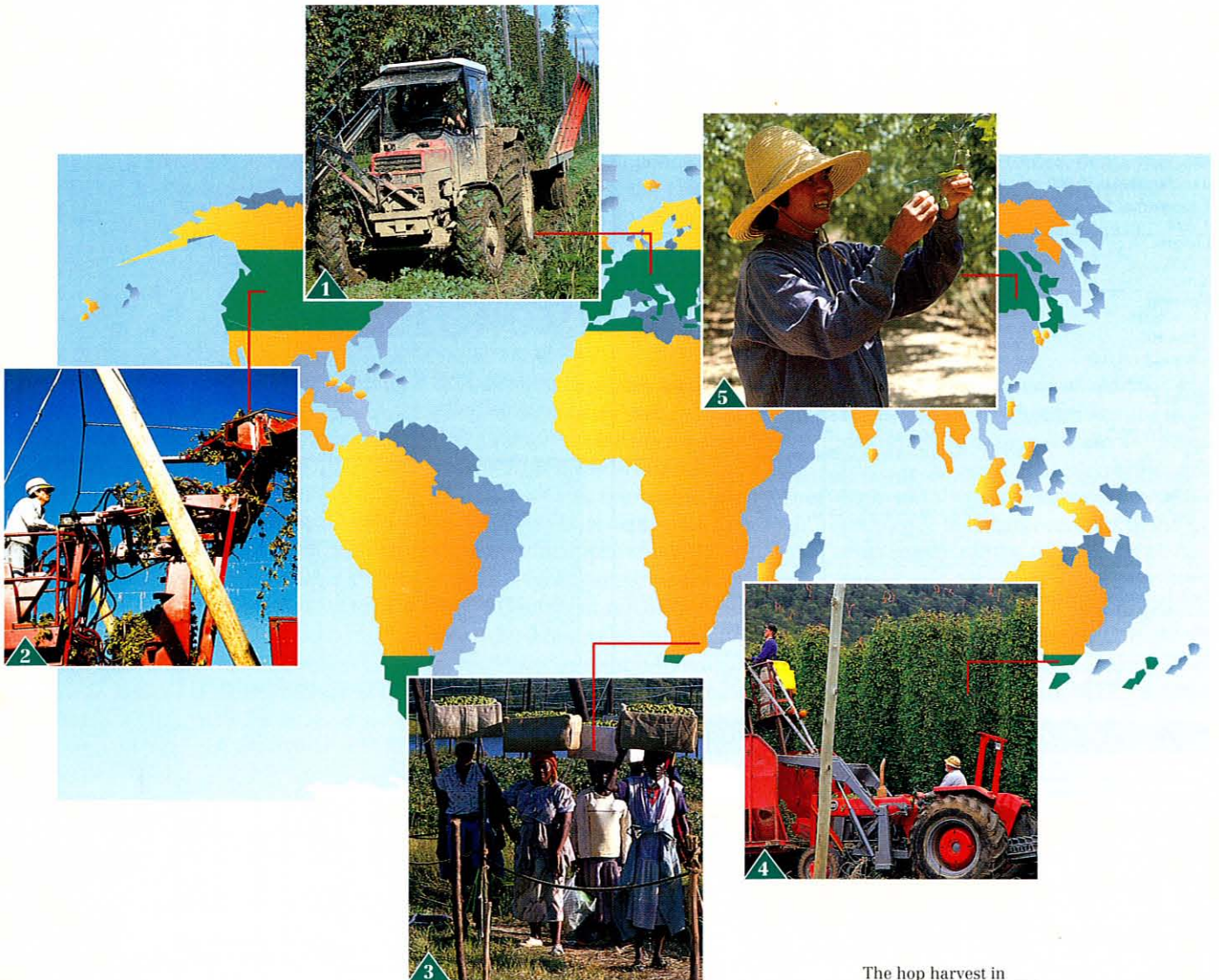


# THE BARTH REPORT

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## HOPS 1996/97



The hop harvest in

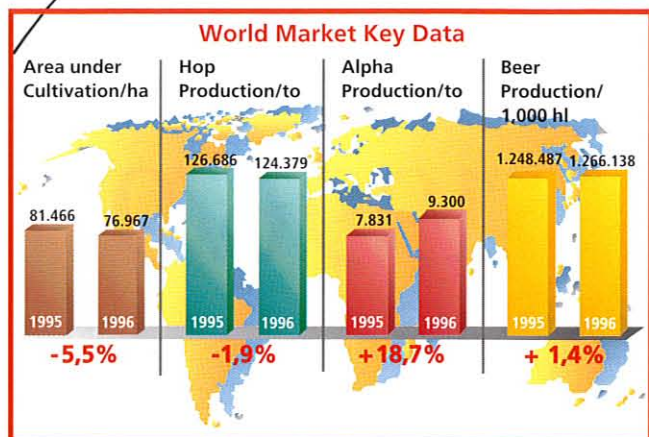
- 1 Germany
- 2 USA
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- 5 China

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) = 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 = 45.359 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

**Temperatures:**  
 from Fahrenheit into Celsius      from Celsius into Fahrenheit  
 $86^{\circ}\text{F} = \frac{(86 - 32) \times 5}{9} = 30^{\circ}\text{C}$        $30^{\circ}\text{C} = \frac{30 \times 9}{5} + 32 = 86^{\circ}\text{F}$

**Pressure:**  
 1 bar = 14.5038 psi      1 psi = 0.06895 bar

### Currency Exchange Rates

Conversion in DM as of May 31st

Düsseldorf Foreign Exchange Market	Buy 1996	Spot Market 1997	Sell 1996	1997
USA <sup>1)</sup>	1.530	1.696	1.538	1.704
Great Britain <sup>1)</sup>	2.354	2.780	2.368	2.794
Canada <sup>1)</sup>	1.114	1.225	1.122	1.233
Netherlands	89.233	88.779	89.453	88.999
Switzerland	121.670	120.380	121.870	120.580
Belgium	4.856	4.834	4.876	4.854
France	29.483	29.527	29.603	29.647
Denmark	25.835	26.200	25.955	26.320
Norway	23.335	23.909	23.455	24.029
Sweden	22.650	22.025	22.770	22.145
Italy <sup>2)</sup>	0.986	1.003	0.994	1.011
Austria	14.192	14.188	14.232	14.228
Spain	1.186	1.178	1.194	1.186
Portugal	0.969	0.985	0.975	0.991
Japan	1.414	1.460	1.417	1.463
Finland	32.330	33.110	32.490	33.270
Ireland	2.414	2.564	2.428	2.578

### Free Market Exchange Rates

Australia <sup>1)</sup>	1.226	1.288	1.234	1.296
Mexico	20.450	21.400	21.250	21.540
New Zealand <sup>1)</sup>	1.048	1.174	1.052	1.178
Poland	57.130	53.400	57.430	53.710
Czech Republic	5.523	5.244	5.538	5.256

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

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Nuremberg, July 1997

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## POLITICAL SITUATION

The new world order everyone had hoped for after the collapse of communism in Eastern Europe still failed to materialise in 1996/97. The forces of globalisation on the one side were confronted with national, regional and local conflicts on the other.

In what was formerly Yugoslavia, the presence of NATO troops prevented further military conflict, but crass ethnic differences presented an obstacle to genuine pacification. In Albania, conditions similar to civil war required a peace-keeping force of 6,000 men to be deployed by the United Nations.

In the Caucasian region, Russia and Chechnya took a decisive step towards ending their conflict by signing a peace treaty. In May 1997, the Russian president Boris Yeltsin signed a treaty in Paris tolerating the eastwards expansion of NATO.

In the USA, the incumbent president Bill Clinton was reelected for a second term in office in November 1996.

The general election in the UK in May 1997 handed government to the Labour Party led by Tony Blair. A more pro-European policy is expected of them. In France, the elections were brought forward to May/June 1997

and ended in a change of government, bringing to power a left-wing coalition led by the Socialist Party.

After a seven-month civil war in Zaire, rebel leader Laurent Kabila succeeded in ending the long reign of President Mobutu and taking power in Africa's largest state. His first official act was to rename the country "Democratic Republic of Congo".

In the Middle East, tensions between Israel and the Palestinians have seriously escalated since the conservative coalition under Benjamin Netanyahu took over in government.

## ECONOMIC SITUATION

Due mainly to the good, stable state of the business cycle in the USA, the world economic climate has been favourable. Worldwide growth of gross national product in 1996 was 3.1%. In view of improved fiscal discipline among the leading industrial nations, expectations are positive for further continuation of growth with low inflation and moderate interest rates.

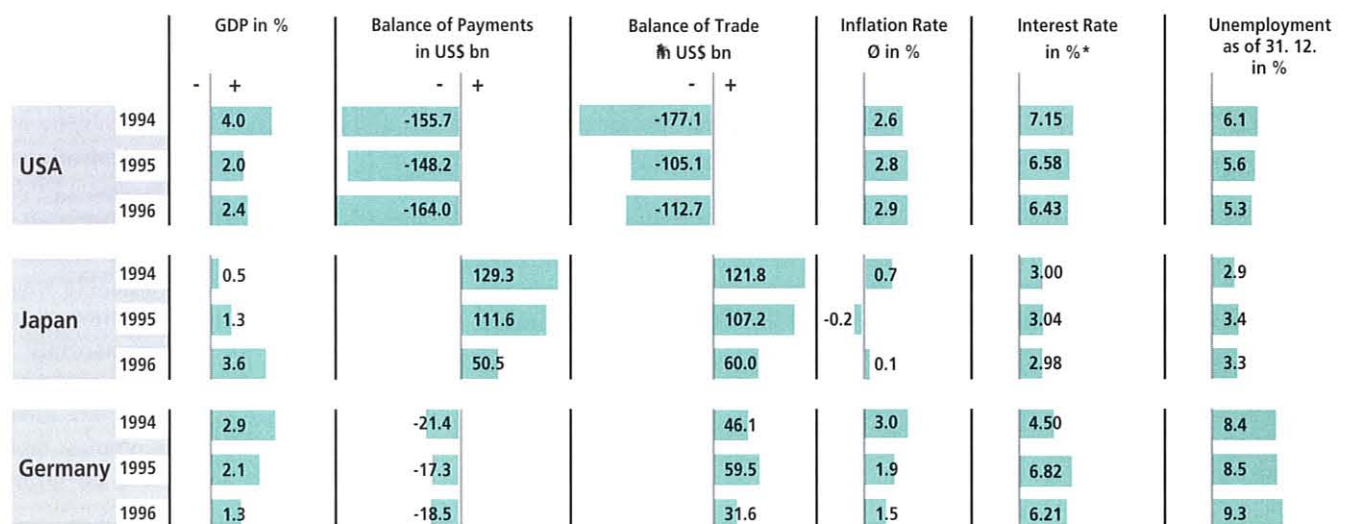
As in previous years, the economies of South East Asia and South America were among the world's most important growth markets, but the countries

of Eastern Europe also made progress. Positive tendencies were evident even in a number of African countries.

The situation in western continental Europe was less favourable, especially in France and Germany with their high structural unemployment and sluggish growth. The "reforms" in economic policy so far are not remotely sufficient to alter the inflexibility of their institutions. Plans for reform in both of these key countries of the EU are confounded by political realities. This ignores the fact that in view of the globalisation of

markets the efficiency of national economies alone is what counts and difficult times are approaching for countries with large bureaucracies and high social costs. Regardless of these problems, the main countries of the EU continue to adhere to the start of Economic and Monetary Union, as planned, on 01.01.1999. It is indisputable that the planned introduction of the euro and the Maastricht criteria have proved to be a good source of discipline in economic policy.

