany*
- 2 Farm in Yakima Valley  
*Washington State/USA*
- 3 The George hop region  
*Cape Province/South Africa*
- 4 Bushy Park hop farm  
*Tasmania/Australia*
- 5 Oasis on the Yellow river  
*Gansu/PR China*



**Joh. Barth & Sohn**

Nuremberg

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### Conversion Table

**Area:**  
 1 hectare (ha) = 10,000 m<sup>2</sup> = 2.934 bayerische Tagwerk  
 1 hectare (ha) = 10,000 m<sup>2</sup> = 2.471 acres  
 1 bayerisches Tagwerk = 0.341 ha  
 1 acre = 0.405 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 (GB)  
 1 barrel (bbl/USA) = 31 gall = 1.1734 hl  
 1 barrel (bbl/GB) = 36 gall = 1.6365 hl

**Weight:**  
 1 metr. ton (to) = 1000 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 = 45.359 kg = 0.9072 Ztr.  
 1 hundredweight (cwt./GB) = 112 lbs = 50.800 kg = 1.0160 Ztr.  
 1 cental (GB) = 100 lbs = 45.359 kg = 0.9072 Ztr.  
 1 kg = 2.20462 lbs  
 1 lb = 0.45359 kg

### Temperature Conversion

<b>from Fahrenheit into Celsius</b>	<b>from Celsius into Fahrenheit</b>
$86^{\circ}\text{F} = \frac{(86 - 32) \times 5}{9} = 30^{\circ}\text{C}$	$30^{\circ}\text{C} = \frac{30 \times 9}{5} + 32 = 86^{\circ}\text{F}$

### Currency Exchange Rates

as of May 31st

Düsseldorf Foreign Exchange Market	Buy 1995	Spot Market 1994	Sell 1995	1994
USA <sup>1)</sup>	1.385	1.637	1.393	1.645
Great Britain <sup>1)</sup>	2.220	2.471	2.234	2.485
Canada <sup>1)</sup>	1.008	1.182	1.016	1.190
Netherlands	89.221	89.060	89.441	89.280
Switzerland	121.150	117.210	121.350	117.410
Belgium	4.859	4.847	4.879	4.867
France	28.340	29.184	28.460	29.304
Denmark	25.532	25.435	25.652	25.555
Norway	22.412	22.995	22.532	23.115
Sweden	19.100	21.032	19.220	21.152
Italy <sup>2)</sup>	0.855	1.028	0.863	1.036
Austria	14.201	14.199	14.241	14.239
Spain	1.145	1.207	1.153	1.217
Portugal	0.945	0.959	0.951	0.965
Japan	1.675	1.567	1.678	1.570
Finland	32.310	30.150	32.470	30.310
Ireland	2.275	2.425	2.289	2.439

### Free Market Exchange Rates

Australia <sup>1)</sup>	0.994	1.202	1.002	1.210
Mexico	20.010	45.700	--	--
New Zealand <sup>1)</sup>	0.924	0.968	0.928	0.976
Poland <sup>3)</sup>	59.840	0.070	--	--
Czech Republic <sup>2)</sup>	5.362	5.670	5.377	5.690

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

1) = 1 unit      2) = 1,000 units      all others = 100 units  
 3) = currency conversion (1,000 old zloty = 1 new zloty)

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## POLITICAL SITUATION

While the superpowers pursue a policy of international conciliation, the world political picture is marked by regional conflicts.

In spite of the presence of UN peace-keeping troupes, the opposing parties in Bosnia-Herzegovina are still at war with each other.

Peace has also failed to return to the South of the former Soviet Union. Countries such as Armenia, Azerbaijan, Georgia and Moldova are becoming increasingly impoverished due to warlike conflicts resulting from ethnic and relig-

ious differences. The secession of the Caucasian Republic of Chechnya from the Russian Federation was prevented only by means of massive military force.

The 1993 treaty between the PLO and Israel was followed in 1994 by an agreement between Israel and Jordan to end their decades-old conflict peacefully. Repeated acts of violence by certain groups in the region, however, continue to hinder genuine peace.

Fundamentalist Islamic tendencies present a latent danger of destabilization in the states of North Africa.

In the General Election in Germany in October 1994, the coalition government led by Helmut Kohl succeeded in defending their majority in the Bundestag by a narrow margin.

In the USA, the elections in November 1994 resulted in a majority for the Republican Party in both Houses of the American Congress.

On January 1, 1995, Finland, Austria and Sweden joined the circle of members of the European Union.

Jacques Chirac was elected President of France in May 1995.

## ECONOMIC SITUATION

The development of the world economy has been uneven. While the economies of the main industrial nations of Western Europe and Japan have stagnated, the generally favourable situation in the countries of South America, South-East Asia and the USA has provided stimulus.

Despite the successful conclusion of GATT in 1993, the free exchange of goods and services was still marked by international tensions. An example of this is the threat by the USA of punitive duties on certain types of goods from Japan.

In the process of economic reform, progress was achieved in most of the Eastern European countries, above all the Czech Republic and Poland.

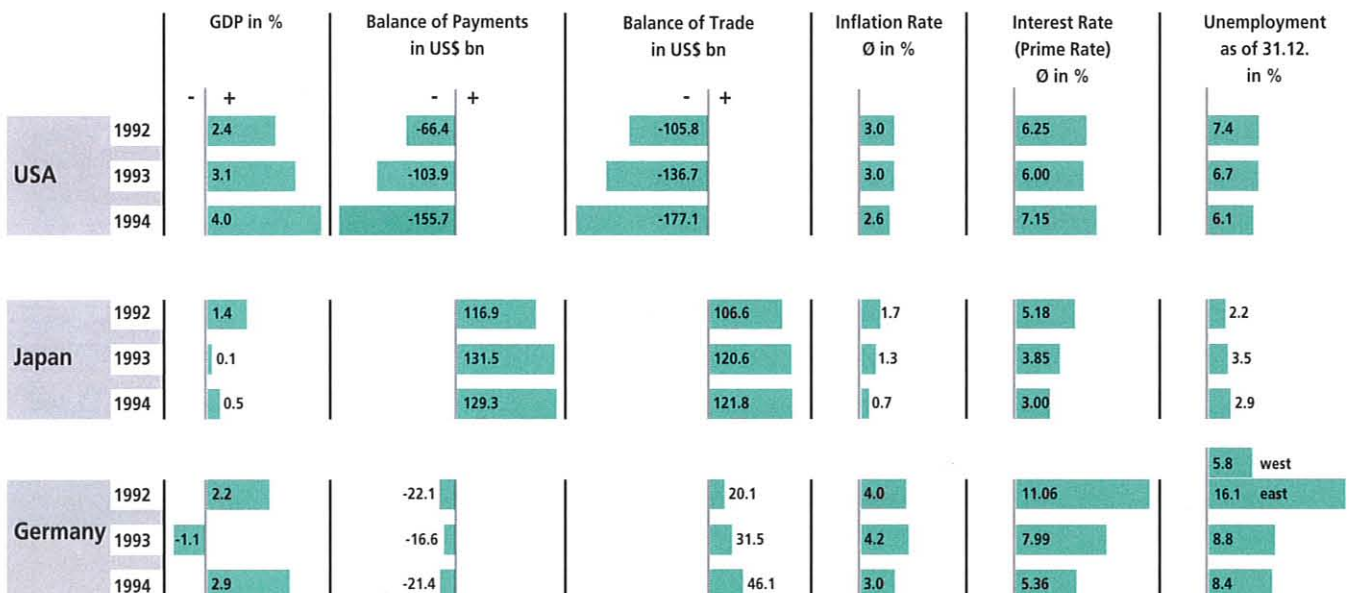
The programme of reconstruction in former East Germany is still being financed by the economic force of the western German federal states.

Since 1991, a net total of DM 644bn in public transfers has flown from west to east, not to mention the large quantity of private investments. This has made eastern Germany the region with the strongest growth in Europe and will transform the region into

one of the most modern production bases.

The currency markets have been rocked by turbulence in the past year. Several European countries were forced to correct their currencies' external values in 1994. The US dollar has been under severe pressure since January 1995, falling by more than 10 % against the yen and the deutschmark within the space of only a few weeks. This had been preceded by a sharp decline of the Mexican peso against the US dollar in December 1994, giving rise to fears of devaluation spreading to other Latin American countries.

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



# WORLD BEER PRODUCTION 1993/94

Figures in 1,000 hl

## Europe

Country	1994	1993
Germany	118,577	116,000
Great Britain	54,771	54,881
Spain	25,024	24,300
Netherlands	22,175	20,431
Federation of Russia (C.I.S.)	22,000 <sup>3)</sup>	24,500
Czech Republic	18,128	17,804
France	17,677 <sup>4)</sup>	18,291 <sup>4)</sup>
Belgium	14,850	14,182
Poland	13,975	12,680
Italy	12,099	11,715
Austria 1)	10,200	9,823
Romania	9,066	9,128
Denmark	9,410	8,435
Ukraine (C.I.S.)	9,058	14,000
Hungary	8,264	7,831
Ireland	7,186	6,910
Portugal	6,637	6,800
Turkey	6,019	5,363
Sweden 1)	5,430	5,540
Bulgaria	4,825	4,247
Yugoslavia	4,678	5,000
Slovak Republic	4,494	3,918
Other C.I.S.-countries 2)	4,300*	5,000*
Greece	4,250	4,100
Finland 1)	4,218	4,377
Switzerland	3,891	3,866
Croatia	3,089	2,450
Norway	2,205	2,135
Slovenia	2,100	2,000
Belorus (C.I.S.)	1,500	3,000
Lithuania	1,350	1,500
Kazakhstan (C.I.S.)	1,300*	2,600*
Latvia	420*	457
Luxemburg	531	558
Estonia	474	500
Cyprus	360	334
Malta	185	180
Albania	72	-
Iceland	71	69
<b>Total</b>	<b>434,814</b>	<b>435,905</b>

## Far East

Country	1994	1993
China	140,000	122,500
Japan	72,459	68,960
South Korea	17,121	15,270
Philippines	14,713	13,500
Taiwan	4,890	4,633
India	3,647	3,050
Thailand	5,170	4,200
Vietnam	3,130	2,300
Hong Kong	1,731	1,500*
Indonesia	1,540	1,278
North Korea	1,000*	1,000*
Malaysia	859	995
Singapore	692	653
Nepal	200*	150*
Sri Lanka	120	102
Mongolia	100*	100*
Laos	75*	75*
Myanmar (Burma)	60*	60*
Cambodia	10*	10*
Pakistan	10*	10*
Bangladesh	5*	5*
<b>Total</b>	<b>267,522</b>	<b>240,206</b>

## America

Country	1994	1993
USA	237,144	237,306
Brazil	62,500	57,000*
Mexico	45,168	43,794
Canada	22,991	22,999
Colombia	21,00	19,500
Venezuela	15,423	15,500
Argentina	11,306	10,305
Peru	7,600	6,852
Chile	3,960	3,631
Dominican Republic	2,100	2,000
Cuba	2,000*	3,200*
Ecuador	1,800	1,941
Paraguay	1,750	1,700
Bolivia	1,259	1,397
Panama	1,291	1,200
Guatemala	1,200	1,100
Costa Rica	1,200	950*
Honduras	952	942
Uruguay	850	815
Jamaica	770	847
El Salvador	750	700
Puerto Rico	434	472
Nicaragua	500	500
Trinidad	360	350
Dutch Antilles	140	161
Haiti	120	120
Surinam	120*	120
Barbados	120*	115
Guyana	110*	120
Bahamas	110*	102
St. Lucia	95	90
Belize	70	85
Martinique	60	58
Grenada	33	30
Guadeloupe	30	30
St. Vincent	28	25
St. Kitts	17	13
Antigua	14	—
<b>Total</b>	<b>445,375</b>	<b>436,070</b>

## Near East

Country	1994	1993
Israel	532	537
Iraq	90*	100*
Syria	90	87
Lebanon	90	87
Jordan	50	40
Yemen	5	50*
<b>Total</b>	<b>857</b>	<b>904</b>

- 1) as of January 1995 member state of EU  
 2) Armenia, Azerbaijan, Georgia, Kyrgystan, Moldova, Tajikistan, Turkmenistan, Uzbekistan (although belonging mainly to Asia geographically, the entire CIS will be listed under Europe for the time being for reasons of comparability)  
 3) Other Sources: 17,350 for 1994  
 4) Other Sources: 20,445 for 1994 and 20,833 for 1993