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



\* Interest rate: public bonds (10-year term)  
(Change of practice from last year's report to provide better comparison of the three countries)

# WORLD BEER PRODUCTION 1995/96

Figures in 1,000 hl

## Europe

Country	1995	1996
Germany	117,014	114,237
Great Britain	58,849	58,448
Spain	25,313	24,716
Netherlands	23,118	23,494
France	18,311	20,441
Fed. of Russia (CIS)	17,760	20,100
Czech Republic	17,839	18,242
Poland	15,158	16,528
Belgium	14,508	14,180
Italy	11,990	11,117
Denmark	10,058	9,591
Austria	9,662	9,547
Romania	8,558	8,235
Ireland	7,402	7,763
Turkey	6,946	7,382
Hungary	7,806	7,259
Portugal	6,928	6,713
Yugoslavia	5,448	5,987
Ukraine (CIS)	5,750	5,500
Sweden	5,309	4,805
Slovak Republic	4,399	4,700
Finland	4,823	4,670
Bulgaria	4,737	4,268
Greece	4,085	3,885
Switzerland	3,763	3,596
Croatia	3,167	3,292
Norway	2,256	2,230
Slovenia	2,100	2,150
Belorus (CIS)	1,500	1,400*
Lithuania	1,080	1,125
Latvia	613	646
Macedonia	620	622
Uzbekistan (CIS)	600*	600
Luxemburg	518	484
Bosnia-Herzegovina	180	480
Estonia	481	452
Cyprus	340	320
Other CIS-countries <sup>1)</sup>	500*	300*
Kazakhstan (CIS)	830	250
Georgia (CIS)	90	200
Malta	160	156
Albania	109	110*
Iceland	52	54
Armenia (CIS) <sup>2)</sup>		37
Azerbaijan (CIS)	15	8
<b>Total</b>	<b>430,745</b>	<b>430,320</b>

## Australia/Oceania

Country	1995	1996
Australia	17,876	17,424
New Zealand	3,551	3,434
Papua-New Guinea	397	375
Fiji Islands	156	160
Tahiti	140	154
New Caledonia	110	112
Samoa	52	58
Solomon Islands	22	28
Tonga	6	8
Vanuatu	5	6
<b>Total</b>	<b>22,315</b>	<b>21,759</b>

## America

Country	1995	1996
USA	233,742	234,800
Brazil	84,000	88,540
Mexico	44,487	47,179
Canada	22,824	22,517
Colombia	17,800	18,500
Venezuela	15,876	15,000
Argentina	10,423	11,523
Peru	8,560	8,500
Chile	4,120	3,879
Ecuador	2,500	2,600
Dominican Republic	2,229	2,200
Bolivia	1,571	1,705
Paraguay	1,895	1,591
Cuba	1,163	1,500
Panama	1,080	1,229
Costa Rica	1,155	1,200
Guatemala	1,000	1,000
Honduras	1,022	973
Uruguay	866	780
Jamaica	662	690
El Salvador	748	687
Puerto Rico	392	357
Nicaragua	280	350
Trinidad	332	334
Dutch Islands	140	136
Bahamas	138	135
Barbados	75*	130
Guyana	120*	129
Haiti	136	120
Surinam	66	80
St. Lucia	85*	78
Martinique	60*	65*
Belize	40	50
Grenada	25*	37
St. Vincent	30	32
Antigua	17	21
St. Kitts	17*	18
Dominica	2	17
<b>Total</b>	<b>459,678</b>	<b>468,682</b>

## Asia

Country	1995	1996
China	154,600	163,176
Japan	67,235	67,903
South Korea	17,554	16,827
Philippines	13,990	13,210
Thailand	6,574	7,841
Vietnam	5,020	5,770*
Taiwan	4,322	3,756
India	4,293*	3,700*
Indonesia	1,785	1,678
Hong Kong	1,750*	1,233
Singapore	1,057	1,026
Malaysia	942	964
Israel	700	700*
Nepal	330*	350*
Laos	151	240
Sri Lanka	132	239
Jordan	180	180*
Lebanon	90	180
Cambodia	125	150
Syria	120	120
Mongolia	100*	100*
Myanmar (Burma)	60*	60*
Iraq	50*	50*
Pakistan	12	19
North Korea <sup>3)</sup>	0*	0*
<b>Total</b>	<b>281,172</b>	<b>289,472</b>

## Africa

Country	1995	1996
South Africa	24,500	24,812
Nigeria	4,500	4,200
Cameroon	3,244	3,000
Kenya	3,200	2,700
Zaire	1,679	1,510
Zimbabwe	1,071	1,400
Tanzania	750	1,377
Ivory Coast	1,077	1,300
Burundi	1,726	1,204
Ethiopia	954	998
Ghana	759	876
Gabon	820	850
Malawi	851	758
Namibia	628	750
Morocco	620	700
Angola	312	687
Tunesia	672	650
Zambia	500	628
Uganda	555	623
Ruanda	529	597
Algeria	450	500
Burkina Faso (Upper Volta)	362	500
Congo	478	471
Egypt	550	400
Benin	322	400
Botswana	397	400
Lesotho	389	400
Mozambique	244	393
Madagaskar	319	348
Mauritius	333	346
Togo	269	320
Swaziland	318	300
Eritrea	221	250
Réunion	209	224
Central African Republic	27	200
Senegal	142	150
Chad	93	112
Guinea	80	105
Mali	54	100
Niger	80	100
Seychelles	61	63
Liberia	62	55
Cape Verde Islands	60	54
Sierra Leone	38	51
Guinea Bissau	24	25*
Gambia	13	18
Sao Tomé	35	0
<b>Total</b>	<b>54,577</b>	<b>55,905</b>

1) Kyrgystan, Moldova, Tajikistan, Turkmenistan (although belonging mainly to Asia geographically, the entire CIS will be listed under Europe for the time being for reasons of comparability)

2) 1995 included in "other CIS-countries"

3) No figures available, reports of famine suggest no effective hop growing

\* estimate

*In italics:* corrections for 1995 as stated in last year's report; these figures became available after going to press

**WORLD TOTAL**

1995	1996
<b>1,248,487</b>	<b>1,266,138</b>

# OUTPUT DEVELOPMENT

Beer production in the different continents developed as follows:

	1995 1,000 hl	1996 1,000 hl	1996 +/- 1,000 hl	1996 +/- % rel.	1995 +/- % rel.
European Union	317,888	314,091	-3,797	-1.2%	6.5%
Rest of Europe	112,857	116,229	3,372	3.0%	-17.5%
<b>Europe total</b>	<b>430,745</b>	<b>430,320</b>	<b>-425</b>	<b>-0.1%</b>	<b>-1.0%</b>
North America	256,566	257,317	751	0.3%	-1.3%
Centr. America/Caribbean	55,315	58,538	3,223	5.8%	-1.9%
South America	147,797	152,827	5,030	3.4%	20.6%
<b>America total</b>	<b>459,678</b>	<b>468,682</b>	<b>9,004</b>	<b>2.0%</b>	<b>4.7%</b>
<b>Africa</b>	<b>54,577</b>	<b>55,905</b>	<b>1,328</b>	<b>2.4%</b>	<b>6.3%</b>
<b>Asia</b>	<b>281,172</b>	<b>289,472</b>	<b>8,300</b>	<b>3.0%</b>	<b>5.4%</b>
<b>Australia/Oceania</b>	<b>22,315</b>	<b>21,759</b>	<b>-556</b>	<b>-2.5%</b>	<b>1.6%</b>
<b>WORLD TOTAL</b>	<b>1,248,487</b>	<b>1,266,138</b>	<b>17,651</b>	<b>1.4%</b>	<b>2.8%</b>

Growth in world beer production slowed in 1996. This applies above all to South America, where double-digit growth had been registered in 1995, and to Asia.

The highest growth rates last year were recorded in Central America and the Caribbean, whereas stagnation continued in Europe and North America.

## MARKET ANALYSIS

The 1996 crop was characterised to a great extent by overproduction worldwide. In Europe in particular, production was well above the average, in terms of both quantity and brewing value, for the first time since 1993. In spite of stockpiling, the international brewing industry was not able to absorb this largest volume of alpha acids ever produced. This led to a sharp fall in prices accompanied by marketing difficulties for spot hops. This unfavourable outcome for the growers is the consequence of the bitter struggle for market share in world hop production which has been going on for many years. Germany and the USA, the main producer countries, are pitted against each other as predatory competitors.

The 1996 crop marked the first year to be decisively influenced by the variety conversion programmes carried out by both these countries in the past. In view of the fact that the alpha race in Germany and the USA is, if anything, accelerating and thus forcing other producer countries to follow, there is danger of a considerable volume of spot hops becoming unmarketable at any price in the near future.

German hop growers succeeded in regaining significant market share with the 1996 crop (31.8% of world hop volume and 32.5% of alpha volume) on price. For the first time in

many years, German high-alpha hops (in kg alpha) were being offered at the same price as or cheaper than US high-alpha hops. Sales of this crop showed that, at the same price level, preference was given to German hops, at least in their traditional markets, over American hops.

Despite the fall in their share of the world market, growers in the USA recorded an increase in alpha production over the previous year. Moreover, their relatively high contract rate (90%) ensured that the fall in spot prices, particularly for high-alpha hops, did not seriously affect growers' incomes.

In international terms, the tendency among the buyers, i.e. the brewing industry, is towards lower hopping rates. The factors decisively influencing hop consumption are:

- the use of new alpha-rich varieties to save costs
- the increasing use of hop-saving downstream products

- the disproportionately high growth in beer markets in the Emerging Markets whose consumers prefer lightly hopped lager beers.

For economic or other internal reasons, fewer and fewer breweries see themselves in a position to take advantage of the opportunity to raise the quality of their beer by means of finest aroma hops.

Furthermore, the growing tendency among breweries to renounce the contract system in favour of the spot market due to shorter life cycles of beer brands is giving many hop growers increasing cause for concern.

A process of change to new, higher-yield, higher-alpha hop varieties can be observed in the world hop industry. This process requires an adaptation of hop acreage. If this does not happen as a result of the growers' common sense, it will be forced upon them by price development.

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

Country	1997	1998	1999	2000	2001
Germany	68	62	50	36	21
USA	89	80	57	47	15
Czech Republic	69	50	30	20	15
England	61	55	49	41	27
Slovenia	70	45	30	30	< 10

# HOP ACREAGE AND PRODUCTION 1995/96

		1995			1996		
		Acreage ha	Ø-Yield to/ha	Production to	Acreage ha	Ø-Yield to/ha	Production to
Germany	Hallertau	17,873	1.62	28,921.7	17,837	1.88	33,499.2
	Tettwang	1,611	1.21	1,941.9	1,653	1.46	2,406.5
	Elbe-Saale	1,607	1.38	2,225.4	1,551	1.53	2,374.7
	Spalt	667	1.31	873.8	646	1.62	1,045.4
	Hersbruck	110	1.20	131.7	109	1.40	152.3
	Baden/Rhine-P./Bitb.	17	1.55	26.4	17	1.95	33.1
	<b>Total</b>	<b>21,885</b>	<b>1.56</b>	<b>34,120.9</b>	<b>21,813</b>	<b>1.81</b>	<b>39,511.2</b>
England		3,094	1.32	4,078.1	3,112	1.65	5,145.5
Spain		1,105	1.56	1,724.5	915	1.30	1,190.2
France		670	1.65	1,108.4	711	1.61	1,144.7
Belgium		374	1.61	603.5	341	1.71	583.8
Austria		233	1.44	335.0	246	1.38	339.5
Portugal		112	1.14	128.0	121	1.38	167.2
Ireland		6	1.72	10.3	6	1.38	8.3
<b>EUROPEAN UNION</b>		<b>27,479</b>	<b>1.53</b>	<b>42,108.7</b>	<b>27,265</b>	<b>1.76</b>	<b>48,090.4</b>
Czech Republic	Zatec (Saaz)	7,307	0.94	6,879.0	6,936	1.02	7,089.0
	Ustek (Auscha)	1,660	1.05	1,742.0	1,441	1.30	1,876.6
	Tršice (Tirschtitz)	1,107	1.16	1,289.0	978	1.19	1,160.3
	<b>Total</b>	<b>10,074</b>	<b>0.98</b>	<b>9,910.0</b>	<b>9,355</b>	<b>1.08</b>	<b>10,125.9</b>
Ukraine		4,330	0.59	2,565.0	3,545	0.41	1,453.5
Federation of Russia <sup>1)</sup>		2,800*	0.89	2,500.0*	2,700*	0.69	1,850.0*
Poland		2,401	1.36	3,264.5	2,480	1.37	3,400.0
Slovenia		2,370	1.67	3,967.4	2,226	1.60	3,556.0
Romania		1,927	0.95	1,839.0	1,597	0.94	1,500.0*
Slovak Republic		1,100	0.94	1,035.0	1,082	0.76	824.0
Yugoslavia (Serbia/Montenegro)		615	1.31	808.3	584	1.14	667.8
Bulgaria		460	0.78	360.0	505	0.82	414.5
Turkey		334	0.90	300.0	334	0.91	304.0
Switzerland		21	2.28	47.9	22	2.40	52.8
Hungary		17	2.16	36.8	20	2.29	45.7
<b>REST OF EUROPE</b>		<b>26,449</b>	<b>1.01</b>	<b>26,633.9</b>	<b>24,450</b>	<b>0.99</b>	<b>24,194.2</b>
<b>EUROPE</b>		<b>53,928</b>	<b>1.27</b>	<b>68,742.6</b>	<b>51,715</b>	<b>1.40</b>	<b>72,284.6</b>
USA	Washington	12,401	2.16	26,808.2	12,829	2.04	26,145.3
	Oregon	3,498	1.79	6,251.8	3,436	1.55	5,322.7
	Idaho	1,591	1.70	2,707.5	1,619	1.57	2,538.3
	<b>Total</b>	<b>17,490</b>	<b>2.05</b>	<b>35,767.5</b>	<b>17,884</b>	<b>1.90</b>	<b>34,006.3</b>
Argentina		461	0.81	375.0	262	0.94	246.7
Canada		220	0.75	165.0	146	0.93	136.0
<b>AMERICA</b>		<b>18,171</b>	<b>2.00</b>	<b>36,307.5</b>	<b>18,292</b>	<b>1.88</b>	<b>34,389.0</b>
South Africa		640	1.89	1,209.0	656	1.54	1,007.9
Zimbabwe		48	1.01	48.4	35	1.20	42.0
<b>AFRICA</b>		<b>688</b>	<b>1.83</b>	<b>1,257.4</b>	<b>691</b>	<b>1.52</b>	<b>1,049.9</b>
China		6,550*	2.44	16,005.0*	4,400*	2.73	12,000.0*
Japan		520	1.84	955.5	433	1.99	861.9
India		195	0.48	94.0	65	0.54	35.0
South Korea		5	1.84	9.2	3	1.67	5.0
North Korea <sup>2)</sup>		0*	0.00	0.0*	0*	0.00	0.0*
<b>ASIA</b>		<b>7,270</b>	<b>2.35</b>	<b>17,063.7</b>	<b>4,901</b>	<b>2.63</b>	<b>12,901.9</b>
Australia		1,054	2.43	2,558.5	1,014	2.88	2,919.9
New Zealand		355	2.13	756.5	354	2.35	833.4
<b>AUSTRALIA/OCEANIA</b>		<b>1,409</b>	<b>2.35</b>	<b>3,315.0</b>	<b>1,368</b>	<b>2.74</b>	<b>3,753.3</b>
<b>WORLD</b>		<b>81,466</b>	<b>1.56</b>	<b>126,686.2</b>	<b>76,967</b>	<b>1.62</b>	<b>124,378.7</b>

1) including scattered hop farming

2) No figures available, reports of famine suggest no effective hop growing

\*) estimate

In italics: corrections for 1995 as stated in last year's report; these figures became available after going to press

# ALPHA ACID PRODUCTION

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

- Group A:** Finest aroma hops, such as: Saaz, Tett nang, Spalt
- Group B:** Aroma hops, such as: Hallertau, Hersbruck, Perle, Spalt Select, Hallertau Tradition, Golding, aroma hops from USA, England, etc.
- Group C:** Hops without significance for the world market (both aroma and bitter)
- Group D:** Bitter hops, such as Northern Brewer, Brewers 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 1996 compared with the previous year was as follows:

Group	1995					1996				
	Crop Share	Crop to	Alpha Ø	Alpha to	Alpha Share	Crop Share	Crop to	Alpha Ø	Alpha to	Alpha Share
A	10.6%	13,462	2.9%	390	5.0%	11.3%	13,999	4.0%	560	6.0%
B	29.7%	37,653	3.8%	1,431	18.3%	32.3%	40,146	5.6%	2,248	24.2%
C	25.4%	32,165	6.0%	1,930	24.6%	20.0%	24,963	6.6%	1,648	17.7%
D	34.3%	43,406	9.4%	4,080	52.1%	36.4%	45,271	10.7%	4,844	52.1%
<b>Total</b>	<b>100.0%</b>	<b>126,686</b>	<b>6.2%</b>	<b>7,831</b>	<b>100.0%</b>	<b>100.0%</b>	<b>124,379</b>	<b>7.5%</b>	<b>9,300</b>	<b>100.0%</b>

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

The amended figures for 1995 are due to data received after going to press with last year's report and to North Korea's discontinuation.

In spite of falling 1.9% in volume in comparison with the previous year, the 1996 crop produced an increase in world alpha production of 18.7%. This reveals the central problem of world hop growing. By comparison with the record year 1993, world acreage decreased from 89,124 ha to 76,967 ha. However, although this acreage was 13.7% smaller, the volume of alpha acid produced was in fact 2.7% greater than in 1993.

The restructuring carried out in the main producer countries of Germany and the USA towards varieties with higher alpha content and yield is out of step with the absorption capacity of the international brewing industry.

For the first time since 1985, Germany overtook the USA as the world's leading alpha supplier (32.5% : 32.4%). Meanwhile, the two countries combined account for 64.9% of world alpha production (previous year: 60.4%).

The sharp fall in the share of variety group C from 24.6% to 17.7% reflects the superiority of the German and American growers in terms of production techniques, which will make it hard for many producer countries to survive in the future.

In group D, the USA's share fell from 60.5% to 53.5%, while Germany was able to raise its share from 24.4% to 33.1%.

## ALPHA ACID BALANCE

Calendar year	Alpha demand		Alpha production		Alpha supply	
	Hopping rate	Demand	Crop year	Production	Surplus	Deficit
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	8,015.2 to α	1993	9,099.0 to α	1,083.8 to α	--
1995	6.3 g α/hl	7,865.5 to α	1994	6,907.0 to α	--	958.5 to α
1996	6.2 g α/hl	7,850.1 to α	1995	7,831.0 to α	--	19.1 to α
1997*	6.1 g α/hl	7,839.3 to α	1996	9,300.0 to α	1,460.7 to α	--

\* Estimated demand

The 1996 crop produced a record volume of alpha acid which the international brewing industry was not able to absorb completely. However, this was the first time that a surplus of 1,460 to (18.6% of demand) was

produced. As hopping rates are still falling and substantial quantities of spot hops from the 1996 crop were marketed to the brewing industry only for stockpiling, the 1997 crop is already at a disadvantage. The decline

in future contracts compared with previous years (see page 5) gives an indication of sales difficulties to come, particularly in the European hop-producing regions.

# EUROPEAN UNION

## Producer Subsidies 1995

Producer subsidies for the 1995 crop were allocated as follows:

Variety group	Subsidy per ha
Aroma hops	444 ECU = 860 DM
Bitter hops	416 ECU = 808 DM
Other + experimental hops	298 ECU = 579 DM

## Reform of the Hop Market Order

The 1996 crop was still governed by the compromise solution for marketing German hops (Directive (EC) No. 3124/92 of 26.10.92). The official proposal of the EU Commission for an order to amend directive (EEC) No. 1696/71 governing the common market organisation for hops was presented on 9 April 1997. The final wording of the law governing the hop market order is expected before the 1997 harvest.

The central points of the proposal are as follows:

- The existing marketing concept has been almost entirely integrated. Those growers' associations which do not market the entire production of their members are thereby obligated to withhold 20% of the producer subsidies for implementing certain measures conforming to the market order. It is mandatory that 5% (1/4 of the producer subsidies withheld) be used for variety conversion.
- Growers' associations which market 100% of their members' production also have to use 5% of the producer subsidies for variety conversion measures. In addition, these growers' associations may withhold 15% of the producer subsidies for measures

conforming to the market order.

- The possibility given to the growers' associations in the past to withhold 100% of the producer subsidies is to be reduced to 20% in future.

The draft does not take into consideration the additional proposal by the Bavarian Ministry for Nutrition, Agriculture and Forestry to add a temporary set-aside regulation. This measure is intended to provide a bonus of limited duration to farmers who clear their land of varieties which are no longer marketable, but who still maintain their hop trellises. At the end of this period the farmer would have to decide whether to change over to new varieties on a contract basis or to discontinue hop growing on this land altogether. This proposal has been put forward once more on behalf of the German hop growers.

## GERMANY

### Growth, Crop Estimates and Weights

The winter of 1995/96 was extraordinarily dry. Precipitation in the months of October 1995 to April 1996 was a mere 91 mm/m<sup>2</sup>. Normally, the figure for this period would be approx. 360 mm/m<sup>2</sup>. In addition, the temperatures in the months of January through March 1997 were below the long-term average. It was not until mid-April that temperatures rose sharply to 20-25°C. As a result, the hops entered the vegetation period with a delay of approx. 2 weeks.

This delay was quickly made up for due to the favourable weather conditions in May. In fact, by early June the late-maturing varieties were some days ahead in development.

Plant growth slowed on account of high temperatures and low precipitation in June. Flowering of the early-maturing varieties began one week late, and the late-maturing varieties also fell behind.

From then on, temperatures were more or less within the 50-year average. Above-average rainfall in July and August made up for the delay in

Area	Estimate (08/1996 to)	Weight (31.03.1997 to)
Hallertau	30,100	33,499
Tett nang	2,275	2,407
Elbe-Saale	2,125	2,375
Spalt	900	1,045
Hersbruck	135	152
Baden/Rhine-P./Bitburg	27	33
<b>Total</b>	<b>35,562</b>	<b>39,511</b>

### Alpha Acid Table

Variety	1992	1993	1994	1995	1996	σ
Hallertau Hersbruck	2.3%	3.4%	1.3%	2.1%	4.2%	<b>2.7%</b>
Hallertau Perle	5.0%	7.0%	3.3%	4.9%	7.8%	<b>5.6%</b>
Hallertau Spalt Select	3.6%	5.1%	2.2%	3.5%	5.5%	<b>4.0%</b>
Hallertau Hallertau Tradition	4.0%	5.7%	3.7%	4.5%	6.5%	<b>4.9%</b>
Hallertau Huell	4.8%	5.6%	4.0%	3.7%	5.4%	<b>4.7%</b>
Hallertau Hallertau	3.9%	4.2%	2.6%	3.3%	5.3%	<b>3.9%</b>
Hallertau Northern Brewer	7.3%	8.4%	5.3%	7.1%	9.8%	<b>7.6%</b>
Hallertau Brewers Gold	5.8%	6.5%	3.7%	4.5%	7.1%	<b>5.5%</b>
Hallertau Orion	5.8%	7.4%	4.3%	5.7%	8.7%	<b>6.4%</b>
Hallertau Hallertau Magnum	11.1%	12.6%	9.6%	11.1%	14.0%	<b>11.7%</b>
Hallertau Nugget	-	10.9%	8.8%	8.8%	10.1%	<b>9.7%</b>
Hallertau Target	-	10.6%	8.6%	9.9%	11.7%	<b>10.2%</b>
Hallertau Record	4.5%	6.1%	3.1%	4.3%	7.3%	<b>5.1%</b>
Elbe-Saale Northern Brewer	5.8%	7.5%	4.5%	6.1%	8.6%	<b>6.5%</b>
Elbe-Saale Hallertau Magnum	-	11.7%	9.2%	11.0%	14.3%	<b>11.6%</b>
Spalt Spalt	3.5%	4.1%	2.8%	3.3%	5.4%	<b>3.8%</b>
Tett nang Tett nang	3.6%	4.0%	2.9%	2.6%	4.6%	<b>3.5%</b>

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 season.