\* estimated

## Africa

Country	1994	1993
South Africa	23,500	22,500
Nigeria	5,300	6,700
Cameroon	3,300	3,672
Kenya	2,720	2,700
Burundi	1,356	1,216
Zimbabwe	1,200	1,560
Algeria	985	950
Zaire	977	1,464
Ethiopia	895	810
Gabon	801	905
Ivory Coast	699	701
Zambia	698	700
Ghana	638	682
Tunesia	602	600
Morocco	597	600
Namibia	588	625
Rwanda	524	1,041
Tanzania	450	500
Botswana	431	434
Egypt	400	450
Lesotho	345	351
Mauritius	264	276
Benin	333	333
Togo	313	286
Burkina Faso	300	337
Uganda	308	239
Congo	285	261
Malawi	280*	280*
Central African Republic	280	231
Swaziland	277	205
Madagascar	219	228
Reunion Island	174	175
Eritrea	170	179
Mozambique	155	315
Senegal	130	131*
Chad	111	118
Angola	95	418
Niger	90	88
Guinea	82	98*
Liberia	66	50
Seychelles	57	64
Mali	45	41
Cape Verde Islands	37	37
Sierra Leone	36	39
Sao Tomé	30	—
Guinea Bissau	27	20*
Gambia	20	16
<b>Total</b>	<b>51,197</b>	<b>53,956</b>

## Australia/Oceania

Country	1994	1993
Australia	17,522	18,051
New Zealand	3,579	3,595
Papua-New Guinea	404	390
Fiji Islands	161	150
Tahiti	140	128
New Caledonia	60	97
Samoa	55	55
Solomon Islands	20	17
Tonga	12*	12*
Vanuatu	9*	9
<b>Total</b>	<b>21,962</b>	<b>22,504</b>

	1994	1993
<b>WORLD TOTAL</b>	<b>1,221,727</b>	<b>1,189,545</b>

# OUTPUT DEVELOPMENT

Beer production in the different continents developed as follows:

	1994 1,000 hl	1993 1,000 hl	1994 +/- 1,000 hl	1994 +/- % rel.	1993 +/- % rel.
European Union	293,187	287,603	5,584	1.9%	-1.9%
Rest of Europe	141,627	148,302	-6,675	-4.5%	-3.1%
<b>Europe total</b>	<b>434,814</b>	<b>435,905</b>	<b>-1,091</b>	<b>-0.3%</b>	<b>-2.3%</b>
North America	260,135	260,305	-170	-0.1%	0.6%
Central America/Caribbean	57,562	56,675	887	1.6%	0.3%
South America	127,678	119,090	8,588	7.2%	2.6%
<b>America total</b>	<b>445,375</b>	<b>436,070</b>	<b>9,305</b>	<b>2.1%</b>	<b>1.1%</b>
<b>Africa</b>	<b>51,197</b>	<b>53,956</b>	<b>-2,759</b>	<b>-5.1%</b>	<b>-1.8%</b>
<b>Asia (Far East)</b>	<b>267,522</b>	<b>240,206</b>	<b>27,316</b>	<b>11.4%</b>	<b>16.2%</b>
<b>Near East</b>	<b>857</b>	<b>904</b>	<b>-47</b>	<b>-5.2%</b>	<b>27.3%</b>
<b>Australia/Oceania</b>	<b>21,962</b>	<b>22,504</b>	<b>-542</b>	<b>-2.4%</b>	<b>-2.9%</b>
<b>WORLD TOTAL</b>	<b>1,221,727</b>	<b>1,189,545</b>	<b>32,182</b>	<b>2.7%</b>	<b>2.3%</b>

The positive trend in world beer production continued in 1994. On closer scrutiny, however, a great degree of divergence becomes apparent in this development.

Growth was registered above all in Asia, especially in the People's Republic of China. South America also contributed to the positive development in world beer production. In the Eastern European countries, on the other hand, beer production continues its sharp downward trend, reflecting political and economic turbulence. The same is the case for large parts of Africa.

## MARKET ANALYSIS

The key data of the 1994 world hop market compared with 1993 are as follows: hop production -11.6 %, alpha acid production -24.1 %, beer production +2.7 %.

For the third time within five years, German hop-growing areas above all, but also other European ones, were affected by a sustained dry period and a heat wave, which led to considerably lower harvest yields accompanied by a major deficit in alpha acids.

This, however, did not result in over-dimensional price increases on the spot market, because

- the international brewing industry had built up stocks from the surpluses of the record 1993 harvest which they then used up;
- due to their low alpha values, the spot hops appealed little to buyers;
- cheaper high alpha hops from overseas were available to cover any subsequent raw material need;
- the average hopping rate continues to decline particularly due to the use of isomerized hop products.

As a result, the majority of breweries could afford to stay away from the spot market or to defuse the supply situation by switching varieties or crop years.

The 1994 crop also underlined the fact that the development of the world

hop market is influenced to a by no means inconsiderable extent by the purchasing policies of international brewing groups. The decisions of the 25 biggest brewing groups – which now account for 50 % of world beer production – on hop varieties, hop products and storage have an increasingly decisive influence on the development of individual hop varieties and regions.

The 1994 crop provided hop growers in the former Eastern Block countries with final proof that the world has changed since the disintegration of COMECON. They now have to compete directly with the other hop producers in the world market, whereby

traditional hop-growing countries, such as the Czech Republic, Poland and Slovenia, have in fact succeeded in maintaining their market presence.

The poor harvest of 1994 due to bad weather conditions was financially disappointing for German hop producers in particular. In addition, the low average price level which has persisted for years on the hop market has encouraged farmers to reduce hop growing. As a direct result, the global area under cultivation in 1994 decreased by 4.8 % (1993 - 0.3 %). A further reduction is to be expected for 1995, although beer production is likely to increase by 2 - 3 % worldwide.

Our estimate of the contract quota for the main hop-growing countries in the coming years on the basis of present acreage is as follows:

Country	1995	1996	1997	1998	1999
Germany	75	55	45	30	20
USA	90	62	50	42	23
Czech Republic	85	75	50	30	25
England	70	50	40	20	10
Slovenia	85	70	40	25	10

# HOP ACREAGE AND PRODUCTION 1993/94

Area		1994			1993		
		Acreage ha	Ø-Yield to/ha	Production to	Acreage ha	Ø-Yield to/ha	Production to
Germany	Hallertau	17,858	1.35	24,118.0	18,740	1.94	36,327.4
	Tettwang	1,595	1.36	2,170.4	1,580	1.36	2,144.2
	Elbe-Saale	1,649	0.84	1,386.3	1,781	1.52	2,715.7
	Spalt	699	1.34	933.5	776	1.41	1,093.0
	Hersbruck	106	1.11	117.3	117	1.35	158.3
	Baden/Bitb./Rhine-P.	23	1.26	29.0	23	1.28	29.6
	<b>Total</b>	<b>21,930</b>	<b>1.31</b>	<b>28,754.5</b>	<b>23,017</b>	<b>1.85</b>	<b>42,468.2</b>
Belgium		384	1.46	561.4	410	1.43	585.3
England		3,136	1.41	4,412.5	3,300	1.65	5,448.0
France		670	1.65	1,104.9	673	1.59	1,072.5
Ireland		12	1.38	16.5	13	1.46	19.0
Austria 2)		231	1.35	312.6	—	—	—
Portugal		117	0.83	97.0	93	2.15	200.0
Spain		1,115	1.86	2,071.3	1,194	1.77	2,108.6
<b>EUROPEAN UNION</b>		<b>27,595</b>	<b>1.35</b>	<b>37,330.7</b>	<b>28,700</b>	<b>1.81</b>	<b>51,901.6</b>
Bulgaria		645	0.81	521.5	695	0.86	595.3
Yugoslavia (Serbia/Montenegro)		576	1.22	704.4	560	1.36	760.0
Austria 2)		—	—	—	221	1.54	340.8
Poland		2,341	1.03	2,400.0	2,391	1.20	2,871.6
Romania		2,169	0.80	1,727.0	2,302	1.10	2,534.0
Federation of Russia 1)		3,510	0.45	1,570.0	3,574	1.02	3,646.0
Switzerland		21	1.84	38.6	21	2.37	49.7
Slovak Republic		1,050	0.86	900.0	1,200	0.90	1,080.0
Slovenia		2,419	1.46	3,541.0	2,454	1.51	3,698.0
Czech Republic	Zatec (Saaz)	7,306	0.90	6,549.3	7,672	0.90	6,904.0
	Ustek (Auscha)	1,784	0.90	1,599.2	1,884	0.98	1,848.0
	Tršice (Tirschitz)	1,110	0.97	1,071.7	1,130	0.78	885.0
	<b>Total</b>	<b>10,200</b>	<b>0.90</b>	<b>9,220.2</b>	<b>10,686</b>	<b>0.90</b>	<b>9,637.0</b>
Turkey		323	0.73	237.0	310	0.80	247.7
Ukraine		5,903	0.61	3,592.5	6,560	0.53	3,464.3
Hungary		23	1.74	40.0	141	1.31	184.8
<b>EUROPE (NON-E.U.)</b>		<b>29,180</b>	<b>0.84</b>	<b>24,492.2</b>	<b>31,115</b>	<b>0.94</b>	<b>29,109.2</b>
<b>EUROPE</b>		<b>57,775</b>	<b>1.09</b>	<b>61,822.9</b>	<b>59,815</b>	<b>1.35</b>	<b>81,010.8</b>
USA	Washington	12,302	2.02	24,800.2	12,652	2.11	26,693.0
	Oregon	3,239	1.92	6,223.4	3,200	1.68	5,375.0
	Idaho	1,635	1.71	2,796.2	1,604	1.54	2,470.0
	<b>Total</b>	<b>17,176</b>	<b>1.97</b>	<b>33,819.8</b>	<b>17,456</b>	<b>1.98</b>	<b>34,538.0</b>
Argentina		461	0.92	425.0	350	1.46	510.0
Canada		328	0.78	256.6	328	0.83	271.7
<b>AMERICA</b>		<b>17,965</b>	<b>1.92</b>	<b>34,501.4</b>	<b>18,134</b>	<b>1.95</b>	<b>35,319.7</b>
Zimbabwe		148	1.64	242.5	156	1.35	211.0
South Africa		720	1.83	1,321.0	732	1.78	1,300.0
<b>AFRICA</b>		<b>868</b>	<b>1.80</b>	<b>1,563.5</b>	<b>888</b>	<b>1.70</b>	<b>1,511.0</b>
China		6,920*	2.53	17,500.0*	8,000*	1.69	13,500.0*
India		200	0.66	131.0	125	0.36	45.5
Japan		565	1.95	1,104.0	614	1.73	1,065.0
North Korea		2,000*	0.60	1,200.0*	2,000*	0.60	1,200.0*
South Korea		17	1.64	27.8	100	0.51	51.0
<b>ASIA</b>		<b>9,702</b>	<b>2.06</b>	<b>19,962.8</b>	<b>10,839</b>	<b>1.46</b>	<b>15,861.5</b>
Australia		1,131	2.40	2,707.0	1,178	2.50	2,941.0
New Zealand		345	2.22	765.5	270	2.33	630.0
<b>AUSTRALIA/OCEANIA</b>		<b>1,476</b>	<b>2.35</b>	<b>3,472.5</b>	<b>1,448</b>	<b>2.47</b>	<b>3,571.0</b>
<b>WORLD</b>		<b>86,786</b>	<b>1.40</b>	<b>121,323.0</b>	<b>91,121</b>	<b>1.51</b>	<b>137,274.5</b>

1) including scattered hop farming

2) as of January 1995 member state of EU, treated as already belonging to EU for 1994 crop

\*) estimated

# ALPHA ACID PRODUCTION

Alpha acid production worldwide was recorded according to the following groups of varieties:

<b>Group A:</b>	Finest aroma hops, such as: Saaz, Tett nang, Spalt
<b>Group B:</b>	Aroma hops, such as: Hallertau, Hersbruck, Huell, Perle, Golding, US aroma hops, etc.
<b>Group C:</b>	Hops without significance for the world market (both aroma and bitter)
<b>Group D:</b>	Bitter hops, such as: Northern Brewer, Brewer's Gold, Cluster, Pride of Ringwood, high alpha hops from USA, England, Australia and Germany, etc.

With world hop volume divided into these groups, alpha acid production in 1994 compared with the previous year was as follows:

Group	1994					1993				
	Crop Share	Crop to	Alpha Ø	Alpha to	Alpha Share	Crop Share	Crop to	Alpha Ø	Alpha to	Alpha Share
A	10.7%	12,994	2.6%	338	4.9%	10.0%	13,693	3.6%	493	5.4%
B	27.5%	33,371	2.9%	968	14.0%	30.5%	41,820	5.0%	2,091	23.0%
C	27.4%	33,185	5.8%	1,925	27.9%	23.7%	32,572	5.2%	1,694	18.6%
D	34.4%	41,773	8.8%	3,676	53.2%	35.8%	49,190	9.8%	4,821	53.0%
<b>Total</b>	<b>100.0%</b>	<b>121,323</b>	<b>5.7%</b>	<b>6,907</b>	<b>100.0%</b>	<b>100.0%</b>	<b>137,275</b>	<b>6.6%</b>	<b>9,099</b>	<b>100.0%</b>

All alpha acid values were recorded on the basis of % as is, EBC-Analytica 7.3.2.

The 1994 world crop was 11.6 % lower by volume and additionally the European hops in particular were low in alpha acid content. This led to a 24.1 % year-on-year decrease in alpha acid production.

The USA was able to take advantage of the third poor German crop within five years to extend its world market

leadership as an alpha supplier. 40.6 % of world alpha production came from the USA and only 14.6 % from Germany. It is also interesting to note that China was able to achieve 14 % of world alpha production. However, it should be remembered that Chinese hops do not play a significant part on the world market and therefore

China appears as an alpha supplier on the world market only in exceptional circumstances.

With a 64 % share of the alpha acids in Group D, US high alpha hops made a decisive contribution to stabilizing the supply of the world market.

# ALPHA ACID BALANCE

Calendar year	Alpha demand		Alpha production		Alpha supply	
	Hopping rate	Demand	Crop year	Production	Surplus	Deficit
1991	6.8 g α/hl	7,924.0 to α	1990	6,864.0 to α	--	1,060.0 to α
1992	6.8 g α/hl	7,909.9 to α	1991	8,612.0 to α	702.1 to α	--
1993	6.7 g α/hl	7,984.7 to α	1992	7,537.0 to α	--	447.7 to α
1994	6.6 g α/hl	8,063.4 to α	1993	9,099.0 to α	1,035.6 to α	--
1995*	6.3 g α/hl	7,830.9 to α	1994	6,907.0 to α	--	923.9 to α

\* estimated demand

Due to the increased use of isomerized hop products, the breweries' hopping rates have declined yet again. Our report takes this development

into account by estimating a consumption of only 6.3 g alpha per hectolitre for the calendar year 1995. The arithmetical shortfall resulting from

the 1994 crop was compensated for by the brewing industry's inventories without causing lasting price rises in the hop regions.

# EUROPEAN UNION

## Producer Subsidies 1993

In accordance with (EEC) Directive No. 2483/94, producer subsidies for the 1993 crop were allocated as follows:

Variety group	Subsidy per ha	
Aroma hops	ECU 395	DM 930
Bitter hops	ECU 435	DM 1,024
Other + experimental hops	ECU 307	DM 723

In accordance with (EEC) Directive No. 3124/92, 8 % of this subsidy was withheld from the payment to the German growers. An additional 15 % was withheld by the producer association for measures in accordance with Art. 1 Sect. 10cc of (EEC) Directive No. 1351/72.

The European Commission in Brussels agreed to a compromise solution in view of the adaptation of the marketing of German hops in accordance with the modified hop marketing order ((EEC) Directive No. 3124/92

of Oct. 26, 1992). This provides for a marketing concept with the following elements:

- all existing hop supply contracts will be registered at a common registration office and will remain in effect.
- all future hop supply contracts (spot market hops and advance sales contracts) must be registered at a common registration office and approved by the producer association.
- if the producer association denies approval, it must take over the contract itself at a slightly higher purchase price.
- every lot of hops delivered by the producers must pass an impartial quality control. The hops will be inspected for water content, leaf and stem content, including waste, bract

content and overall infestation with diseases and pests.

- the purchase price will be regulated in a quality pool. The calculation of the market price will be set in accordance with the results of the quality inspection, adding to or deducting from the base price. In this manner the so-called pool contribution is taken into account.

All producer associations will implement the marketing concept in 1995 and 1996, while at the same time reduction of subsidy payments will be suspended. Furthermore, the existing hop marketing order must be amended by the end of 1996.

On March 2, 1994 the Commission also decided to approve Belgium's proposed supplementary program for the changover of hop varieties in accordance with (EEC) Directive No. 2997/87.

## GERMANY

### Growth, Crop Estimates and Weights

For the third time in five years, the German hop industry has had to contend with extreme weather conditions. Although 1994's annual precipitation of 825 mm/m<sup>2</sup> almost met the 50-year average, the harvest still suffered from water shortage.

Although 1994 reported more rainy days than the long-term average, about 360 mm of the total precipitation had already fallen by the end of April. A further 200 mm rained after the harvest, from September to December. This left only 265 mm precipitation for the vegetation period between May and August. Since temperatures were also extremely high, surface evaporation took a large part of this water and little was available for the plants. From May to August, the average temperatures were about 2-5°C higher than the 50-year average. In July alone, 11 days were counted with temperatures above 30°C. The vegetative growth, with the formation of laterals and vertical growth, was affected by lack of rainfall from May to mid-July. Generative growth, with flowering, cone development and cone

ripening, from mid-July to late August suffered from continuous heat. The harvest began on around the

22nd/23rd of August. Hectare yields and alpha acid content were worse than expected.

Area	Estimate	Weight
	8/1994 to	3/31/1995 to
Hallertau	26,000	24,118
Tettngang	2,105	2,170
Elbe-Saale	2,200	1,386
Spalt	1,000	934
Hersbruck	150	117
Baden/Bitb./Rhine-Palatinate	30	29
<b>Total</b>	<b>31,485</b>	<b>28,754</b>

### Alpha Acid Table

Alpha acid content of the main German varieties from 1990 - 1994:

Variety	1994	1993	1992	1991	1990
Hallertau Brewers Gold	3.7%	6.5%	5.8%	6.8%	6.2%
Hallertau Hallertau Tradition	3.7%	5.7%	4.0%	6.5%	-
Hallertau Hallertau	2.6%	4.2%	3.9%	5.0%	4.3%
Hallertau Hersbruck	1.3%	3.4%	2.3%	3.6%	2.8%
Hallertau Hallertau Magnum	9.6%	12.6%	11.1%	15.1%	-
Hallertau Northern Brewer	5.3%	8.4%	7.3%	8.8%	7.5%
Hallertau Perle	3.3%	7.0%	5.0%	7.7%	5.4%
Hallertau Spalt Select	2.2%	5.1%	3.6%	6.4%	-
Elbe-Saale Hallertau Magnum	9.2%	11.7%	-	-	-
Elbe-Saale Northern Brewer	4.5%	7.5%	5.8%	7.1%	-
Spalt Spalt	2.8%	4.1%	3.5%	4.5%	3.0%
Tettngang Tettngang	2.9%	4.0%	3.6%	4.6%	3.6%

All data in % as is, in accordance with EBC-Analytica 7.3.2. The values were measured in Oct./Nov. after the harvest. Appropriate deductions should be taken into account for deliveries later in the course of the season.



## Acreage and Production

Area	Variety	Development of Acreage			Development of Production			
		1994	+/-	1993	1994	1993	1994	1993
		Acreage in ha			Ø-Yield to/ ha		Production to	
Hallertau	Hallertau	162	-26	188	0.96	1.28	155.70	241.50
	Hallertau Tradition	839	301	538	1.05	1.36	881.25	729.30
	Hersbruck	5,302	-1,001	6,303	1.48	1.96	7,871.45	12,356.60
	Huell	241	-80	321	1.38	2.13	331.65	685.05
	Perle	3,500	184	3,316	1.19	2.21	4,162.40	7,333.10
	Spalt Select	1,085	250	835	1.18	1.59	1,278.45	1,326.50
	Other Aroma	12	2	10	1.73	1.41	20.75	40.05
	<b>Total Aroma</b>	<b>11,141</b>	<b>-370</b>	<b>11,511</b>	<b>1.32</b>	<b>1.97</b>	<b>14,701.65</b>	<b>22,686.10</b>
	Brewers Gold	1,304	-240	1,544	2.12	2.55	2,768.45	3,931.50
	Northern Brewer	3,542	-617	4,159	1.09	1.82	3,848.35	7,560.85
	Orion	117	-9	126	1.33	2.31	155.85	291.10
	<b>Total Bitter</b>	<b>4,963</b>	<b>-866</b>	<b>5,829</b>	<b>1.36</b>	<b>2.02</b>	<b>6,772.65</b>	<b>11,783.45</b>
	Hallertau Magnum	1,129	302	827	1.44	0.88	1,621.70	726.30
	Nugget	433	105	328	1.66	2.15	718.95	706.65
	Target	89	-1	90	2.05	1.56	182.35	140.15
	<b>Total High Alpha</b>	<b>1,651</b>	<b>406</b>	<b>1,245</b>	<b>1.53</b>	<b>1.26</b>	<b>2,523.00</b>	<b>1,573.10</b>
	Record	93	-44	137	1.11	1.73	103.60	237.10
	Others	10	-8	18	1.71	2.65	17.10	47.70
	<b>Total Hallertau</b>	<b>17,858</b>	<b>-882</b>	<b>18,740</b>	<b>1.35</b>	<b>1.94</b>	<b>24,118.00</b>	<b>36,327.35</b>
Tettngang	Hallertau	542	-22	564	1.69	1.50	917.30	846.25
	Hersbruck	3	-1	4	1.75	1.38	5.25	5.50
	Tettngang	1,050	38	1,012	1.19	1.28	1,247.85	316.40
	<b>Total Tettngang</b>	<b>1,595</b>	<b>15</b>	<b>1,580</b>	<b>1.36</b>	<b>1.36</b>	<b>2,170.40</b>	<b>2,144.15</b>
Elbe-Saale	Perle	40	8	32	0.56	0.68	22.55	21.80
	Saaz	9	0	9	0.85	1.09	7.65	9.80
	Other Aroma	11	2	9	0.55	1.05	6.10	9.45
	<b>Total Aroma</b>	<b>60</b>	<b>10</b>	<b>50</b>	<b>0.61</b>	<b>0.82</b>	<b>36.30</b>	<b>41.05</b>
	Bullion	57	-42	99	1.92	1.44	109.20	142.15
	Northern Brewer	1,275	-229	1,504	0.82	1.65	1,047.65	2,476.05
	Other Bitter	1	0	1	3.30	0.00	3.30	0.00
	<b>Total Bitter</b>	<b>1,333</b>	<b>-271</b>	<b>1,604</b>	<b>0.87</b>	<b>1.63</b>	<b>1,160.15</b>	<b>2,618.20</b>
	Hallertau Magnum	185	96	89	0.68	0.28	125.70	24.50
	Nugget	70	33	37	0.89	0.80	62.10	29.60
	Target	1	0	1	2.00	2.40	2.00	2.40
<b>Total High Alpha</b>	<b>256</b>	<b>129</b>	<b>127</b>	<b>0.74</b>	<b>0.44</b>	<b>189.80</b>	<b>56.50</b>	
<b>Total Elbe-Saale</b>	<b>1,649</b>	<b>-132</b>	<b>1,781</b>	<b>0.84</b>	<b>1.52</b>	<b>1,386.25</b>	<b>2,715.75</b>	
Spalt	Hallertau	196	-67	263	1.09	260.30	260.30	285.60
	Hallertau Tradition	13	6	7	0.66	1.13	8.60	7.90
	Hersbruck	142	-14	156	1.55	2.03	219.65	316.35
	Perle	33	-1	34	1.30	2.12	43.05	71.95
	Spalt	171	-32	203	1.18	0.99	201.25	200.05
	Spalt Select	138	32	106	1.37	1.87	188.90	198.60
	<b>Total Aroma</b>	<b>693</b>	<b>0</b>	<b>769</b>	<b>1.33</b>	<b>1.41</b>	<b>921.75</b>	<b>1,080.45</b>
	<b>Bitter</b>	<b>5</b>	<b>-1</b>	<b>6</b>	<b>1.97</b>	<b>2.08</b>	<b>9.85</b>	<b>12.45</b>
	<b>High Alpha</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>1.90</b>	<b>0.00</b>	<b>1.90</b>	<b>0.00</b>
	<b>Others</b>	<b>0</b>	<b>-1</b>	<b>1</b>	<b>0.00</b>	<b>0.10</b>	<b>0.00</b>	<b>0.10</b>
<b>Total Spalt</b>	<b>699</b>	<b>-77</b>	<b>776</b>	<b>1.34</b>	<b>1.41</b>	<b>933.50</b>	<b>1,093.00</b>	
Hersbruck	Hallertau	23	-11	34	1.05	1.02	24.10	34.65
	Hersbruck	35	-8	43	1.41	1.77	49.45	75.95
	Other Aroma	41	9	32	0.80	1.02	33.00	32.50
	<b>Total Aroma</b>	<b>99</b>	<b>-10</b>	<b>109</b>	<b>1.08</b>	<b>1.31</b>	<b>106.55</b>	<b>143.10</b>
	<b>Bitter</b>	<b>7</b>	<b>-1</b>	<b>8</b>	<b>1.54</b>	<b>1.91</b>	<b>10.80</b>	<b>15.25</b>
<b>Total Hersbruck</b>	<b>106</b>	<b>-11</b>	<b>117</b>	<b>1.11</b>	<b>1.35</b>	<b>117.35</b>	<b>158.35</b>	
Baden/Bitburg/ Rhine-Pal.	Aroma	18	1	17	1.11	1.36	19.90	23.20
	Bitter	3	-1	4	2.40	1.58	7.20	6.30
	High Alpha	2	0	2	0.95	0.05	1.90	0.10
	<b>Total Baden/B./Rh.</b>	<b>23</b>	<b>0</b>	<b>23</b>	<b>1.26</b>	<b>1.29</b>	<b>29.00</b>	<b>29.60</b>
<b>Total Aroma</b>	<b>13,606</b>	<b>-430</b>	<b>14,036</b>	<b>1.32</b>	<b>1.86</b>	<b>17,956.55</b>	<b>26,144.05</b>	
<b>Total Bitter</b>	<b>6,311</b>	<b>-1,140</b>	<b>7,451</b>	<b>1.26</b>	<b>1.94</b>	<b>7,960.65</b>	<b>14,435.65</b>	
<b>Total High Alpha</b>	<b>1,910</b>	<b>536</b>	<b>1,374</b>	<b>1.42</b>	<b>1.19</b>	<b>2,716.60</b>	<b>1,629.70</b>	
<b>Total other varieties</b>	<b>103</b>	<b>-53</b>	<b>156</b>	<b>1.17</b>	<b>1.83</b>	<b>120.77</b>	<b>258.70</b>	
<b>GERMANY TOTAL</b>	<b>21,930</b>	<b>-1,087</b>	<b>23,017</b>	<b>1.31</b>	<b>1.85</b>	<b>28,754.50</b>	<b>42,468.20</b>	