## X

### Acreeage and Production

Area	Variety	Development of Acreeage			Development of Production			
		1995	+/-	1996	1995	1996	1995	1996
		Acreeage ha			Ø-Yield to/ha		Production to	
Hallertau	Hersbruck	4,797	-824	3,973	1.52	1.87	7,299.10	7,415.70
	Perle	3,580	153	3,733	1.71	1.95	6,121.35	7,278.30
	Hallertau Tradition	1,113	487	1,600	1.49	1.59	1,657.55	2,537.85
	Spalt Select	1,187	60	1,247	1.58	2.10	1,872.65	2,614.10
	Hallertau	286	254	540	0.70	0.79	201.40	424.35
	Huell	209	-38	171	1.51	1.71	315.90	293.20
	<b>Total Aroma</b>	<b>11,172</b>	<b>92</b>	<b>11,264</b>	<b>1.56</b>	<b>1.83</b>	<b>17,467.95</b>	<b>20,563.50</b>
	Northern Brewer	3,141	-397	2,744	1.66	1.83	5,202.90	5,030.15
	Brewers Gold	1,129	-317	812	2.21	2.60	2,492.40	2,110.65
	Orion	110	-26	84	1.82	2.23	199.65	187.40
	<b>Total Bitter</b>	<b>4,380</b>	<b>-740</b>	<b>3,640</b>	<b>1.80</b>	<b>2.01</b>	<b>7,894.95</b>	<b>7,328.20</b>
	Hallertau Magnum	1,549	389	1,938	1.43	1.94	2,208.15	3,764.85
	Nugget	571	39	610	1.74	2.43	992.20	1,483.60
	Target	96	-9	87	2.11	2.31	202.10	201.40
	<b>Total High Alpha</b>	<b>2,216</b>	<b>419</b>	<b>2,635</b>	<b>1.54</b>	<b>2.07</b>	<b>3,402.45</b>	<b>5,449.85</b>
	Record	79	-13	66	1.46	1.85	115.45	122.35
	Others	26	206	232	1.57	0.15	40.90	35.30
<b>Total Hallertau</b>	<b>17,873</b>	<b>-36</b>	<b>17,837</b>	<b>1.62</b>	<b>1.88</b>	<b>28,921.70</b>	<b>33,499.20</b>	
Tettngang	Tettngang	1,054	39	1,093	1.03	1.29	1,085.95	1,413.70
	Hallertau	554	3	557	1.54	1.77	852.50	988.55
	Hersbruck	3	0	3	1.15	1.42	3.45	4.25
	<b>Total Tettngang</b>	<b>1,611</b>	<b>42</b>	<b>1,653</b>	<b>1.21</b>	<b>1.46</b>	<b>1,941.90</b>	<b>2,406.50</b>
Elbe-Saale	Perle	76	31	107	0.82	1.21	62.60	129.30
	Saaz	9	0	9	0.81	1.29	7.25	11.65
	Other Aroma	10	7	17	0.91	0.78	9.10	13.25
	<b>Total Aroma</b>	<b>95</b>	<b>38</b>	<b>133</b>	<b>0.83</b>	<b>1.16</b>	<b>78.95</b>	<b>154.20</b>
	Northern Brewer	1,065	-224	841	1.45	1.61	1,540.40	1,350.40
	Other Bitter	48	-33	15	2.13	1.82	102.35	27.25
	<b>Total Bitter</b>	<b>1,113</b>	<b>-257</b>	<b>856</b>	<b>1.48</b>	<b>1.61</b>	<b>1,642.75</b>	<b>1,377.65</b>
	Hallertau Magnum	298	139	437	1.20	1.45	358.10	631.65
	Nugget	97	17	114	1.46	1.78	141.70	203.35
	Other High Alpha	4	6	10	0.98	0.72	3.90	7.15
<b>Total High Alpha</b>	<b>399</b>	<b>162</b>	<b>561</b>	<b>1.26</b>	<b>1.50</b>	<b>503.70</b>	<b>842.15</b>	
Others	0	1	1	0.00	0.65	0.00	0.65	
<b>Total Elbe-Saale</b>	<b>1,607</b>	<b>-56</b>	<b>1,551</b>	<b>1.38</b>	<b>1.53</b>	<b>2,225.40</b>	<b>2,374.65</b>	
Spalt	Hallertau	187	-5	182	1.24	1.35	231.20	246.45
	Spalt	160	1	161	1.05	1.31	167.20	210.55
	Spalt Select	148	5	153	1.55	2.08	229.40	318.35
	Hersbruck	126	-19	107	1.43	1.73	180.00	185.45
	Perle	28	-3	25	1.63	2.15	45.70	53.65
	Hallertau Tradition	12	1	13	0.95	1.53	11.45	19.90
	<b>Total Aroma</b>	<b>661</b>	<b>-20</b>	<b>641</b>	<b>1.31</b>	<b>1.61</b>	<b>864.95</b>	<b>1,034.35</b>
	<b>Bitter</b>	<b>5</b>	<b>-1</b>	<b>4</b>	<b>1.37</b>	<b>2.06</b>	<b>6.85</b>	<b>8.25</b>
	<b>High Alpha</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2.00</b>	<b>2.80</b>	<b>2.00</b>	<b>2.80</b>
<b>Total Spalt</b>	<b>667</b>	<b>-21</b>	<b>646</b>	<b>1.31</b>	<b>1.62</b>	<b>873.80</b>	<b>1,045.40</b>	
Hersbruck	Hallertau	25	3	28	1.00	0.83	24.90	23.35
	Spalt Select	26	1	27	1.28	1.85	33.15	49.90
	Hersbruck	30	-9	21	1.33	1.43	39.90	30.10
	Other Aroma	21	4	25	1.00	1.35	21.10	33.80
	<b>Total Aroma</b>	<b>102</b>	<b>-1</b>	<b>101</b>	<b>1.17</b>	<b>1.36</b>	<b>119.05</b>	<b>137.15</b>
	<b>Bitter</b>	<b>6</b>	<b>0</b>	<b>6</b>	<b>1.82</b>	<b>1.96</b>	<b>10.90</b>	<b>11.75</b>
	<b>High Alpha</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0.45</b>	<b>1.85</b>	<b>0.45</b>	<b>1.85</b>
	<b>Others</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>1.25</b>	<b>1.55</b>	<b>1.25</b>	<b>1.55</b>
<b>Total Hersbruck</b>	<b>110</b>	<b>-1</b>	<b>109</b>	<b>1.20</b>	<b>1.40</b>	<b>131.65</b>	<b>152.30</b>	
Baden/ Bitburg/ Rhine-Pal.	<b>Aroma</b>	<b>11</b>	<b>0</b>	<b>11</b>	<b>1.44</b>	<b>1.89</b>	<b>15.80</b>	<b>20.80</b>
	<b>Bitter</b>	<b>4</b>	<b>-1</b>	<b>3</b>	<b>1.95</b>	<b>2.92</b>	<b>7.80</b>	<b>8.75</b>
	<b>High Alpha</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>1.40</b>	<b>1.20</b>	<b>2.80</b>	<b>3.60</b>
	<b>Total Baden/B./Rh.</b>	<b>17</b>	<b>0</b>	<b>17</b>	<b>1.55</b>	<b>1.95</b>	<b>26.40</b>	<b>33.15</b>
<b>Total Aroma</b>	<b>13,652</b>	<b>151</b>	<b>13,803</b>	<b>1.50</b>	<b>1.76</b>	<b>20,488.60</b>	<b>24,316.50</b>	
<b>Total Bitter</b>	<b>5,508</b>	<b>-999</b>	<b>4,509</b>	<b>1.74</b>	<b>1.94</b>	<b>9,563.25</b>	<b>8,734.60</b>	
<b>Total High Alpha</b>	<b>2,619</b>	<b>582</b>	<b>3,201</b>	<b>1.49</b>	<b>1.97</b>	<b>3,911.40</b>	<b>6,300.25</b>	
<b>Total Others</b>	<b>106</b>	<b>194</b>	<b>300</b>	<b>1.49</b>	<b>0.53</b>	<b>157.60</b>	<b>159.85</b>	
<b>GERMANY TOTAL</b>	<b>21,885</b>	<b>-72</b>	<b>21,813</b>	<b>1.56</b>	<b>1.81</b>	<b>34,120.85</b>	<b>39,511.20</b>	

development of the early-maturing varieties and ensured a normal vegetation process up to the harvest.

The exceptionally high precipitation combined with normal temperatures during the phases of cone development and maturing probably contributed to the fact that expectations regarding hectare and alpha acid yields were surpassed for all varieties. In the Hallertau region alone, some 3,400 to or 11.3% more hops were harvested than had been estimated when picking began.

### Hop logistics

It has been decided. In the future, German hops are to be packed in rectangular bales with the dimensions 600 mm x 600 mm x 1200 mm. The maximum bale weight is 65 kg. The hop industry expects this packing size to help them to achieve cost savings by

reducing storage and transport space requirements. Storage of cone hops in refrigerated warehouses will contribute to a marked increase in the competitive strength of German hops.

In order to accelerate the introduction of the new rectangular bales, the companies involved in the hop processing plants, Hopfenveredlung and Hopfenextraktion HVG Barth, Raiser & Co., have decided to give their contract partners financial support to purchase presses for rectangular bales.

Initial details of the support agreements signed suggest that as much as 5,000 to of hops from the 1997 crop could be supplied to the trade in rectangular bales.

Further cost reductions in logistics are to be achieved through rationalisation measures at the hop certification stage. However, before the designation and certification procedure can be

completed in due time, there must be amendments to the law and extensive adjustment of the existing procedural regulations.

On 1 April 1997, the new Hop Law came into force, superceding the old "Law on the Certification of the Origin of Hops" from the year 1929. The Hop Law authorizes the Laender (federal states) to stipulate the implementation of the EU certification directive by statutory order.

In January 1997, the draft of an order to implement the Hop Law of the Bavarian state government was sent to those involved in the hop industry. The hop trading federation, hop growers association, district government offices and hop seal communities were asked for their comments. The order to implement the Hop Law is expected to be passed and take effect before the 1997 crop is harvested.

### Variety Development

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

Variety	1992	1993	1994	1995	1996
Hersbruck	7,049	6,509	5,485	4,956	4,104
Perle	3,237	3,397	3,591	3,705	3,889
Spalt Select	583	963	1,253	1,367	1,433
Hallertau Tradition	267	551	859	1,133	1,629
Hallertau	1,079	1,053	926	1,055	1,312
Spalter	224	210	183	165	168
Tett nang	1,050	1,021	1,057	1,061	1,094
<b>Total main Aroma</b>	<b>13,489</b>	<b>13,704</b>	<b>13,354</b>	<b>13,442</b>	<b>13,629</b>
Northern Brewer	6,323	5,670	4,821	4,313	3,588
Brewers Gold	1,656	1,556	1,316	1,140	823
<b>Total main Bitter</b>	<b>7,979</b>	<b>7,226</b>	<b>6,137</b>	<b>5,453</b>	<b>4,411</b>
Hallertau Magnum	341	918	1,317	1,850	2,379
Nugget	221	365	503	668	724
Target	77	92	91	101	95
<b>Total main High Alpha</b>	<b>639</b>	<b>1,375</b>	<b>1,911</b>	<b>2,619</b>	<b>3,198</b>

### Market development

Even while the 1996 harvest was still in progress, a cautious spot market began at a medium price level. DM 300 was offered and paid per 50 kg of **Hallertau Perle**. The first harvest results and alpha analyses showed, however, that a much higher than expected level of alpha acid was materialising. A sharp fall in prices now set in for all varieties. 28% of the Hallertau spot volume available was sold to the trade in the second half of September. Once again, the old varieties, **Hers-**

**bruck Spaet, Northern Brewer and Brewers Gold**, came under considerable price pressure in competition with the new varieties.

Even in the first week of September only DM 100 per 50 kg was to be had for **Hersbruck** and by early November the spot price for this variety had plunged to DM 50 per 50 kg. Even intervention by the growers' association, in the course of which an estimated 900 to of **Hersbruck** was taken off the market shortly before Christmas, failed to influence demand. The supply

volume was too high for the demand. The price for **Hersbruck** remained steady at DM 50 per 50 kg until the end of March 1997. It is to be assumed that quantities of this variety remained unsold.

With the exception of **Hallertau Magnum**, the prices for all varieties fell constantly throughout the entire marketing period. The purchase price for **Hallertau Magnum** rose from initially DM 200 to DM 250 and then to a level of DM 300 per 50 kg by the end of October where it remained until this

variety was sold out by the end of January 1997. Due to its very high alpha content, **Hallertau Magnum** showed itself to be competitive even at a price of DM 300 per 50 kg. As a result of the low producer prices on the one hand and the high alpha levels on the other, German hop growers were

able to win back world market share. The shift in the deutschmark-dollar exchange rate in favour of the US dollar, thus favouring the German growers, also proved to be helpful.

Hops were sold to the trade right up to the last possible weighing date of 31 March 1997. 9,900 to of spot hops

were sold in the Hallertau region alone. Nevertheless, it is assumed that the market was not completely cleared and that unsold quantities from the 1996 crop are still in the hands of the growers.

### Purchase prices at producer level in net DM per 50 kg in farmer's bales:

Area/Variety	Sep. 96	Oct. 96	Nov. 96	Dec. 96	Jan. 97
Hallertau Hersbruck	100	100	50	50	-
Hallertau Perle	200/220/250	250	180	180	150
Hallertau Hallertau Tradition	200	180	180/150	-	150
Hallertau Spalt Select	-	150	150	-	-
Hallertau Northern Brewer	150/200	200	200/180/200	-	200
Hallertau Brewers Gold	100/110/120	120/100/120	80/100	100	100
Hallertau Hallertau Magnum	200/220/250	250/270/300	300	300	300
Hallertau Nugget	150/180/200	200	200	200	200
Hallertau Taurus	350	350	350	-	-
Spalt Spalt	520	520/500	500	500	-
Spalt Hallertau	450	450/400	400	400	-
Tettnang Tettnang	450	450	450	450	-
Tettnang Hallertau	400	400	400	400	-

## FRANCE

### Acreage and Production

Area	Variety Group	Development of Acreage			Development of Production			
		1995	+/-	1996	Ø-Yield to/ha		Production to	
		Acreage ha						
Alsace	Aroma	563	63	626	1.69	1.58	950.0	986.8
	Bitter	12	2	14	3.08	3.10	36.9	43.4
	High Alpha	29	1	30	2.20	2.09	63.8	62.8
	Others	23	-23	0	0.12	0.00	2.7	0.0
	<b>Total Alsace</b>	<b>627</b>	<b>43</b>	<b>670</b>	<b>1.68</b>	<b>1.63</b>	<b>1,053.4</b>	<b>1,093.0</b>
North	Aroma	9	0	9	0.86	0.84	7.7	7.6
	Bitter	6	8	14	1.33	1.40	8.0	19.6
	High Alpha	15	3	18	1.35	1.36	20.2	24.5
	Others	13	-13	0	1.47	0.00	19.1	0.0
	<b>Total North</b>	<b>43</b>	<b>-2</b>	<b>41</b>	<b>1.28</b>	<b>1.26</b>	<b>55.0</b>	<b>51.7</b>
<b>FRANCE TOTAL</b>	<b>670</b>	<b>41</b>	<b>711</b>	<b>1.65</b>	<b>1.61</b>	<b>1,108.4</b>	<b>1,144.7</b>	

In recent years France has registered a continuous rise in acreage - over 700 ha for the first time in 1996 - which is accounted for primarily by the expansion of acreage planted with **Strisselspalt** (aroma). Due to strong demand, expansion to approx. 1,000 ha is expected by the year 2000.

### Growth and quality

In Alsace, the growing season in 1996 was characterised by extreme

conditions: a cold spring, intermittent heat waves, low precipitation, local hail and storm damage. Disease and pests appeared only in isolated cases and were successfully combatted with the pesticides available.

In the North of France, spring work was delayed by heavy rainfall. However, from May onwards weather conditions were favourable for hop growth.

With alpha values (EBC 7.3.2) of 2.2% in Alsace and even 3.6% in the

North of France, the bitter values of **Strisselspalt** were significantly higher than in previous years.

### Market situation

98% of the crop was sold by contract. By the spring of 1997, only small quantities of **Tradition**, **Select** and **Brewers Gold** remained unsold.

For 1997, the future contract rate is 95%.

# ENGLAND

## Acreeage and Production

Variety	Development of Acreage			Development of Production			
	1995	+/-	1996	1995	1996	1995	1996
	Acreage ha			Ø-Yield to/ha		Production to	
Goldings	402	48	450	1.17	1.50	469.2	672.8
Challenger	341	-32	309	1.34	1.77	456.4	545.8
Fuggles	308	-3	305	1.01	1.53	310.8	468.0
Progress	173	8	181	0.92	1.44	158.3	261.3
W.G.V.	106	35	141	0.93	1.19	99.0	168.3
Phoenix	*	108	108	*	0.55	*	58.9
First Gold	*	96	96	*	0.41	*	39.8
Bramling Cross	46	7	53	0.97	1.46	44.4	77.5
<b>Total Aroma</b>	<b>1,376</b>	<b>267</b>	<b>1,643</b>	<b>1.12</b>	<b>1.40</b>	<b>1,538.1</b>	<b>2,292.4</b>
Northdown	360	-37	323	1.44	1.87	519.1	603.4
<b>Total Bitter</b>	<b>360</b>	<b>-37</b>	<b>323</b>	<b>1.44</b>	<b>1.87</b>	<b>519.1</b>	<b>603.4</b>
Target	1,242	-147	1,095	1.55	2.01	1,920.7	2,197.2
Yeoman	44	-19	25	1.13	1.14	49.5	28.4
<b>Total High Alpha</b>	<b>1,286</b>	<b>-166</b>	<b>1,120</b>	<b>1.53</b>	<b>1.99</b>	<b>1,970.2</b>	<b>2,225.6</b>
Others	72	-47	25	0.70	0.96	50.7	24.1
<b>ENGLAND TOTAL</b>	<b>3,094</b>	<b>17</b>	<b>3,111</b>	<b>1.32</b>	<b>1.65</b>	<b>4,078.1</b>	<b>5,145.5</b>

\* Included in "Others".

The trend observed for about three years, showing a shift towards aroma varieties, continued in 1996. For the first time, acreage of aroma varieties exceeded that of bitter and high-alpha varieties. It is surprising, however, that the English growers are not yet tackling the overdue change-over from **Target** to higher-yielding new varieties.

### Growth and quality

The winter of 1995/96 was one of the longest and coldest of this century. As a result, growth was considerably delayed until early May. Late shoot growth led to problems with training. However, warm weather and regular, although mainly local, rainfall brought about an exceptionally substantial yield.

The usual diseases - downy mildew and mildew - occurred, but were generally kept well under control by means of approved pesticides. Wilt was undiminished in the West Midlands, but most of the growers were able to fulfill their contract obligations.

Both the optical quality and the bitter compound content of the hops were highly satisfactory. The average alpha acid content surpassed even the good results of the previous year.

### Alpha acid table

Comparison of alpha acid values of important English varieties:

Variety	1995	1996
Goldings	5,2%	5,7%
Fuggles	4,4%	4,8%
Progress	6,0%	7,1%
W.G.V.	6,2%	7,2%
Bramling Cross	6,6%	6,5%
Challenger	7,6%	8,4%
Northdown	8,1%	9,0%
Phoenix	---	11,7%
First Gold	---	9,0%
Target	11,1%	11,5%
Yeoman	10,9%	11,3%

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 season.

### Hop research

In conjunction with the National Hop Association, a new farm trials system has been developed. In future, rootstock will be tested on accredited farm trial sites at an earlier stage than previously, speeding the release of new varieties. Final selection decisions will be made on the basis of the farm results. Following satisfactory pilot-scale brews at the Brewing Research Foundation International, two new varieties were selected which in 1997 will be

the first to be tested on farms according to this system. The varieties in question are a high-yielding conventional variety coded **92/1** and a bitter dwarf variety coded **93/50**. A third variety (coded **P38**), highly resistant to wilt, is to follow in 1998.

### Market situation

76% of aroma and 45% of bitter and high-alpha varieties were sold by future contract. The remaining aroma hops were sold on the spot market, whereas some 250 to of bitter hops were still available in the spring of 1997.

At up to £ 300 per 50 kgs, the prices for **Goldings** and **Fuggles** were the highest. The following average prices were recorded:

	Contract market
<b>Aroma</b>	£ 259 per 50 kgs
<b>Bitter/High Alpha</b>	£ 21 per kg alpha
	Spot market
<b>Aroma</b>	£ 235 per 50 kgs
<b>Bitter/High Alpha</b>	£ 16 per kg alpha

Whether the share of aroma varieties will continue to rise in the future is open to question and will depend on growers being offered future contracts. For 1997, the acreage planted with **Target** is expected to be reduced by approx. 300 ha.

## SPAIN

### Acreage and Production 1996

Variety	Acreage ha	Ø-Yield to/ha	Production to
H-3 Leonés	599	1.68	1,003.5
<b>Total Bitter</b>	<b>599</b>	<b>1.68</b>	<b>1,003.5</b>
Nugget	306	0.59	179.4
Magnum	9	0.81	7.3
<b>Total High Alpha</b>	<b>315</b>	<b>0.59</b>	<b>186.7</b>
Others	1	0.00	0.0
<b>SPAIN TOTAL</b>	<b>915</b>	<b>1.30</b>	<b>1,190.2</b>

A striking feature since 1995 has been the strong increase in acreage of **Nugget**, accompanied by the sharp decline of **H-3** and the total disappearance of **H-7**. The average yield dropped from 1.56 to/ha to 1.30 to/ha, which was mainly due to these variety changes, however.

### Growth and quality

The growing season in León was characterised by variable weather conditions.

Conditions were more favourable in the region of La Rioja, which generally enabled the plants to develop better.

Disease and pest infestation were barely noticeable. The quality of the hops was better than in previous years.

The average alpha acid content (EBC 7.3.2) was:

<b>H-3</b>	6.7 %
<b>Nugget</b>	9.8 %
<b>Magnum</b>	11.1 %

### Market situation

The entire crop was sold by future contract, with the growers receiving the following:

<b>Magnum/Nugget</b>	550 Pts/kg
<b>H-3</b>	420 Pts/kg

## BELGIUM

### Acreage and Production 1996

Variety Group	Acreage ha	Ø-Yield to/ha	Production to
Aroma	72	1.19	85.9
Bitter	29	1.39	40.3
High Alpha	228	1.95	444.4
Others	12	1.11	13.3
<b>BELGIUM TOTAL</b>	<b>341</b>	<b>1.71</b>	<b>583.9</b>

### Quality

The alpha acid values (EBC 7.3.2) were significantly up on the previous year: **Target**, the main variety, achieved 10.1%, **Northern Brewer** 8.1%,

**Hallertau** 3.8% and **Challenger** 6.5%.

### Market development

One quarter of the total crop was sold by contract. The remaining three

quarters, with the exception of 25 to of **Hallertau**, were sold on the spot market. The following average prices were paid:

	Contract market
<b>Aroma</b>	7,673 bfr/50 kgs
<b>Bitter</b>	6,300 bfr/50 kgs
<b>High Alpha</b>	6,572 bfr/50 kgs
	Spot market
<b>Aroma</b>	3,840 bfr/50 kgs
<b>Bitter</b>	1,700 bfr/50 kgs
<b>High Alpha</b>	3,359 bfr/50 kgs

## AUSTRIA

### Acreage and Production 1996

Area	Acreage ha	Ø-Yield to/ha	Production to
Mühlviertel	125	1.36	170.0
Leutschach	99	1.41	139.5
Waldviertel	22	1.36	30.0
<b>AUSTRIA TOTAL</b>	<b>246</b>	<b>1.38</b>	<b>339.5</b>

### Mühlviertel/Upper Austria

At 7.0% (EBC 7.3.2), the average alpha acid content of the aroma varieties grown in this region was about 15% higher than in the previous year. The entire crop was sold to the domestic brewing industry at an average price of 69 ATS/kg.

### Leutschach/Steiermark

Compared with the previous year, a significantly lower yield was produced on a slightly greater acreage due to the mainly cool and humid weather conditions. As in the past two years, the purchase prices were 79 ATS/kg for **Golding** and 71 ATS/kg for **Aurora** (both quality grade I).

### Waldviertel/Lower Austria

Apart from the main variety, **Zwettl Perle**, some other varieties were grown, but only for experimentation and therefore without any significant volume.

According to the hop purchasing contract (applicable up to the 2000 crop), 12 to per year are to be purchased by the local brewery at 73 ATS/kg for quality grade I, the remainder at the current world market price.

## PORTUGAL

The 1996 crop saw the increase in acreage originally planned for the previous year.

The total crop volume of 158 to of **Nugget** with an alpha content of 10% was sold by contract. The growers were paid an average price of approx.

5 DM/kg. The volume expected for the 1997 crop is 180 - 200 to. However, no contracts have been closed yet.

## REST OF EUROPE

### CZECH REPUBLIC

#### Acreage and Production

Area	Development of Acreage			Development of Production			
	1995	+/-	1996	1995	1996	1995	1996
	Acreage ha			Ø-Yield to/ha		Production to	
Zatec (Saaz)	7,307	-371	6,936	0,94	1,02	6,879.0	7,089.0
Ustek (Auscha)	1,660	-219	1,441	1,05	1,30	1,742.0	1,876.6
Tršice (Tirschitz)	1,107	-129	978	1,16	1,19	1,289.0	1,160.3
<b>CZECH REP. TOTAL</b>	<b>10,074</b>	<b>-719</b>	<b>9,355</b>	<b>0,98</b>	<b>1,08</b>	<b>9,910.0</b>	<b>10,125.9</b>

In 1996, acreage was reduced further to less than 10,000 ha for the first time. On the other hand, it was the first year since 1989 in which an average yield of over 1 to/ha was produced, with the result that the overall volume was greater than in previous years.