### Impartial Quality Control

In 1994 for the first time, impartial quality control was instituted for all hops grown and weighed in the German growing regions. While the bales were being weighed, employees of the Hallertau Hop Ring took samples according to a prescribed procedure. On the same day, an independent laboratory collected, prepared and partitioned the samples. Using established analytical methods, more than 14,000 hop samples were tested for water content, leaf / stem / waste con-

tent, loose bract content, and pest and disease damage. Each individual lot received a quality report that was passed on to the buyers and sellers.

Based on these quality reports, the hop trade set the purchase price surcharges and markdowns according to the quality table in the sales contract for German seal hops. Thus, for the first time in the history of the German hop industry, a quality-oriented price resulted for the majority of German hops, with the hop dealers paying surcharges for higher quality hops in par-

ticular. At first the quality tables and the impartial quality control were viewed with great scepticism, but they soon proved to yield exceptionally reliable results. In almost all cases, the purchase price calculation based on the new quality table turned out to be more favourable for the growers than the old German hop trading agreements. Although the average quality of German hops is already at a very high level, the quality tables and impartial quality control will contribute to further improvement.

### Variety Development

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

Variety	1994 ha	1993 ha	1992 ha	1991 ha	1990 ha
Hallertau	926	1,053	1,079	1,143	1,321
Hallertau Tradition	859	551	267	*	*
Hersbruck	5,485	6,509	7,049	7,297	7,404
Perle	3,591	3,397	3,237	2,966	2,580
Spalt Select	1,253	963	583	*	*
Spalt	183	210	224	234	241
Tettnang	1,057	1,021	1,050	1,040	1,037
<b>Total main Aroma</b>	<b>13,354</b>	<b>13,704</b>	<b>13,489</b>	<b>12,680</b>	<b>12,583</b>
Brewers Gold	1,316	1,556	1,656	1,740	1,731
Bullion	57	99	134	169	*
Northern Brewer	4,821	5,670	6,323	6,586	4,868
<b>Total main Bitter</b>	<b>6,194</b>	<b>7,325</b>	<b>8,113</b>	<b>8,495</b>	<b>6,599</b>
Hallertau Magnum	1,317	918	341	*	*
Nugget	503	365	221	104	*
Target	91	92	77	57	*
<b>Total main High Alpha</b>	<b>1,911</b>	<b>1,375</b>	<b>639</b>	<b>161</b>	<b>0</b>

\* Bullion, Nugget and Target were not recorded until 1991; Spalt Select, Hallertau Tradition and Hallertau Magnum not until 1992.

### Market Development

Soon after the beginning of the harvest, it was evident that the hectare yield and alpha acid values would be very low. This caused bouyant demand for almost all varieties. It was evident, however, that a two-sided market was forming, with **aroma** and **bitter hops** on one side and **high alpha hops** on the other. The prices rose till mid-September. The Hop

Grower's Association reported considerable sales at the end of August, especially of **Magnum** and **Brewers Gold**. After mid-September, demand focused more and more on **Magnum**, **Nugget**, **Tradition** and **Perle**, since these varieties promised the highest alpha content in relative terms in view of the 1994 crop's generally low bitter content. By comparison, demand for **Hersbruck**, **Northern**

**Brewer** and **Brewers Gold** dropped off completely and only picked up again at the beginning of October after a strong decline in prices.

From mid-October 1994 on, the market report described the market as quiet with limited or negligible sales. Nonetheless, **Perle** and **Tradition** as well as the German **High Alpha Hops** were sold out as of late November or December 1994.

The beginning of March briefly showed a renewed heavy demand for the **Hersbruck**, **Northern Brewer** and **Brewers Gold** varieties, although at very low prices.

Although the 1994 harvest produced

one of Germany's worst crops in terms of both yield and alpha acid content, it was not sold out. Stockpile purchases from the record 1993 crop made it possible for the brewing industry to stay away from the 1994

spot market. The unsold hops, most of all **Northern Brewer** and **Brewers Gold**, were taken over by the HVG / producer association before the expiry of the weighing period on March 31, 1995.

#### Purchase prices in net DM per 50kg bale:

Area/Variety	Sep. 94	Oct. 94	Nov. 94	Dec. 94	Jan. 95	Feb. 95	March 95
Hallertau Hersbruck	300	150	150	150	150	-	150
Hallertau Perle	400	400	400	-	350	-	-
Hallertau Hallertau Tradition	400	400	400	400	-	-	-
Hallertau Select	400	370	400	370	-	-	-
Hallertau Northern Brewer	400	300	200	250	-	-	250
Hallertau Brewers Gold	300	150	80	150	-	-	150
Hallertau Hallertau Magnum	550	550	550	500	-	-	-
Hallertau Nugget	400	400	300	300	-	-	-
Spalt	500	500	480	480	-	-	-
Tettnang	580	530	500	500	-	-	-

## FRANCE

### Acreeage and Production

Area	Variety Group	Development of Acreeage			Development of Production			
		1994	+/-	1993	1994	1993	1994	1993
		Acreeage ha			Ø-Yield to/ha		Production to	
Alsace	Aroma	574	9	565	1.66	1.67	951.0	942.0
	Bitter	12	0	12	2.88	2.78	34.6	33.3
	High Alpha	30	3	27	1.63	1.25	48.9	33.8
	<b>Total Alsace</b>	<b>616</b>	<b>12</b>	<b>604</b>	<b>1.68</b>	<b>1.67</b>	<b>1,034.5</b>	<b>1,009.1</b>
North	Aroma	12	-4	16	1.27	0.81	15.2	12.9
	Bitter	16	-6	22	1.48	1.17	23.7	25.7
	High Alpha	24	-5	29	1.16	0.80	27.9	23.2
	<b>Total North</b>	<b>52</b>	<b>-15</b>	<b>67</b>	<b>1.28</b>	<b>0.92</b>	<b>66.8</b>	<b>61.8</b>
Burgundy	<b>Bitter</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>1.80</b>	<b>0.80</b>	<b>3.6</b>	<b>1.6</b>
<b>FRANCE TOTAL</b>		<b>670</b>	<b>-3</b>	<b>673</b>	<b>1.65</b>	<b>1.59</b>	<b>1,104.9</b>	<b>1,072.5</b>

### Growth and Quality

In 1994, France's hop growers had to contend with above-average high temperatures and extremely dry conditions. This caused below-average alpha acid content especially in the aroma varieties. The bitter varieties (**Brewers Gold**, **Northern Brewer**) were not as seriously affected.

Yields on the other hand were better than in 1993. Therefore, despite a 3-hectare reduction in the cultivated area, the French growers recorded a 2.54 % increase in production in comparison with the previous year.

### Market Development

Whereas 100 % of the crop from Alsace was sold in advance, Northern France reported marketing difficulties. In this region only 50 % of the crop was under contract. As in the preceding year, 70 % of the 1994 French crop was exported. France reports contract sales at 90 % for 1995.

## ENGLAND

## Acreage and Production

Variety	Development of Acreage			Development of Production			
	1994	+/- Acreage ha	1993	1994 Ø-Yield	1993 to/ha	1994 Production to	1993 to
Bramling Cross	43	6	37	1.43	1.41	63.0	52.0
Fuggles	289	1	288	1.19	1.70	344.0	491.0
Goldings	338	6	332	1.48	1.69	501.3	561.0
Progress	134	44	90	1.04	1.31	140.7	118.0
W.G.V.	71	13	58	1.18	1.71	84.1	99.0
<b>Total Aroma</b>	<b>875</b>	<b>70</b>	<b>805</b>	<b>1.29</b>	<b>1.64</b>	<b>1,133.1</b>	<b>1,321.0</b>
Challenger	363	-33	396	1.43	1.85	520.8	732.0
Northdown	375	-1	376	1.23	1.64	461.4	616.0
<b>Total Bitter</b>	<b>738</b>	<b>-34</b>	<b>772</b>	<b>1.33</b>	<b>1.75</b>	<b>982.2</b>	<b>1,348.0</b>
Target	1,410	-202	1,612	1.54	1.62	2,175.2	2,615.0
Yeoman	58	-30	88	1.45	1.45	84.3	128.0
<b>Total High Alpha</b>	<b>1,468</b>	<b>-232</b>	<b>1,700</b>	<b>1.54</b>	<b>1.61</b>	<b>2,259.5</b>	<b>2,743.0</b>
Others	55	-32	23	0.68	1.57	37.7	36.0
<b>ENGLAND TOTAL</b>	<b>3,136</b>	<b>-164</b>	<b>3,300</b>	<b>1.41</b>	<b>1.65</b>	<b>4,412.5</b>	<b>5,448.0</b>

## Growth and Quality

Dryness in late spring as well as pests and disease (mildew, aphids) caused problems for the English hop growers. Heavy rainfall during the harvest meant further reductions in the quality. Under these difficult growing conditions, alpha acid levels and yields suffered the most. On the other hand, in most varieties the optical quality turned out well.

The English growing areas shrank by 164 ha in comparison with the previous year. The total area under cultivation with **aroma varieties** increased by 70 ha, whereas the **bitter** and **high alpha variety** acreage shrank by 266 ha. Of that, 202 ha was at the expense of **Target**, a high alpha variety that nevertheless remains the primary variety planted, covering 45 % of the area under cultivation. The bitter and high alpha varieties cover 72 % of the total acreage, a proportion corresponding to that of 1990.