#### Growth and quality

The entire vegetation period was accompanied by cold and rainy weather.

This resulted in an increase in downy mildew infestation. There were also reports of isolated hail damage.

The lower temperatures were advantageous to the alpha content, however. After two years of poor levels, the 1996 alpha acid content averaged 3.6 - 3.8% (EBC 7.3.2).

#### Market situation

76% of the crop was sold by contract.

The marketing difficulties which had already occurred in 1995 continued in 1996. Despite low prices, it was not possible to sell the total quantity of spot hops available. The volume of unsold hops is estimated at approx. 1,000 to.

This market development is not without implications for the hop growers, particularly for those who maintain trading links exclusively with domestic organisations.

## POLAND

#### Acreage and Production

Variety Group	Development of Acreage			Development of Production			
	1995	+/-	1996	1995	1996	1995	1996
	Acreage ha			Ø-Yield to/ha		Production to	
Aroma	2,043	-63	1,980	1.30	1.34	2,655.9	2,650.0
Bitter	358	142	500	1.70	1.50	608.6	750.0
<b>POLAND TOTAL</b>	<b>2,401</b>	<b>79</b>	<b>2,480</b>	<b>1.36</b>	<b>1.37</b>	<b>3,264.5</b>	<b>3,400.0</b>

#### Growth and quality

Spring work was delayed by the long winter, which in turn affected plant development. This delay was made up for by continuously warm conditions in May.

Approval of Confidor meant that aphid infestation could be avoided. However, as there was serious downy mildew and spider mite infestation, organoleptic assessment of the hops

was worse than in previous years.

With an average of 4.8% (EBC 7.3.2), significantly higher alpha values were achieved for the aroma variety **Lublin** than in the previous two years.

#### Market situation

As assumed in the last Barth Report, the raising of Polish import duties also had an effect on hop exports. The export rate dropped from 50% of the

crop in 1995 to approx. 40% in 1996. After a demonstration by hop growers outside the Polish Ministry of Agriculture, a Polish trading company purchased the approx. 200 to remaining unsold in April by order of the government. Once pelletised, these hops are to be used by the domestic breweries.

Almost the same acreage is expected for 1997. Approx. 2,200 to has already been sold on a contract basis.

## SLOVAK REPUBLIC

### Acreage and Production

Variety	Development of Acreage			Development of Production			
	1995	+/-	1996	1995	1996	1995	1996
	Acreage ha			Ø-Yield to/ha		Production to	
Saaz	1,100	-18	1,082	0.94	0.76	1,035.0	824.0
<b>SLOVAK REP. TOTAL</b>	<b>1,100</b>	<b>-18</b>	<b>1,082</b>	<b>0.94</b>	<b>0.76</b>	<b>1,035.0</b>	<b>824.0</b>

#### Growth and quality

Cool temperatures and adequate precipitation led to downy mildew infestation on the one hand, but had a positive effect on the development of

alpha acids on the other. The alpha content averaged 3.5% (EBC 7.3.2).

#### Market situation

81% of the crop was sold by contract.

The volume available for the spot market totalling 150 to could not be sold in the spring of 1997 even at low prices.

Two thirds of the 1997 crop has already been sold by future contract.

## SLOVENIA

### Acreage and Production

Variety	Development and Acreage			Development of Production			
	1995	+/-	1996	1995	1996	1995	1996
	Acreage ha			Ø-Yield to/ha		Production to	
Aurora	1,255	-221	1,034	1.80	1.92	2,262.3	1,990.0
Styrian Golding	630	22	652	1.39	1.28	876.7	836.0
Bobek	271	85	356	1.86	1.33	503.2	473.0
Others	214	-30	184	1.52	1.40	325.2	257.0
<b>SLOVENIA TOTAL</b>	<b>2,370</b>	<b>-144</b>	<b>2,226</b>	<b>1.67</b>	<b>1.60</b>	<b>3,967.4</b>	<b>3,556.0</b>

In addition to the 462 private hop farmers in Slovenia, there are still 17 growers' cooperatives which are in the process of privatisation.

Some 60% of Slovenia's hop acreage was artificially irrigated.

#### Growth and quality

Due to heavy rainfall, spring work was delayed by about 10 days. Precipitation in May was sufficient, but this

was followed by hot, dry weather in June which caused premature flowering of the hops. The early-maturing variety **Golding**, with the exception of the virus-free plants, was not able to recover despite subsequent moderate temperatures and sufficient rainfall.

Alpha acid content (EBC 7.3.2) was 8.5% for **Aurora (Super Styrian)**, 4.3% for **Styrian Golding** and 6.0%

for **Bobek**, thus significantly surpassing the previous year's values.

#### Market situation

Some 80% of the crop was sold by contract. The volume remaining unsold in spring 1997 is estimated to be 250 to.

Approx. 90% of the hops sold were marketed by the Hmezad Export-Import Cooperative.

## YUGOSLAVIA (SERBIA AND MONTENEGRO)

### Acreage and Production 1996

Variety Group	Acreage ha	Ø-Yield to/ha	Production ha
Aroma	139	1.05	145.9
Bitter	421	1.14	481.9
Others	24	1.67	40.0
<b>YUGOSLAVIA TOTAL</b>	<b>584</b>	<b>1.14</b>	<b>667.8</b>

#### Growth and quality

The hops suffered from a lack of precipitation throughout the entire vegetation period.

The alpha acid content (EBC 7.3.2) was 1.5% for the **Bačka** variety and between 5.0 and 6.0% for the bitter varieties.

#### Market situation

Only 20% of total crop volume was sold to the Yugoslavian brewing industry by contract at prices of between 5.50 and 6.00 DM/kg. Information on the state of the spot hop market is contradictory: on the one hand it has been reported that the entire crop was sold in the spring, but according to other sources there are still spot hops available.

## BULGARIA

### Acreage and Production 1996

Variety Group	Acreage ha	Ø-Yield to/ha	Production to
Aroma	150	0.70	104.3
Bitter	355	0.87	310.2
<b>BULGARIA TOTAL</b>	<b>505</b>	<b>0.82</b>	<b>414.5</b>

Acreage rose by some 10% over 1995. Yield also increased, due to favourable weather conditions, but is still very low at 0.82 to/ha.

The average alpha content was 5.5% for the aroma varieties and 7.9% for the bitter varieties.

Of the total crop, about half of the aroma hops and approx. 40% of the bitter hops remained unsold in spring 1997.

## RUSSIAN FEDERATION

Total acreage in Russia was probably about 2,700 ha, with crop volume approx. 1,850 to. However, it is very difficult to obtain figures for the minor growing regions. More precise details are available only for Chuvash, the main hop region whose acreage was

2,160 ha with a production level of 1,700 to. The hop varieties grown there are **Ranny**, **Poduyasny**, **Sumer** and **Krylatsky**, with alpha contents of approx. 4.5 - 5.0%. Only some 25 to remained unsold in spring 1997.

## TURKEY

### Acreage and Production 1996

Variety Group	Acreage ha	Ø-Yield to/ha	Production to
Aroma	84	1.02	86.0
Bitter	250	0.87	218.0
<b>TURKEY TOTAL</b>	<b>334</b>	<b>0.91</b>	<b>304.0</b>

Acreage and production were virtually unchanged from the previous year. The average alpha values of 7 - 8% (as is) were higher than in 1995.

The total production volume was sold by contract to the Turkish brewing industry at prices of 5.00 - 6.00 DM/kg.

## ROMANIA

According to recent information, acreage in 1995 was lower than stated in our last report, i.e. 1,927 ha, and production was higher at 1,839 to.

In 1996, the reduction in acreage continued due to persistent marketing difficulties and only 1,597 ha was strung for harvest. Production probably amounted to approx. 1,500 to.

The share of the aroma varieties

(**Huell**, **Perle** and so-called "**Aroma**") is at present 25%, but is to be increased to at least 50% over the next few years. The remaining acreage is divided among the bitter varieties **Northern Brewer** and **Brewers Gold**, as well as the recently planted **Hallertau Magnum**.

In the course of an annual centrally organised evaluation (organoleptic as-

## SWITZERLAND

Compared with recent years, there was a slight increase in acreage to 22 ha, but this is definitely not to be raised further in the future. The varieties grown were **Hallertau Magnum**, **Perle**, **Orion** and **Hallertau**.

The very good production result of the previous year (2.28 to/ha) was bettered even further in 1996 with 2.4 to/ha, which can be attributed to a combination of higher-yield varieties and favourable cultivation and weather conditions.

80% of the volume produced was processed into extract, the rest into type 45 pellets.

## HUNGARY

According to the Ministry of Agriculture, hop growing has been abandoned. However, the Boly cooperative reported an acreage of 20 ha and a production volume of 45.7 to.

Only 5 ha is expected to be strung for harvest in 1997.

## UKRAINE

With acreage reduced from the previous year by 785 ha to 3,545 ha, the volume harvested in 1996 was 1,453.5 to. A pellet processing plant has gone into operation in the town of Zhitomir. The formerly state-owned marketing office, Ukrchmel, has been privatised.

As a result of a cooperation agreement with Russia, the boycott on Ukrainian hops has been lifted, permitting them to be exported.

assessment and chemical analysis), the hops are categorised in quality grades. Depending on quality grade, the Romanian breweries paid between 9,000 and 10,000 lei/kg.

Following the government change-over in Romania, hop farms no longer receive any state support, which will result in a dramatic fall in acreage for financial reasons in 1997.



## AMERICA

## USA

## Acreage and Production

Area	Variety	Development of Acreage			Development of Production			
		1995	+/-	1996	1995	1996	1995	1996
		Acreage ha			Ø-Yield to/ ha		Production to	
Washington	Willamette	1,133	293	1,426	1.88	1.48	2,131.5	2,107.6
	Tettnang	923	-117	806	1.28	1.31	1,177.9	1,056.7
	Cascade	457	-34	423	2.42	2.26	1,105.2	957.5
	Mount Hood	452	-65	387	1.78	1.50	804.2	580.5
	Perle	100	-6	94	1.54	1.42	154.1	133.2
	Liberty	56	-18	38	1.35	1.12	75.8	42.6
	Golding	*	35	35	*	1.23	*	43.0
	Other Aroma*	*	66	66	*	1.43	*	94.3
	<b>Total Aroma</b>	<b>3,121</b>	<b>154</b>	<b>3,275</b>	<b>1.75</b>	<b>1.53</b>	<b>5,448.7</b>	<b>5,015.4</b>
	Cluster	2,083	-118	1,965	2.30	2.09	4,782.4	4,116.4
	Northern Brewer	23	-23	*	2.53	*	58.2	*
	Other Bitter*	*	75	75	*	2.27	*	170.1
	<b>Total Bitter</b>	<b>2,106</b>	<b>-66</b>	<b>2,040</b>	<b>2.30</b>	<b>2.10</b>	<b>4,840.6</b>	<b>4,286.5</b>
	Galena	3,385	-151	3,234	2.21	2.31	7,468.6	7,460.3
	Nugget	2,085	158	2,243	2.48	2.08	5,161.8	4,673.2
	Chinook	922	-17	905	2.27	2.13	2,096.7	1,925.3
	Eroica	179	-105	74	2.48	2.33	444.1	172.6
	Olympic	65	-14	51	2.28	2.21	148.1	112.6
	Other High Alpha*	*	806	806	*	2.63	*	2,118.8
<b>Total High Alpha</b>	<b>6,636</b>	<b>677</b>	<b>7,313</b>	<b>2.31</b>	<b>2.25</b>	<b>15,319.3</b>	<b>16,462.8</b>	
Others *	538	-338	200	2.23	1.90	1,199.6	380.6	
<b>Total Washington</b>	<b>12,401</b>	<b>427</b>	<b>12,828</b>	<b>2.16</b>	<b>2.04</b>	<b>26,808.2</b>	<b>26,145.3</b>	
Oregon	Willamette	1,320	0	1,320	1.70	1.29	2,244.8	1,703.7
	Tettnang	395	-73	322	0.90	1.19	354.2	382.7
	Fuggle	222	-27	195	1.30	1.60	287.8	312.0
	Mount Hood	116	-20	96	1.62	1.90	187.5	182.4
	Perle	62	11	73	1.94	1.99	120.2	145.3
	<b>Total Aroma</b>	<b>2,115</b>	<b>-109</b>	<b>2,006</b>	<b>1.51</b>	<b>1.36</b>	<b>3,194.5</b>	<b>2,726.1</b>
	Nugget	1,225	31	1,256	2.27	1.86	2,778.6	2,342.0
	Chinook	24	-24	*	1.81	*	43.5	*
	<b>Total High Alpha</b>	<b>1,249</b>	<b>7</b>	<b>1,256</b>	<b>2.26</b>	<b>1.86</b>	<b>2,822.1</b>	<b>2,342.0</b>
	Others *	134	40	174	1.76	1.46	235.2	254.6
<b>Total Oregon</b>	<b>3,498</b>	<b>-62</b>	<b>3,436</b>	<b>1.79</b>	<b>1.55</b>	<b>6,251.8</b>	<b>5,322.7</b>	
Idaho	Cluster	335	-5	330	2.25	2.25	754.9	743.8
	<b>Total Bitter</b>	<b>335</b>	<b>-5</b>	<b>330</b>	<b>2.25</b>	<b>2.25</b>	<b>754.9</b>	<b>743.8</b>
	Galena	246	17	263	1.81	1.85	445.6	486.6
	Chinook	138	1	139	1.85	1.86	255.4	259.2
	<b>Total High Alpha</b>	<b>384</b>	<b>18</b>	<b>402</b>	<b>1.83</b>	<b>1.86</b>	<b>701.0</b>	<b>745.8</b>
Others *	872	15	887	1.44	1.18	1,251.6	1,048.7	
<b>Total Idaho</b>	<b>1,591</b>	<b>28</b>	<b>1,619</b>	<b>1.70</b>	<b>1.57</b>	<b>2,707.5</b>	<b>2,538.3</b>	
<b>Total Aroma</b>	<b>5,236</b>	<b>45</b>	<b>5,281</b>	<b>1.65</b>	<b>1.47</b>	<b>8,643.2</b>	<b>7,741.5</b>	
<b>Total Bitter</b>	<b>2,441</b>	<b>-71</b>	<b>2,370</b>	<b>2.29</b>	<b>2.12</b>	<b>5,595.5</b>	<b>5,030.3</b>	
<b>Total High Alpha</b>	<b>8,269</b>	<b>702</b>	<b>8,971</b>	<b>2.28</b>	<b>2.18</b>	<b>18,842.4</b>	<b>19,550.6</b>	
<b>Total Others</b>	<b>1,544</b>	<b>-283</b>	<b>1,261</b>	<b>1.74</b>	<b>1.34</b>	<b>2,686.4</b>	<b>1,683.9</b>	
<b>USA TOTAL</b>		<b>17,490</b>	<b>393</b>	<b>17,883</b>	<b>2.05</b>	<b>1.90</b>	<b>35,767.5</b>	<b>34,006.3</b>

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

\* Others include: **Washington:** Aquila, Banner, Fuggle, 1995 also: Golding, 1996 also: Northern Brewer, **Oregon:** Aquila, Banner, Cascade, Cluster, Eroica, Galena, 1996 also: Chinook, **Idaho:** Banner, Cascade, Mount Hood, Nugget, Olympic, Perle, Tettnang, Willamette; **all states:** proprietary varieties.

Source: HGA Report

## Variety-Development

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

Variety	1992 ha	1993 ha	1994 ha	1995 ha	1996 ha
Willamette	2,522	2,561	2,568	2,453	2,746
Tettnang	1,094	1,108	1,139	1,318	1,128
Mount Hood	616	837	837	568	483
Cascade	511	553	540	457	423
<b>Total main Aroma</b>	<b>4,743</b>	<b>5,059</b>	<b>5,084</b>	<b>4,796</b>	<b>4,780</b>
Cluster	2,867	2,704	2,480	2,418	2,295
<b>Total main Bitter</b>	<b>2,867</b>	<b>2,704</b>	<b>2,480</b>	<b>2,418</b>	<b>2,295</b>
Galena	3,628	3,719	3,621	3,631	3,497
Nugget	2,392	2,636	2,830	3,310	3,499
Chinook	1,066	1,112	1,075	1,084	1,044
<b>Total main High Alpha</b>	<b>7,086</b>	<b>7,467</b>	<b>7,526</b>	<b>8,025</b>	<b>8,040</b>

## Growth

### Washington

Heavy winter precipitation increased the snow pack around mountain reservoirs to more than adequate levels, assuring a plentiful supply of irrigation water throughout the growing season. A protective layer of snow in the valley prevented damage to plants from a severe freeze in January when temperatures reached - 27°C.

Temperatures in spring increased slowly, delaying plant growth and field work. However, by June and early July, weather conditions had returned to normal patterns and plants caught up in their development. Intermittent heat waves throughout late July and August made control of spider mite difficult in some areas and ultimately resulted in some fields being picked early.

Although neither the severe freeze nor the cool spring were initially

thought to influence yields negatively, the varieties **Nugget** and **Willamette** produced 16% and 21% lower yields than the previous year, while other varieties decreased by approximately 5%.

### Oregon

In February and March, Oregon experienced one of the most severe floods in 30 years, drowning some hop yards in up to 12 metres of water. Although little damage occurred to the still dormant plants, the receding waters left some trellises in great disrepair. Subsequent rains on top of the already saturated soil made field work and control of downy mildew close to impossible, resulting in delayed plant development. Temperatures in spring remained cool and warmed only gradually in July.

The subsequent normal weather conditions were not able to help plants overcome the initial stress of waterlogged soil and mildew infestation. As in Washington, yields of both **Nugget** and **Willamette** were depressed. For this state, yields dropped by 18% and 24%, respectively, from 1995.

### Idaho

Winter precipitation in the mountains in this state also filled reservoirs and replenished the snow pack for adequate irrigation supplies throughout the growing season. Gradual warming in spring and adequate rainfall produced good plant development and resulted in yields in line with long-running averages for all varieties, except for aroma varieties grown in the northern part of the state.

## Quality

The average leaf and stem content for all hops produced dropped to its lowest level ever, from 0.8% in 1995 to 0.6% in 1996. This decrease was mainly due to Washington, which posted a record low of 0.48% leaf and stem. The average seed content for the US was near its record low with

0.55%, although the occasional lot of Oregon aroma hops was rejected due to high seed count.

The alpha acid content of high-alpha varieties was up to half a point higher than in the previous year, while aroma varieties remained unchanged. For the total crop, the average alpha content is estimated at 9.4%

(EBC 7.3.2), resulting in a total alpha production of 3,190 to. This quantity represents approximately the same total alpha production as in 1995.

The continuing world-wide pesticide harmonization efforts allowed US growers again in 1996 to utilize all chemicals registered for hops to assure the quality of their crop.

## Alpha Acid Table

Variety	1992	1993	1994	1995	1996	Average
Willamette	3.7%	4.5%	3.6%	4.0%	3.8%	3.9%
Tettnang	3.6%	4.6%	3.1%	3.2%	3.8%	3.7%
Mount Hood	3.4%	4.5%	3.4%	3.2%	3.9%	3.7%
Cascade	4.6%	5.7%	4.1%	3.8%	5.4%	4.7%
Cluster	6.3%	7.4%	6.4%	6.2%	6.3%	6.5%
Galena	10.4%	12.4%	11.3%	11.0%	11.1%	11.2%
Nugget	11.5%	12.6%	12.4%	11.7%	12.2%	12.1%
Chinook	10.3%	11.7%	10.4%	10.4%	11.0%	10.8%

All data were 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

For crop 1996, growers had strung 17,883 ha for harvest, or approximately 400 ha more than the previous year, setting a new acreage record. As a result, most pre-harvest projections saw the US crop at record volumes, ranging from 35,800 to 36,700 to.

Early market activity focused on aroma hops, with **Fuggle** and **Tettnang** selling initially at \$6.17/kg plus, and then jumping to \$6.61/kg plus. The **Willamette** market suddenly became very active, as the industry realized that this variety produced yield shortfalls of 20% or more. However,

only a few lots made it into the spot market so that the price remained around \$4.74/kg plus. **Mt. Hood** saw little activity and only minor quantities moved at \$3.97/kg flat. Even less interest was shown in **Cluster**. Most of these spots remained in grower's hands.

While **Galena** produced normal yields, the total **Nugget** crop fell short of expectations by about 15%. While some dealers initially accepted **Galena** for **Nugget** shortfalls, this practice was short-lived, as prices for **High Alpha** dropped below contract levels to the \$2.86/kg to \$2.98/kg plus range.

Subsequent sales of minor quantities, drawn out over the next weeks, occurred at close to or at \$2.20/kg plus. Faced with these prices and the very sluggish high alpha movement, some growers decided to have their spots extracted. The high alpha spot quantities (mostly **Galena**) remaining in grower's hands in spring are estimated to range between 225 - 680 to. This compares to approximately 1,350 to of high alpha spots at harvest. It is to be noted that the total high-alpha production was approximately 1,350 to less than anticipated.

### Contract Market

The lack of activity of the spot market also extended into the future markets. In fall, only minor quantities of specifically **Nugget** and **Chinook** were sold forward at \$3.30 to \$3.53/kg plus, beginning with crop year 1997. Additional, but sporadic contracts were made in late fall and spring of proprietary super high-alpha varieties at \$2.76/kg plus. Most of these contracts were used to switch out of existing **Cluster** contracts.

The quantities contracted forward in relation to the total actual and estimated harvested quantities have remained relatively stable throughout the last years. Using an estimated future production of 35,400 to for the next five years, US growers currently hold forward contracts in line with normal patterns for crops 1997 and 1998. However, at 57%, crop 1999 shows a significantly lower forward contracting rate than in previous years.

### Financial Aspects of the Industry

The total estimated value of the 1996 crop (excluding hops grown on a brewery farm in Northern Idaho) declined by approximately \$10 million to \$120 million from the previous year. This decline in value was the result of an approx. 1,800 to smaller production and a lower average price of \$0.13/kg compared to 1995.

The decline in value affected Oregon most, where the estimated average revenue per acre dropped by close to \$1,156 per ha or -16% to \$6,316 this year. Idaho recorded an estimated average revenue per acre of \$6,644 in 1996 compared to \$6,941 per ha in 1995. Washington state achieved the highest revenue per ha for crop 1996 with an estimated \$7,323 and maintained its six-year average difference of roughly \$500 per ha over both Oregon and Idaho.

This difference is all the more significant, since it is believed that the

#### Quantities Contracted Forward (in to)

Report as of Spring	same Crop Year	Years forward				
		1 Year	2 Year	3 Year	4 Year	5 Year
1997	31,343	28,395	20,321	16,511	5,171	4,581
1996	30,073	28,486	22,498	13,653	9,117	3,765
1995	30,844	27,034	18,552	15,150	6,713	4,581
1994	33,022	30,935	21,274	17,146	14,560	7,756
1993	29,166	28,032	22,407	9,163	4,944	3,992
1992	30,345	29,302	27,442	22,362	10,569	7,893

#### Degree of Forward Contracting (in %)

1997	89%	80%	57%	47%	15%	13%
Ø 1992-96	89%	83%	65%	44%	26%	16%

majority of growers have production costs ranging between \$6,400 to \$6,900 per ha. Even at \$6,900 per ha, growers in Washington were able to record profits in all of the last six years, while growers in Oregon and Idaho could do the same in only some of these years.

### New Hop Varieties

Until recently, USDA-funded state breeding programs were the only source of newly bred and released varieties. However, private breeding programmes of hop merchants have been responsible for introducing as many as 7 to 10 new varieties in the last four years. Most of these varieties belong to the high-alpha segment, which has now been expanded to differentiate between high alpha and super high alpha. The latter classification refers to varieties that have yields of 2.9 to 3.4 to/ha and an alpha con-

Estimate Revenue per Hectare (in US\$)							
	1991	1992	1993	1994	1995	1996	Ø
Washington	7,864	7,988	8,000	7,867	8,007	7,323	7,842
Oregon	5,973	6,793	7,222	8,299	7,481	6,316	7,015
Idaho*	6,568	7,640	7,790	8,760	6,941	6,644	7,390
<b>USA TOTAL</b>	<b>7,432</b>	<b>7,731</b>	<b>7,844</b>	<b>8,007</b>	<b>7,830</b>	<b>7,052</b>	<b>7,649</b>
Average Prices per kg (in US\$)							
Washington	3.70	3.79	3.79	3.90	3.70	3.59	3.75
Oregon	3.77	4.10	4.30	4.32	4.19	4.08	4.12
Idaho	3.51	3.73	3.90	3.95	3.55	3.26	3.64
<b>USA TOTAL</b>	<b>3.70</b>	<b>3.84</b>	<b>3.88</b>	<b>3.99</b>	<b>3.77</b>	<b>3.64</b>	<b>3.79</b>

\* excludes revenue for "other aroma varieties" mostly grown in Northern Idaho

tent of 14.5% to 16.5% (EBC 7.3.2), producing an alpha yield per ha of 0.4 to 0.6 tons of alpha. This compares to 0.2 to 0.3 tons of alpha of varieties such as **Nugget** and **Galena**.