The research center at Wye College has developed five new varieties. Their release is expected for 1996.

These are:

**RH40 (Admiral)**, high alpha variety

**TC105 (Phoenix)**, high alpha variety with strongly distinctive aromatic characteristics

**W10 (Pioneer)**, bitter variety

**S4 (First Gold)**, bitter variety

**W8 (Herald)**, high alpha variety

The last two varieties were bred for low trellis systems.

## Market Development

Before the harvest, contract volume was estimated at 4,200 tons. Because the actual crop was smaller than expected, the spot market had few hops available. A mere 125 tons of **Target** came onto the spot market and was sold at prices ranging from £125 to £135 per 50 kg. The supply of aroma hops was even shorter. Between £280 and £300 per 50 kg was paid for particularly sought-after varieties such as **Fuggles** and **East Kent Goldings**.

A contract quota of 70 % is reported for the 1995 crop, whereby over 85 % is expected for all aroma varieties. Total acreage is expected to remain unchanged.

## Alpha Acid Table

Alpha acid levels of important English varieties from 1993 and 1994 in comparison.

Variety	1994	1993
Bramling Cross	5.9%	5.9%
Challenger	6.8%	7.1%
Fuggles	4.0%	4.1%
Goldings	4.5%	5.4%
Northdown	7.2%	7.7%
Progress	5.4%	6.3%
Target	10.2%	11.5%
W.G.V.	5.9%	5.9%
Yeoman	10.2%	10.5%

All data in % as is, in accordance with EBC-Analytica 7.3.2. The values were measured in October/November after the harvest.

Appropriate deductions should be taken into account for deliveries later in the course of the season.

## SPAIN

### Acreage and Production 1994

Variety	Acreage ha	Ø-Yield to/ha	Production to
H-3 Leonés	706	2.43	1,718.9
H-7 Leonés	397	0.88	348.9
<b>Total Bitter</b>	<b>1,103</b>	<b>1.87</b>	<b>2,067.8</b>
Others	12	0.28	3.5
<b>SPAIN TOTAL</b>	<b>1,115</b>	<b>1.86</b>	<b>2,071.3</b>

With respect to quantity, the Spanish harvest produced good results. The alpha acid levels turned out lower than the year before, in particular in the bitter variety **H-3**. This was due to the very hot weather during the growing period.

### Growth and Market

Sufficient precipitation during the winter and spring formed the basis for a crop similar to that of 1993. However, the hot, dry summer caused faster cone development than usual, which reduced the alpha acid level.

In 1994 for the first time Spanish growers were able to harvest experimental quantities of the aroma variety **Perle**, as well as the high alpha varieties **Nugget** and **Magnum**. In the next years, the bitter variety **H-7** should be replaced by the high alpha variety **Nugget**.

96,7 % of the total crop was marketed to the Spanish brewing industry through the Spanish Fomento de Lúpulo. The remainder was sold by individual hop growers to foreign dealers at 200 Pts/kg.

The following prices were paid for contract hops:

H-3	465 Pts/kg
H-7	547 Pts/kg
Others	550 Pts/kg

## BELGIUM

### Acreage and Production 1994

Variety Group	Acreage ha	Ø-Yield to/ha	Production to
Aroma	76	1.54	117.3
Bitter	306	1.45	442.3
Others	2	0.90	1.8
<b>BELGIUM TOTAL</b>	<b>384</b>	<b>1.46</b>	<b>561.4</b>

Due to the dry summer in 1994, Belgium reported one of the weaker crops in the last few years with regard to

yield and alpha acid. During the years 1993 and 1994 an extensive variety conversion program was instituted

on 104 ha of land. The bitter variety **Target** dominated with 44 % of the cultivated area, followed by the bitter variety **Northern Brewer** with 21 % and the aroma variety **Hallertau** with 13 %.

Despite disappointing alpha levels that dropped by an additional 15-25 % from the time of the harvest to January 1995, the 1994 crop can be considered to be sold out.

## AUSTRIA

### Acreage and Production 1994

Area	Acreage ha	Ø-Yield to/ha	Production to
Mühlviertel	122	1.17	143.0
Leutschach	94	1.71	160.9
Waldviertel	15	0.58	8.7
<b>AUSTRIA TOTAL</b>	<b>231</b>	<b>1.35</b>	<b>312.6</b>

Since the 1st of January 1995 Austria has been a full member of the European Union. Acreage and production for the 1994 crop are therefore to be regarded as part of the European Union.

### Mühlviertel/Upper Austria

Heat and dryness caused a 26 % drop in production over that of the

previous year. As a consequence, growers were unable to meet standing contracts with the Austrian brewing industry.

99.9 % of the hops were classified as quality class 1 and the Austrian brewing industry paid an average of 75 schillings per kilo.

The varieties grown were the aroma varieties **Malling** and **Perle**.

### Leutschach/Styria

Favourable growing conditions ensured a record harvest. The varieties grown were the aroma variety **Goldling** and the bitter variety **Aurora**, as well as a number of experimental varieties.

An average of 79 schillings per kilo was paid for quality class 1.

### Waldviertel/Lower Austria

The hop project supported by the Zwettler brewery brought in a 10-ton harvest that was purchased by the brewery at a price of 75 schillings per kilo.

## PORTUGAL

In spite of its past problems, Portuguese hop cultivation appears to have stabilized itself at a low level. In 1994, the acreage expanded by 24 ha to 117 ha in total.

Production fell from 200 to 97 tons compared to the previous year. This decline was attributed to the ongoing

variety conversion program. The Portuguese producers are presently planting the high alpha variety **Nugget** to replace the bitter variety **Brewers Gold** which they had grown exclusively until recently. For 1995, a further expansion of acreage is planned to bring the total to 125 ha.

## IRELAND

In 1994, 16.5 to was harvested on 12 ha of land. Only one hop grower is left in Ireland. He grows the **North-down** bitter variety.

## THE REST OF EUROPE

### CZECH REPUBLIC

#### Acreage and Production

Area	Development of Acreage			Development of Production			
	1994	+/-	1993	1994	1993	1994	1993
	Acreage ha			Ø-Yield to/ha		Production to	
Zatec (Saaz)	7,306	-366	7,672	0.90	0.90	6,549.3	6,904.0
Ustek (Auscha)	1,784	-100	1,884	0.90	0.98	1,599.2	1,848.0
Tršice (Tirschitz)	1,110	-20	1,130	0.97	0.78	1,071.7	885.0
<b>CZECH REP. TOTAL</b>	<b>10,200</b>	<b>-486</b>	<b>10,686</b>	<b>0.90</b>	<b>0.90</b>	<b>9,220.2</b>	<b>9,637.0</b>

#### Growth and Quality

A predominantly damp spring followed a dry winter. Temperatures fluctuated between zero and 18 °C. Plant development was normal until May. In June and July, the very high and steady temperatures accelerated growth. Flowering came early, with the dryness, however, seriously affecting cone development. The ground water supply was insufficient and the

lack of cooling at night did not allow dew to form. Compared to 1993, the average yield per hectare remained unchanged despite the dryness. The alpha acid levels, on the other hand, came in under average at 2.2 - 2.6 %.

Acreage shrank considerably by 486 ha compared with 1993. In 1994, however, virus-free rootstocks will be planted on approximately 98 ha. Since 1991, approx. 135 ha have been

replanted. Based on the generally fluctuating and low levels of the alpha values of **Saaz**, it is expected that the changeover to virus-free rootstocks will accelerate.

The aroma variety **Saaz** has been and will continue to be the only variety cultivated in all Czech growing regions.

With the exception of small quantities, the 1994 crop is sold out.

## POLAND

#### Acreage and Production

Variety Group	Development of Acreage			Development of Production			
	1994	+/-	1993	1994	1993	1994	1993
	Acreage ha			Ø-Yield to/ha		Production to	
Aroma	2,033	-50	2,083	1.00	1.16	2,033.0	2,422.8
Bitter	308	0	308	1.91	1.46	367.0	448.8
<b>POLAND TOTAL</b>	<b>2,341</b>	<b>-50</b>	<b>2,391</b>	<b>1.03</b>	<b>1.20</b>	<b>2,400.0</b>	<b>2,871.6</b>

#### Growth and Quality

Very extreme weather conditions characterized the growth pattern of the 1994 crop. A cold spring was followed by a very hot summer without any precipitation. This had a negative effect on yield and alpha acid levels. The alpha acid levels of the main aro-

ma variety, "**Lubelska Pulawy**", also known as "**Lublin**", turned out to be a disappointing 2.9 %.

#### Market Development

Contract sales accounted for 80 % of the crop. The growers were able to sell the remaining 20 % on the spot

market to domestic breweries and foreign trading companies. The 2,041 hectares forecast for the 1995 harvest reflects a 150-hectare increase in acreage.

## SLOVAK REPUBLIC

### Acreage and Production

Variety	Development of Acreage			Development of Production			
	1994	+/-	1993	1994	1993	1994	1993
	Acreage ha			Ø-Yield to/ha		Production to	
Saaz	1,050	-150	1,200	0.86	0.90	900.0	1,080.0
<b>SLOVAK REPUBLIC TOTAL</b>	<b>1,050</b>	<b>-150</b>	<b>1,200</b>	<b>0.86</b>	<b>0.90</b>	<b>900.0</b>	<b>1,080.0</b>

With cultivation on an area 12.5 % down on 1993, a 16,7 % smaller crop was harvested. The yield sank from 0.9 to/ha to 0.86 to/ha. Although the

**Saaz** aroma variety, which is the only variety grown in Slovakia, merely showed 2.2 % alpha, the crop was sold down to small remaining stocks.

75 % of the 1995 crop is reported to be sold by contract.

## SLOVENIA

### Acreage and Production

Variety	Development of Acreage			Development of Production			
	1994	+/-	1993	1994	1993	1994	1993
	Acreage ha			Ø-Yield to/ha		Production to	
Styrian Golding	935	-34	969	1.31	1.04	1,222.0	1,008.0
Other Aroma	84	2	82	1.54	1.15	129.0	94.0
<b>Total Aroma</b>	<b>1,019</b>	<b>-32</b>	<b>1,051</b>	<b>1.33</b>	<b>1.05</b>	<b>1,351.0</b>	<b>1,102.0</b>
Super Styrian-Aurora	1,276	17	1,259	1.57	1.87	2,005.0	2,360.0
Other Bitter	124	-20	144	1.49	1.64	185.0	236.0
<b>Total Bitter</b>	<b>1,400</b>	<b>-3</b>	<b>1,403</b>	<b>1.56</b>	<b>1.85</b>	<b>2,190.0</b>	<b>2,596.0</b>
<b>SLOVENIA TOTAL</b>	<b>2,419</b>	<b>-35</b>	<b>2,454</b>	<b>1.46</b>	<b>1.51</b>	<b>3,541.0</b>	<b>3,698.0</b>

### Growth and Quality

A dry winter, followed by a warm, moist spring, caused a very early growth for 1994. Up to mid-July a very good yield was expected. These hopes were dashed by a four-week heat wave. Most of all, the results for **Super Styrian**, a late-maturing variety, were extremely reduced. The alpha acid levels were below those of

the previous year. The difficult weather conditions led to strongly fluctuating bitter values among both varieties and lots. All told, the crop quality could be described as satisfactory.

### Market

The 1994 crop has been sold out with the exception of small remaining stocks. The Hmezad Export and Im-

port Cooperative marketed 90 % of the crop to domestic and foreign purchasers. This cooperative will operate as a public corporation starting with the 1995 crop.

The growers supplied the remaining 10 % of the crop directly to the Croatian brewing industry. Little change in acreage is expected for 1995.

## YUGOSLAVIA (SERBIA/MONTENEGRO)

### Acreage and Production 1994

Variety Group	Acreage ha	Ø-Yield to/ha	Production to
Aroma	266	0.90	239.4
Bitter	310	1.50	465.0
<b>YUGOSLAVIA TOTAL</b>	<b>576</b>	<b>1.22</b>	<b>704.4</b>

Hop growing in the Bačka region was expanded by 16 hectares over the previous year. A heat wave, starting in June and continuing to the beginning of August, severely impaired the average yield. The crop was further damaged by caterpillars of the turnip

moth (*agrotis segetum schiff*) which caused serious widespread problems. The main varieties are **Bačka** (aroma, 250 ha) and **Brewers Gold** (bitter, 300 ha). As a result of the continuing UN trade embargo maintained against Yugoslavia, the crop had to be placed

on the domestic market. In spring, approx. 100 tons of the 1994 production remained unsold. This consisted primarily of stocks of the Bačka variety that were difficult to sell due to their low alpha content of 1.8 %.

### Correction to the 1993/94 report:

Contrary to the statement in our previous report, there is no hop growing in Montenegro. The 50-ton production reported for this region is therefore invalid.

## ROMANIA

The area under cultivation shrank to 2,169 hectares, a 133-hectare decrease in comparison with the previous year. Here we must amend our 1993/94 Barth Report which listed Romania's 1993 acreage as 3,100 hectares.

The 1994 crop turned out weak due to extreme temperatures as well as drought during the summer months. The average yield was a mere 0.80 tons/hectare. Romanian hop agriculture is concentrated in **Transylvania**, around **Sighisoara**, **Sibiu** and **Cluj**. The structure is still marked by the former socialist economic planning. Today, hops are grown on twelve state farms operating under the name Agro-Industrial

Company, Inc. (the state is the principle shareholder).

Since 1992, continuous marketing difficulties of the state farms to the domestic brewing industry have been reported. Therefore, starting with the 1994 crop, the varieties grown previously, **Huell** ( $\approx 29\%$  of acreage), **Brewers Gold** ( $\approx 59\%$  of acreage) and **Northern Brewer** ( $\approx 12\%$  of acreage), are being successively replaced by **Magnum** and **Perle** among others. In 1994, varieties had already been changed on 200 hectares.

As of spring 1995, 300 tons of the crop was still counted as unsold.

## TURKEY

### Acreage and Production 1994

Variety group	Acreage ha	Ø-Yield to/ha	Production to
<b>Aroma</b>	<b>78</b>	<b>0.36</b>	<b>28.0</b>
Brewers Gold	194	0.86	167.0
Late Cluster	51	0.82	42.0
<b>Total Bitter</b>	<b>245</b>	<b>0.85</b>	<b>209.0</b>
<b>TURKEY TOTAL</b>	<b>323</b>	<b>0.73</b>	<b>237.0</b>

On an acreage marginally larger than that of 1993, crops were reported satisfactory for Turkey, although the yield of the aroma varieties was

disappointing. The Turkish crop is used exclusively by the domestic brewing industry.

## UKRAINE

The Ukrainian acreage shrank to 5,903 hectares, a 657-hectare decrease. This area produced 3,592.5 tons. The average yield of 0.61 tons per hectare, although an improvement over the previous year, was still among the lowest in the world. The **Klon 18** aroma variety was grown on 95 % of the area. The bitter varieties **Polesskij** and **Silnyi** were grown on the remaining 239 hectares. Of the 1994 crop,

3,050 tons were sold by contract. In spring, 400 tons of the crop remained unsold. The Ukrainian hop growers primarily supply their domestic brewing industry as well as those of other CIS states.

For 1995, a 700-hectare reduction in acreage is expected to leave 5,200 hectares. During 1994 and 1995, 1,300 hectares of old hop gardens were/are being replanted.

## BULGARIA

In 1994, the hop-growing area in Bulgaria shrank further to 645 hectares, a 50-hectare decrease compared to the previous year. Only 521.5 tons were harvested on this area. It was possible to sell this quantity (with a small remaining stock) on the Bulgarian market.

The bitter varieties **Brewers Gold**, **Nugget**, **Chinook**, **Olympic**, and **Galena** were grown, as well as the aroma varieties **Spalt**, **Wuerttemberg**, **Perle** and **CFJ-8**.

## FEDERATION OF RUSSIA

Only 1,570 tons was harvested on an acreage reported at 3,510 hectares, virtually unchanged since the previous year. About 75 % of Russian hop farming is found in the **Chuvash** region.

Mainly **bitter varieties** are grown. In the 1994 crop, they had an alpha content of between only 3.5 and 4 %.

## HUNGARY

Hungarian hop growing was widely abandoned in 1994. Acreage shrank from 141 hectares in 1993 to only 23 hectares. In 1994, 40 tons of the **Brewers Gold** bitter variety was harvested on this area.

## SWITZERLAND

On an acreage of 21 hectares, 13 growers harvested 38.6 tons. They grew the aroma varieties **Perle** and **Hallertau**, as well as the bitter varieties **Orion**, **Northern Brewer** and **Magnum**.



# AMERICA

## USA

### Acreage and Production

Area	Variety	Development of Acreage			Development of Production			
		1994	+/-	1993	1994	1993	1994	1993
		Acreage ha			Ø-Yield to/ha		Production to	
Washington	Cascade	540	-13	553	2.16	2.54	1,167.8	1,404.1
	Liberty	48	*	*	1.06	*	50.8	*
	Mount Hood	731	-9	740	1.50	1.37	1,097.1	1,016.0
	Perle	155	-116	271	1.17	1.79	181.9	486.0
	Tettnang	875	-12	887	1.22	1.09	1,067.9	968.8
	Willamette	1,124	-27	1,151	1.67	1.83	1,876.2	2,108.9
	<b>Total Aroma</b>	<b>3,473</b>	<b>-129</b>	<b>3,602</b>	<b>1.57</b>	<b>1.66</b>	<b>5,441.7</b>	<b>5,983.8</b>
	Cluster	2,150	-273	2,423	2.37	2.28	5,104.3	5,520.8
	Northern Brewer	23	*	*	2.00	*	46.0	*
	<b>Total Bitter</b>	<b>2,173</b>	<b>-250</b>	<b>2,423</b>	<b>2.37</b>	<b>2.28</b>	<b>5,150.3</b>	<b>5,520.8</b>
	Chinook	934	-49	983	2.12	2.33	1,976.1	2,290.7
	Eroica	181	0	181	2.11	2.37	382.3	428.3
	Galena	3,342	-86	3,428	2.20	2.21	7,336.4	7,562.7
	Nugget	1,839	195	1,644	2.04	2.47	3,748.8	4,066.3
	Olympic	91	-15	106	1.96	2.36	178.6	249.8
	<b>Total High Alpha</b>	<b>6,387</b>	<b>45</b>	<b>6,342</b>	<b>2.13</b>	<b>2.30</b>	<b>13,622.2</b>	<b>14,597.8</b>
	Others*	269	-15	284	2.18	2.08	586.0	591.5
<b>Total Washington</b>	<b>12,302</b>	<b>-349</b>	<b>12,651</b>	<b>2.02</b>	<b>2.11</b>	<b>24,800.2</b>	<b>26,693.8</b>	
Oregon	Fuggle	190	2	188	1.44	1.10	272.9	206.7
	Mount Hood	107	10	97	2.02	1.35	215.8	130.6
	Perle	71	-39	110	1.59	1.86	113.1	204.8
	Tettnang	265	44	221	1.44	1.24	381.8	274.4
	Willamette	1,446	36	1,410	1.70	1.65	2,453.3	2,322.3
	<b>Total Aroma</b>	<b>2,079</b>	<b>53</b>	<b>2,026</b>	<b>1.65</b>	<b>1.55</b>	<b>3,436.9</b>	<b>3,138.8</b>
	Galena	32	-2	34	1.93	1.67	61.7	56.7
	Nugget	992	0	992	2.51	1.99	2,489.3	1,978.1
	<b>Total High Alpha</b>	<b>1,024</b>	<b>-2</b>	<b>1,026</b>	<b>2.49</b>	<b>1.98</b>	<b>2,551.0</b>	<b>2,034.8</b>
	Others*	136	-10	146	1.73	1.38	235.5	201.4
	<b>Total Oregon</b>	<b>3,239</b>	<b>41</b>	<b>3,198</b>	<b>1.92</b>	<b>1.68</b>	<b>6,223.4</b>	<b>5,375.0</b>
Idaho	Banner	56	1	55	2.02	2.13	113.0	117.4
	<b>Total Aroma</b>	<b>56</b>	<b>1</b>	<b>55</b>	<b>2.02</b>	<b>2.13</b>	<b>113.0</b>	<b>117.4</b>
	Cluster	333	52	281	2.47	2.35	823.8	661.1
	<b>Total Bitter</b>	<b>333</b>	<b>52</b>	<b>281</b>	<b>2.47</b>	<b>2.35</b>	<b>823.8</b>	<b>661.1</b>
	Chinook	142	13	129	2.07	1.69	294.3	217.8
	Galena	249	-8	257	2.01	1.74	500.6	446.4
	<b>Total High Alpha</b>	<b>391</b>	<b>5</b>	<b>386</b>	<b>2.03</b>	<b>1.72</b>	<b>794.9</b>	<b>664.2</b>
	Others*	855	-27	882	1.25	1.16	1,064.5	1,026.9
<b>Total Idaho</b>	<b>1,635</b>	<b>31</b>	<b>1,604</b>	<b>1.71</b>	<b>1.54</b>	<b>2,796.2</b>	<b>2,469.6</b>	
<b>Total Aroma</b>	<b>5,608</b>	<b>-75</b>	<b>5,683</b>	<b>1.60</b>	<b>1.63</b>	<b>8,991.6</b>	<b>9,240.0</b>	
<b>Total Bitter</b>	<b>2,506</b>	<b>-198</b>	<b>2,704</b>	<b>2.38</b>	<b>2.29</b>	<b>5,974.1</b>	<b>6,181.9</b>	
<b>Total High Alpha</b>	<b>7,802</b>	<b>48</b>	<b>7,754</b>	<b>2.17</b>	<b>2.23</b>	<b>16,968.2</b>	<b>17,296.8</b>	
<b>Total Others</b>	<b>1,260</b>	<b>-52</b>	<b>1,312</b>	<b>1.50</b>	<b>1.39</b>	<b>1,886.0</b>	<b>1,819.8</b>	
<b>USA TOTAL</b>		<b>17,176</b>	<b>-277</b>	<b>17,453</b>	<b>1.97</b>	<b>1.98</b>	<b>33,819.8</b>	<b>34,538.5</b>

Minor statistical deviations may result from conversion of acres into ha and lbs into tons.

\*Others include: **Washington:** Aquila, Banner, Fuggle, 1993 also: Liberty, Northern Brewer  
**Oregon:** Aquila, Banner, Cascade, Chinook, Cluster, Eroica  
**Idaho:** Cascade, Mount Hood, Nugget, Olympic, Perle, Tettnang, Willamette, Saaz type

## Growth

The winter of 1993/94 began earlier than usual. Sub-zero temperatures and heavy snowfall set in in November. Above-average temperatures reduced the snow cover in December and January.

The Washington area was faced with major problems due to low water storage capacity. The Oregon area and Idaho were affected less. Idaho has large

reservoirs and Oregon recorded more precipitation during the growth period, which served to meet their irrigation requirements.

The summer temperatures varied widely with repeated rain showers. This reduced the water requirement of the hop plants. In general it was expected that the the hop harvest would be postponed by up to ten days due to the temperature fluctuations. As it

turned out, there was a delay of only two or three days.

The USA's total production dropped to 33,820 tons in 1994 in comparison with 34,538 tons in 1993. The average yield fell slightly to 1.97 tons per hectare in contrast with 1.98 tons per hectare in 1993. Acreage shrank by 277 ha in 1994.

## WASHINGTON

In comparison with previous years, the winter of 1993/94 had unusual weather conditions. In November, cold weather with above-average snowfall was recorded. By contrast, there was little precipitation from mid-December until late February, and temperatures were mostly above average. From the end of February until the beginning of April, snow fell again in the mountains, though not enough to meet the water needs of all the cultivated areas.

The irrigation districts tried to work together to come up with concepts for water storage, but the talks broke down. Finally, water supply was based on seniority with close to full supply for older districts and the younger districts receiving 35 % to 40 % of their normal supply. These changes forced the hop growers to find other sources of water, such as drilling new wells or purchasing water from other property owners. As, however, during the growing sea-

son the temperature swung by approx. 25 °F (approx. 9 °C) five times, the water requirement was lower than anticipated for the plants. Furthermore, some thunderstorms brought significant precipitation.

The total production in the Washington growing region came to 24,800 tons, with an average yield of 2.02 tons/ha. This exceeded the USDA's August forecast by approx. 998 tons.

## OREGON

The 1993/94 winter temperatures were largely normal, although precipitation was below average. As of April 1, 1994 it amounted to only 63 % of the normal quantity. Since Willamette Valley has 1,120 mm per year, the water supply was not a serious problem, however. The weather was ideal throughout the entire growing season with sufficient rain and oc-

casional dry periods. Crown growth in spring looked strong with the exception of the **Willamette** variety, which was crowned last. By the end of May most varieties were in good condition. Mildew infections were easy to control, partly because of the continuing dry weather. In June the ideal weather continued with steady warming till July. The **Willamette**

variety flowered later than usual, which made it possible for the bines to develop more strongly. In general, most of the varieties showed above-average cone development.

The total 1994 Oregon production was 6,223 tons, the largest crop since 1982. The average yield was 1.92 tons/ha. Almost all varieties in Oregon produced higher yields than in 1993.

## IDAHO

The 1993/94 winter brought sufficient snowfall in the mountain regions to fill all the reservoirs used for irrigation. The growers were able to complete the spring work on time in spite

of the changeable weather. During the summer the temperature reached 100° F (38° C) on only a few days. Production increased due to the cooler summer weather optimizing the growth of the

plants. The total 1994 crop in Idaho was 2,796 tons. The average yield was 1.71 tons/ha and thereby 0.17 tons/ha over the previous year's 1.54 tons/ha yield.

## Quality

The quality of the hops improved in 1994 through the introduction of pesticides which had been restricted in 1993. With the help of these plant protectants it was possible to keep both mite and aphid infestation under control. The only insect problem arose later in the season when worm infesta-

tion partially damaged the hop crop during the vegetation period. Picking quality improved marginally in that the leaf and stem content sank from 0.79 % in 1993 to 0.75 % in 1994. The alpha acid production was down to 3,214 tons (ASBC spectrophotometric, time of harvest) which means a reduction of 9.6 % in comparison to 1993.

The decrease can be partially explained by the 3.2 % smaller crop. The average alpha content was 9.5 % compared to 10.2 % in 1993. The bitter values were between 11.3 % and 13.5 % for the **high alpha varieties** and 4.9 % and 6.2 % (ASBC) for the **aroma varieties**.

## Variety Development

The acreage of the main varieties in all of the USA's growing regions developed as follows during the last five years:

Variety	1994 ha	1993 ha	1992 ha	1991 ha	1990 ha
Mount Hood	837	837	616	351	227
Cascade	540	553	511	502	514
Perle	226	381	409	379	377
Tettnang	1,139	1,108	1,094	1,147	1,207
Willamette	2,568	2,561	2,522	2,500	2,618
<b>Total main Aroma</b>	<b>5,310</b>	<b>5,440</b>	<b>5,152</b>	<b>4,879</b>	<b>4,943</b>
Cluster	2,480	2,704	2,867	2,819	2,678
<b>Total main Bitter</b>	<b>2,480</b>	<b>2,704</b>	<b>2,867</b>	<b>2,819</b>	<b>2,678</b>
Chinook	1,075	1,112	1,066	1,043	707
Galena	3,621	3,719	3,628	3,338	2,749
Nugget	2,830	2,636	2,392	1,884	1,709
<b>Total main High Alpha</b>	<b>7,526</b>	<b>7,467</b>	<b>7,086</b>	<b>6,265</b>	<b>5,165</b>

## Alpha Acid Table

Alpha acid content of the main American varieties from 1990 - 1994:

Variety	1994	1993	1992	1991	1990
Cascade	4.1%	5.7%	4.6%	4.9%	4.6%
Chinook	10.4%	11.7%	10.3%	11.1%	10.1%
Cluster	6.4%	7.4%	6.3%	6.6%	6.3%
Galena	11.3%	12.4%	10.4%	11.0%	10.9%
Mount Hood	3.4%	4.5%	3.4%	3.6%	3.0%
Nugget	12.4%	12.6%	11.5%	12.4%	11.5%
Perle	5.2%	8.4%	6.0%	5.7%	5.7%
Tettnang	3.1%	4.6%	3.6%	4.2%	3.2%
Willamette	3.6%	4.5%	3.7%	4.1%	4.1%

All data was converted from ASBC spectrophotometric (at time of harvest) into % as is according to EBC-Analytica 7.3.2 (Oct./Nov. after the harvest) to ensure comparability within this report.

## Spot Market

At the beginning of the 1994 harvest the farmers still had stockpiles of hops and hop products from the 1993 crop. In the meantime part of these hop products were sold and came to the trade. Leftovers from the 1993 harvest and even small unsold quantities of 1991 and 1992 crop hops found little or no interest on the market.

The 1994 spot market, with an estimated 13,000 - 15,000 bales, opened in mid-August at a price of \$1.00 flat per pound for **Cluster** and \$1.20 for high alpha varieties. The market maintained this price level until reports came in that the German crop would be less than expected. In September the **Perle** variety was selling

at \$2.25 per pound plus premium on the spot market. The quotations for **Cluster** climbed to US \$1.15 flat per pound and fluctuated only slightly during September. Sales of the 6,000 to 7,000 bales of high alpha varieties began with a price of \$1.45 flat per pound on September 1, 1994 and climbed almost daily to \$2.00 on September 9. With few exceptions this level was held until the end of September when the market adjusted due to lack of orders.

The USDA reported that as of September 1, 1994 growers, dealers and breweries had hop stocks amounting to 28,576.6 tons. In comparison to September 1, 1993 this shows an increase of 8.5 %.

Hop stocks as of September 1 in each crop year:

1990	<b>23,541.7 to</b>
1991	<b>24,585.0 to</b>
1992	<b>25,537.5 to</b>
1993	<b>26,354.0 to</b>
1994	<b>28,576.6 to</b>

The USDA Marketing Service reported that 1992/1993 crop exports sank to 19,863 tons. This represents a 2,136-ton decrease from 1991/1992. Imports dropped over 50 % from 8,596 tons in 1991/1992 to 4,200 tons in 1992/1993.

## Contract Market

The rich 1993 crop in Germany and the USA caused a weak contract market in 1994. At the annual Hop Growers Convention, hop growers discussed the possibility of raising prices to at least the level of production costs if not higher. It was proposed that 2,000 acres of growing area should be plowed out or left idle on a voluntary basis. In the end, they took only 688 acres out of production. This reduction in acreage had no effect on the contract market.

In January 1994 some movement started on the contract market. However, there emerged a market only for high alpha varieties at the following prices:

Variety (US\$/lb)	1994	1995	1996	1997	1998
High Alpha	1.20	1.25	1.30	1.33	1.40

These prices were difficult for growers to accept because the average production costs are higher. During March and April, limited interest was shown on the contract market in the

varieties **Fuggle** and **Tettnang** from **Oregon** as well as in **Washington Cluster**.

Activity was slight and the prices were as follows:

Variety (US\$/lb)	1994	1995	1996	1997	1998
OR Fuggle	-	2.45 - 2.69	2.50 - 2.74	2.55 - 2.79	-
OR Tettnang	-	2.69	2.74	2.79	2.84
WA Cluster	-	1.23	1.28	1.33	1.38
WA Tettnang	2.90	2.95	3.00	3.05	-

In June, July and in the first half of August there was practically no activity on the contract market.

In late August, a market developed at the following prices:

Variety (US\$/lb)	1994	1995	1996	1997
Willamette	-	-	-	2.15
Tettnang	-	-	2.90	-
Cascade	-	-	1.40	-
Cluster	-	-	1.40	-
High Alpha	1.20	1.25	1.30	1.35

Leaf and stem premiums are not included in these prices.

Once it was known that the German crop was smaller than had been expected, some movement was anticipated on the contract market, but this development did not take place.

Average producer prices for the US farmers during the last five years:

Year	US\$/lb
1990	1.40
1991	1.58
1992	1.66
1993	1.68
1994	1.72

The average price obtained for 1994 crop hops was \$0.04 per pound above the preceding year. This is misleading because only the **Tettnang**, **Willamette** and **Perle** varieties, which bring lower yields, were selling at higher prices. In fact, the average price declined for varieties with higher yields, such as **Cluster**, **Galena** and **Nugget**.

## CANADA

The 328 ha cultivated in British Columbia did not change in size from the previous year, but the crop size fell by 15.1 tons to 256.6 tons.

Heat, dryness and infestation by red spider mites affected both the quality and the yield. Hardest hit were the main aroma varieties **Bramling** and **Kent**, whereas the next most impor-

tant aroma variety, **Mount Hood**, produced good yields. Since 1994 the Canadian hop industry has devoted itself exclusively to growing aroma varieties.

## ASIA

### CHINA

#### Acreage and Production 1994

Area	Acreage ha	Ø-Yield to/ha	Production to
Xinjiang	4,200	2.50	10,500
Gansu	2,250	2.53	5,700
Ningxia	360	2.78	1,000
Others	110	2.73	300
<b>CHINA TOTAL</b>	<b>6,920</b>	<b>2.53</b>	<b>17,500</b>

The 1994 crop is estimated to have produced between 16,500 and 18,500 tons. Because of the increasing autonomy of the individual farms in growing and marketing their own products, it is still hard to obtain exact figures for the country's acreage and production.

The differences in average yields per hectare are probably due to the sources of the data rather than to the growing regions. Apparently it is true that the acreage is less than previously thought, whereas the average yield per hectare is considerably higher. The

main variety grown remains the **"Tsingdao Flower 641"**, covering over 90 % of the acreage. China harvested 4,000 tons more than in the previous year. Since the Chinese brewing industry almost exclusively uses hops cultivated domestically, they purchased most of the 1994 crop. 2,000 tons were exported. As of May 1995, 1,500 tons of the 1994 crop remained unsold. One may therefore conclude that despite the rapid growth of the brewing industry China has entered an overproduction phase.

## INDIA

In 1994, acreage is supposed to have expanded to 200 ha with a production of 131 tons. The variety grown is **Late Cluster**, a bitter variety from the USA.

The Indian brewing industry purchased the entire crop.

Cultivation was begun in the state of Himachal Pradesh (Northern India) in 1992. The hops are grown in the

Chamba, Karga, Kinnaur, Lahul and Spiti districts.

A harvest of 200 tons is expected for 1995.

## JAPAN

### Acreage and Production 1994

Brewing Group	Acreage ha	Ø-Yield to/ha	Production to
Kirin	333	1.85	616
Sapporo	167	2.17	362
Asahi	59	1.95	115
Suntory	6	1.83	11
<b>JAPAN TOTAL</b>	<b>565</b>	<b>1.95</b>	<b>1,104</b>

regions the heat caused aridness and crop failures. Nevertheless, the average yield per hectare climbed from 1.73 tons/ha the previous year to 1.95 tons/ha. The alpha acid values were affected, however, and fell to 6.0 - 6.5 % (previous year 8.0 - 8.5 %).

In 1994 the decline in acreage continued. The number of hop growers in Japan decreased by 113 to 1,023.

### Growth and Quality

In Iwate, the main hop-growing region, one of the last decade's hottest summers led to good growing conditions and in turn to above-average yields. In the Yamagata and Fukushima

### Market Development

The Japanese breweries paid 2,219 yen per kilo for first quality class hops. Second and third quality class hops were priced at 2,024 yen and 1,599 yen respectively per kilo.

## SOUTH KOREA

Hop cultivation in this country appears to be nearing an end. The remaining 17 ha produced a crop of 27.8 tons.

A further reduction in acreage is expected for 1995.

The domestic brewing industry purchased the crop.

## NORTH KOREA

Hops are grown in the North of the country in the Hyesan region. The aroma variety **Hallertau** is reportedly grown there.

## 1995 CROP

## AMERICA

## ARGENTINA

### Acreage and Production 1995

Area	Variety Group	Acreage ha	Ø-Yield to/ha	Production to
Bolsón	Cascade	300	1.00	300
	<b>Total Aroma/Bolsón</b>	<b>300</b>	<b>1.00</b>	<b>300</b>
Alto Valle	Cascade	26	1.15	30
	Ringwood	25	0.40	10
	<b>Total Aroma</b>	<b>51</b>	<b>0.78</b>	<b>40</b>
	Others	110	0.32	35
	<b>Total Alto Valle</b>	<b>161</b>	<b>0.47</b>	<b>75</b>
<b>ARGENTINA TOTAL</b>		<b>461</b>	<b>0.81</b>	<b>375</b>

smaller crop from an acreage unchanged in size from 1994 to 1995. The quality of the crop was judged to be satisfactory due to only slight pest infestation. The principal varieties grown were the aroma varieties **Cascade** and **Ringwood**.

The Argentinian crop covered the needs of the Argentinian brewing industry. Minor quantities are exported in the Mercosur Economic Area (Argentina, Brazil, Paraguay and Uruguay).

The yields in the Argentinian hop growing regions suffered from unusu-

ally cool weather conditions in November and December. This led to a 12 %

## AFRICA

## SOUTH AFRICA

With acreage reduced by 80 ha to 640 hectares, the crop amounted to 1,209 tons. Due to favorable weather conditions throughout the entire growing period, the 1995 average yield per hectare was slightly better than 1994.

A fire in a cold storage unit belonging to the South African Breweries Hop Farms destroyed 70 tons of hops during the harvest.

The primary variety cultivated is the bitter variety **Southern Brewer**.

Since the South African beer market is once again vigorous, a stable or only slightly reduced acreage is expected for the 1996 harvest.

South African Breweries and its international subsidiaries purchase almost all of the South African crop.

## ZIMBABWE

The total area under framework in Zimbabwe is 151 hectares. Because of the lack of sales potential, only 48 ha was strung by two growers for the 1995 crop. The domestic brewing industry bought all of the 48.4-ton production of the bitter variety **Southern Brewer**. Zimbabwe holds stocks of around 180 tons of domestic hops with a yearly demand of 75 tons.

For 1996 it is expected that only 35 ha will be strung.

## AUSTRALIA – OCEANIA

## AUSTRALIA

## Acreage and Production

Area	Variety	Development of Acreage			Development of Production			
		1995	+/-	1994	1995	1994	1995	1994
		Acreage ha			Ø-Yield to/ha		Production to	
Tasmania	<b>Aroma</b>	72	5	67	0.85	0.35	61.1	23.3
	Cluster	3	0	3	1.27	1.77	3.8	5.3
	Pride of Ringwood	425	-106	531	2.83	2.93	1,201.6	1,554.4
	<b>Total Bitter</b>	<b>428</b>	<b>-106</b>	<b>534</b>	<b>2.82</b>	<b>2.92</b>	<b>1,205.4</b>	<b>1,559.7</b>
	Nugget	71	16	55	1.69	1.68	119.9	92.4
	Other High Alpha	182	2	180	2.80	2.83	509.8	508.7
	<b>Total High Alpha</b>	<b>253</b>	<b>18</b>	<b>235</b>	<b>2.49</b>	<b>2.56</b>	<b>629.7</b>	<b>601.1</b>
	<b>Total Tasmania</b>	<b>753</b>	<b>-83</b>	<b>836</b>	<b>2.52</b>	<b>2.61</b>	<b>1,896.2</b>	<b>2,184.1</b>
Victoria	Cluster	13	-6	19	2.18	1.37	28.4	26.0
	Pride of Ringwood	196	-42	238	1.93	1.76	378.3	417.9
	<b>Total Bitter</b>	<b>209</b>	<b>-48</b>	<b>257</b>	<b>1.95</b>	<b>1.73</b>	<b>406.7</b>	<b>443.9</b>
	<b>High Alpha</b>	<b>92</b>	<b>54</b>	<b>38</b>	<b>2.78</b>	<b>2.08</b>	<b>255.6</b>	<b>79.0</b>
	<b>Total Victoria</b>	<b>301</b>	<b>6</b>	<b>295</b>	<b>2.20</b>	<b>1.77</b>	<b>662.3</b>	<b>522.9</b>
<b>Total Aroma</b>	<b>72</b>	<b>5</b>	<b>67</b>	<b>0.85</b>	<b>0.35</b>	<b>61.1</b>	<b>23.3</b>	
<b>Total Bitter</b>	<b>637</b>	<b>-154</b>	<b>791</b>	<b>2.53</b>	<b>2.53</b>	<b>1,612.1</b>	<b>2,003.6</b>	
<b>Total High Alpha</b>	<b>345</b>	<b>72</b>	<b>273</b>	<b>2.57</b>	<b>2.49</b>	<b>885.3</b>	<b>680.1</b>	
<b>AUSTRALIA TOTAL</b>	<b>1,054</b>	<b>-77</b>	<b>1,131</b>	<b>2.43</b>	<b>2.39</b>	<b>2,558.5</b>	<b>2,707.0</b>	

In Victoria as well as Northeast and Northwest Tasmania the beginning of growth was accelerated by a dry winter. However, the growing season was characterized by hot and cold weather fluctuations until mid-January. Everything pointed to an average crop. In the end, a satisfactory crop

was possible due to ample precipitation and excellent growing conditions. The harvest began in early March and was over by early April.

It is evident that the cultivation of bitter varieties, particularly **Pride of Ringwood**, has decreased in favor of high alpha varieties. Three high al-

pha varieties are being grown: **Nugget**, **Opal** (E4) as well as **Victoria** (T6).

The alpha values in Tasmania are approx. 11 % for **Pride of Ringwood**, whereas Victoria achieved only 9 %.

The high alpha varieties had alpha values of between 12 % and 14 % in both growing regions.

# NEW ZEALAND

## Production 1995

Variety	1995 to	1994 to
NZ Super Alpha	252.1	255.3
NZ Sticklebract	50.4	50.6
NZ Green Bullet	100.0	93.2
NZ Pacific Gem	205.9	204.7
NZ Hallertau Aroma	146.5	160.9
NZ Southern Cross	1.6	0.8
<b>NEW ZEALAND TOTAL</b>	<b>756.5</b>	<b>765.5</b>

### Growth and Quality

The beginning of the 1995 crop's growth was delayed due to a cool, wet spring. The summer, which began in November, was hot and dry. No further precipitation was reported until the end of January. The dryness did

little damage to the hops, since irrigation facilities are available in New Zealand. The hop harvest began in March and ended by the end of April. At 355 ha, the area under cultivation showed a marginal increase. A production of 756.5 tons means a 2 % de-

crease in comparison to the previous year. The alpha acid content for the high alpha varieties was between 13 % and 15 % and for the Hallertau Aroma variety approx. 8.5 %.

Improvements in the harvesting machinery improved the picking quality. The leaf and stem content sank to below 1 %.

### Market Development

The largest part of the 1995 crop has already been sold to local and foreign brewers by forward contract. Small quantities were still available for export and sale on the spot market in the spring.

## PLANT DEVELOPMENT 1995

### Europe

A relatively mild winter with little snowfall in the main hop-growing areas was followed by a wet and equally mild spring. The months of January through to April brought mostly above-average high rainfall. However, spring work was completed without major obstacles. At the time of this report going to press in mid-June, the hops showed normal growth development. There were no reports of extraordinary pest or disease infestation in any of the hop areas. There is a satisfactory range of pesticides available for German hops earmarked for export to the USA.

### USA

Winter began in mid-October 1994 with above-average heavy snowfall in the mountain regions which mainly supply the water for the hop-growing areas. Snowfall remained above-average in November and December, increasing the snow cover and thus considerably improving the irrigation prospects for 1995. In mid-January, the temperatures began to rise with low levels of precipitation until the end of the month, which led to a slight decrease in the snow cover. In February, the temperature rose further, causing a significant loss of snow cover. Some of the resulting meltwater filled the

reservoirs required for irrigation in the summer. Water should not be a problem during the 1995 vegetation period, unless the weather becomes unnaturally hot and dry.

Spring work was completed without any problems in all the states. Severe powdery mildew infection, mainly in the Cascade and Nugget varieties in Willamette Valley in Oregon, was the only notable case of infection up to mid-June.

## OUTLOOK 1995

A positive finding from study of the 1994 harvest is that world acreage adapted itself more rapidly than anticipated to falling alpha demand on the part of the brewers.

A further reduction of at least 1,000 - 1,500 ha is expected for 1995. As the

majority of hop-producing countries are in the process of changing over to higher-yielding varieties with higher alpha acid content, there is still a basis for sufficient supply of the world market. The reduction in acreage in the last two years should con-

tribute, however, to stabilizing prices on the market at present levels. This would mean that the market will continue to allow only particularly cost-effective hop-growing businesses to operate with any degree of profitability.

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

# BEER PRODUCTION IN LITRES PER CAPITA

Europe			America			Africa			Far East		
	1994	1986		1994	1986		1994	1986		1994	1986
Ireland	203	155	USA	93	96	Seychelles	83	63	Japan	58	40
Denmark	182	155	Canada	83	88	Gabun	79	94	South Korea	39	19
Czech Republic	176	–	Venezuela	76	61	South Africa	58	43	Hong Kong	29	23
Belgium	148	147	Colombia	62	56	Namibia	38	31	Singapore	25	15
Netherlands	146	122	San Lucia	61	32	Swaziland	32	26	Taiwan	23	18
Germany	146	153	Mexico	53	36	Botswana	31	17	Philippines	23	15
Luxemburg	135	172	Panama	48	41	Mauritius	31	19	China	12	3
Austria	127	115	Barbados*	46	20	Reunion Island	31	17	Thailand	9	2
Slovenia	105	–	Bahamas*	42	–	Cameroon	27	51	Malaysia	5	4
Great Britain	95	111	Brazil	41	33	Sao Tomé	25	–	Vietnam	5	3
Slovak Republic	84	–	St. Kitts	40	33	Burundi	23	14	North Korea*	4	5
Finland	83	67	Paraguay	39	35	Lesotho	19	12	Mongolia*	4	6
Hungary	80	83	Costa Rica	38	24	Congo	12	51	Laos*	2	–
Portugal	67	38	Belize	35	13	Zimbabwe	11	15	Nepal*	1	–
Croatia	65	–	Grenada	35	18	Kenya	11	14	Indonesia	1	–
Spain	64	61	Peru	34	29	Cape Verde Islands	10	–	Sri Lanka	1	–
Sweden	62	47	Argentina	34	15	Central African Rep.	9	12			
Bulgaria	57	61	Jamaica	32	26	Zambia	8	11			
Switzerland	56	64	Surinam*	30	36	Togo	8	14			
Norway	51	49	Chili	30	16	Tunesia	7	6			
Malta	51	29	Dominican Rep.	29	18	Rwanda	7	14			
Cyprus	50	36	Trinidad	28	17	Benin	7	9			
Yugoslavia	44	–	Uruguay	27	16	Nigeria	5	11			
Romania	44	50	Bolivia	27	10	Ivory Coast	5	14			
Greece	41	30	St. Vincent	26	5	Eritrea	5	–			
Poland	36	29	Antigua	21	–	Ghana	4	1			
Lithuania	36	–	Cuba*	18	26	Algeria	4	3			
Estonia	31	–	Honduras	18	13	Burkina Faso	3	8			
France	31	38	Ecuador	17	27	Malawi*	3	2			
Latvia*	28	–	Puerto Rico	17	6	Liberia	3	5			
Iceland	27	17	Martinique	17	18	Guinea Bissau	3	3			
Italy	21	18	El Salvador	15	12	Zaire	2	10			
Ukraine (C.I.S.)	17	–	Guyana*	14	–	Gambia	2	1			
Fed. of Russia (C.I.S.)	15	–	Nicaragua	13	17	Morocco	2	2			
Belorus (C.I.S.)	14	–	Guatemala	12	8	Chad	2	3			
Turkey	10	5	Guadeloupe	8	9	Ethiopia	2	2			
Other C.I.S.-countries*	8	–	Haiti	2	–	Madagascar	2	3			
Kazakhstan (C.I.S.)*	8	–				Tanzania	2	4			
Albania	2	4				Senegal	2	3			
						Uganda	2	1			
						Guinea	2	–			
						Angola	1	8			
						Niger	1	2			
						Mozambique	1	2			
						Sierra Leone	1	2			
						Egypt	1	1			
						Mali	1	1			

\* estimated

Please note that beer production does not necessarily correspond to actual beer consumption in a country. This is only the case in the large, populous countries. In Ireland, for example, per-capita production is 203 litres, whereas actual per-capita consumption is only 131 litres.

The population figures are taken from: FISCHER WELTALMANACH, 28th edition (1987) and 36th edition (1995).