Due to the private nature of merchant breeding programs, these varieties are not public domain but proprietary. The breeders' rights and the ownership of some varieties are clearly defined and protected by plant pat-

ents. In 1996, the acreage strung for harvest of proprietary super and regular high-alpha varieties totaled 880 ha. The estimated alpha production from these varieties has reached approximately 10% of the total 1996 alpha production in the US, representing the fastest growing varietal segment with a 100% increase over 1995.

## CANADA

The growing area of the only farm in Canada was again reduced for crop 1996, down from 220 to only 146 ha.

Both yield and quality were disappointing. Of the 136 to produced, 16 to of **Bramling** and **Kent** were of unsalable quality. The other two varie-

ties, **Willamette** and **Hallertau**, were of acceptable quality.

Crop 1997 will be the last year of operation for this farm.

## ASIA

### CHINA

#### Acreage and Production 1996

Area	Acreage ha	Ø-Yield to/ha	Production to
Xinjiang	2,500	3.00	7,500.0
Gansu	1,700	2.35	4,000.0
Ningxia	150	2.67	400.0
Others	50	2.00	100.0
<b>CHINA TOTAL</b>	<b>4,400</b>	<b>2.73</b>	<b>12,000.0</b>

According to the official report for Xinjiang, production was significantly higher than the above figure, i.e. 8,540 to. This difference in volume is probably caused by stocks of previous crops being included.

The bitter variety **Tsingdao Flower 641** with an average alpha content of

5.8% (EBC 7.3.2 as is) accounted for 89% of production. The remaining volume was divided between the bitter variety **Toyomidori** (alpha content 7.1%) and the aroma variety **Zha Yi**, formerly called **Xinjiang Saaz**, (alpha content 3.7%) with 5% and 6% of the total respectively.

In Gansu, production was about 20% lower than expected.

It remains the case, however, that the reliability of the figures reported is extremely questionable.

#### Market development

Due to stagnating beer production, sharply falling hopping rates and high stocks from previous harvests, sales of the new hops were slow. As a result, the estimated average price achieved by the farms remained at the extremely low level of 1.60 DM/kg. In spring 1997, 600 - 700 to of the crop was still unsold.

# JAPAN

## Acreage and Production 1996

Brewing Group	Acreage ha	Ø-Yield to/ha	Production to
Kirin	278	1.99	552.9
Sapporo	113	1.99	225.4
Asahi	39	2.03	79.0
Suntory	3	1.53	4.6
<b>JAPAN TOTAL</b>	<b>433</b>	<b>1.99</b>	<b>861.9</b>

### Growth and alpha content

Sufficient precipitation encouraged good hop growth. Due to the warm summer, the quality in the North (Iwate region) was better than in the other hop-growing regions.

The average alpha acid content (converted into EBC 7.3.2) of the new Japanese variety **Golden Star** was 6.3%, while the **Franco Ace** variety reached 5.9%. The average for the entire Japanese crop was approx. 6.0%, the mean for the last few years.

### Market situation

99% of production was classed as top quality. As in previous years, the purchase price paid by the brewers was 2,129 yen/kg (1st class quality) 2,024 yen/kg (2nd class) and 1,599 yen/kg (3rd class).

In Japan, contracts regarding acreage are signed every five years between the growers and the breweries through an agricultural cooperative. The yield produced on this acreage is purchased by the respective brewery at the agreed price. Consequently, there is no spot market in Japan.

## 1997 CROP

# AMERICA

## ARGENTINA

### Acreage and Production 1997

Area	Variety	Acreage ha	Ø-Yield to/ha	Production to
Bolsón	Cascade	143	0.80	115.0
	Ringwood	7	0.71	5.0
	<b>Total Bolsón</b>	<b>150</b>	<b>0.80</b>	<b>120.0</b>
Alto Valle	Ringwood	11	1.09	12.0
	Others	51	1.25	64.0
	<b>Total Alto Valle</b>	<b>62</b>	<b>1.23</b>	<b>76.0</b>
<b>ARGENTINA TOTAL</b>		<b>212</b>	<b>0.92</b>	<b>196.0</b>

Both regions reduced their growing area by a combined total of 50 ha from

the previous year. Acreage has thus been halved since 1995. Due to the

bleak market outlook, growers in Bolsón delayed stringing as long as possible and, in most cases, put up only one bine per hill. This practice resulted in depressed yields and variable quality.

Yield in the Alto Valle growing area improved from last year's 0.84 to/ha to 1.23 to/ha.

The alpha content in both regions was slightly better than average.

# AFRICA

## SOUTH AFRICA

### Acreage and Production 1997

Variety	Acreage ha	Ø-Yield to/ha	Production to
Southern Brewer	626	1.51	947.0
Outeniqua	16	1.50	24.0
Southern Promise	9	1.56	14.0
<b>SOUTH AFRICA TOTAL</b>	<b>651</b>	<b>1.51</b>	<b>985.0</b>

In the winter, the weather was exceptionally cold and dry. Storms and floods in late November caused consid-

erable damage to the hop yards from which some had still not recovered by harvest time.

As a result, the yield did not come up to expectations. The estimated yield loss due to the storms is 0.25 to/ha.

The alpha acid values (EBC 7.3.2) were as follows: **Southern Brewer** 9.9%, **Outeniqua** 14.3% and **Southern Promise** 10.8%.

The entire crop was sold to the domestic brewing industry by contract at an average price of 330 rand per kg alpha.

# ZIMBABWE

The following amendments to the 1996 figures were received after our last report had gone to press: acreage was 35 ha, production 42 of **South-ern Brewer**.

No hops were produced in Zimbabwe in 1997. One reason for this was the availability of existing stocks, another was disease which caused the hop yards to be cleared. At the mo-

ment new rootstock is being propagated and it is planned to replant a smaller area with hops for the 1998 harvest.

## AUSTRALIA – OCEANIA

### AUSTRALIA

#### Acreage and Production

Area	Variety	Development of Acreage			Development of Production			
		1996	+/-	1997	1996	1997	1996	1997
		Acreage ha			Ø-Yield to/ha		Production to	
Tasmania	<b>Aroma</b>	60	-13	47	1.55	1.36	93.2	64.0
	Cluster	3	0	3	1.97	2.00	5.9	6.0
	Pride of Ringwood	436	-2	434	3.07	2.67	1,340.2	1,160.0
	<b>Total Bitter</b>	<b>439</b>	<b>-2</b>	<b>437</b>	<b>3.07</b>	<b>2.67</b>	<b>1,346.1</b>	<b>1,166.0</b>
	Nugget	71	21	92	2.65	1.93	188.4	178.0
	Victoria	*	137	137	*	2.47	*	339.0
	Opal	*	38	38	*	2.58	*	98.0
	Other High Alpha	185	-161	24	2.98	1.83	552.2	44.0
	<b>Total High Alpha</b>	<b>256</b>	<b>35</b>	<b>291</b>	<b>2.89</b>	<b>2.26</b>	<b>740.6</b>	<b>659.0</b>
<b>Total Tasmania</b>	<b>755</b>	<b>20</b>	<b>775</b>	<b>2.89</b>	<b>2.44</b>	<b>2,179.9</b>	<b>1,889.0</b>	
Victoria	Cluster	16	2	18	2.18	1.11	34.8	20.0
	Pride of Ringwood	141	14	155	2.35	1.89	331.3	293.0
	<b>Total Bitter</b>	<b>157</b>	<b>16</b>	<b>173</b>	<b>2.33</b>	<b>1.81</b>	<b>366.1</b>	<b>313.0</b>
	<b>Victoria/High Alpha</b>	<b>96</b>	<b>9</b>	<b>105</b>	<b>3.50</b>	<b>3.27</b>	<b>336.2</b>	<b>343.0</b>
	<b>Others</b>	<b>6</b>	<b>-6</b>	<b>0</b>	<b>6.28</b>	<b>0.00</b>	<b>37.7</b>	<b>0.0</b>
<b>Total Victoria</b>	<b>259</b>	<b>19</b>	<b>278</b>	<b>2.86</b>	<b>2.36</b>	<b>740.0</b>	<b>656.0</b>	
<b>Total Aroma</b>	<b>60</b>	<b>-13</b>	<b>47</b>	<b>1.55</b>	<b>1.36</b>	<b>93.2</b>	<b>64.0</b>	
<b>Total Bitter</b>	<b>596</b>	<b>14</b>	<b>610</b>	<b>2.87</b>	<b>2.42</b>	<b>1,712.2</b>	<b>1,479.0</b>	
<b>Total High Alpha</b>	<b>352</b>	<b>44</b>	<b>396</b>	<b>3.06</b>	<b>2.53</b>	<b>1,076.8</b>	<b>1,002.0</b>	
<b>Total Others</b>	<b>6</b>	<b>-6</b>	<b>0</b>	<b>6.28</b>	<b>0.00</b>	<b>37.7</b>	<b>0.0</b>	
<b>AUSTRALIA TOTAL</b>	<b>1,014</b>	<b>39</b>	<b>1,053</b>	<b>2.88</b>	<b>2.42</b>	<b>2,919.9</b>	<b>2,545.0</b>	

\* Included in "Others".

#### Growth and quality

In Tasmania, cold, wet weather prevailed during the first half of the vegetation period, slowing the development of the hops. Not even the more favourable conditions in January and February were able to make up for the negative effects of the preceding months. The yields in Tasmania remained approx. 15% below those of the previous year. The alpha values of all varieties, however, were above average. Because of the cold weather, the harvest began one week later than usual, between 14 and 19 March.

In the hop-producing region of Victoria, temperatures during flowering and cone development were over 35°C

for several days. This heat wave probably accounts for the lower alpha values, particularly for **Pride of Ringwood**.

#### Alpha Acid Table

Variety (in form of pellets)	1996	1997
Pride of Ringwood - Tasmania	10.8%	11.2%
Pride of Ringwood - Victoria	9.7%	9.0%
Cluster	5.9%	6.0%
Nugget	12.3%	12.0%
Victoria	14.1%	13.2%
Opal	14.0%	13.5%
Willamette	6.5%	7.7%

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 season.

#### Market situation

About 60% of the production volume has been sold through future contracts. In mid-April, some 100 to of the 1996 crop was still available on the spot market.

# NEW ZEALAND

## Production

Variety	1996/to	1997/to
NZ Hallertau Aroma	164.5	180.3
NZ Pacific Hallertau	4.2	11.9
<b>Total Aroma</b>	<b>168.7</b>	<b>192.2</b>
NZ Super Alpha	302.4	240.3
NZ Pacific Gem	216.6	191.8
NZ Green Bullet	95.4	95.9
NZ Sticklebract	43.1	31.3
NZ Southern Cross	5.6	15.7
<b>Total High Alpha</b>	<b>663.1</b>	<b>575.0</b>
Trial Varieties	1.1	1.8
<b>NEW ZEALAND TOTAL</b>	<b>832.9</b>	<b>769.0</b>

### Growth and quality

With acreage unchanged from the previous year, the production volume was approx. 8% lower. The reasons for this decrease were variety changes on the one hand and a cool, wet spring on

the other which affected the growth of the young hops, especially among the aroma varieties.

The harvest began in the last week of February and lasted into early April.

The organoleptic assessment of hop quality was satisfactory. The alpha acid values (EBC 7.3.2) were as follows:

NZ Hallertau Aroma	10.0 %
NZ Pacific Hallertau	6.2 %
NZ Super Alpha	13.2 %
NZ Pacific Gem	15.3 %
NZ Green Bullet	14.0 %
NZ Sticklebract	13.4 %
NZ Southern Cross	14.4 %

### Market situation

Despite a 64.4-ton fall in production, certain market activities by the New Zealand Hop Marketing Board suggest that it was not possible to sell the entire crop through future contracts.

## PLANT DEVELOPMENT 1997

### Germany

As in the previous year, precipitation in winter and spring 1996/97 was far below the long-term average. Although there was severe frost in late December and early January, this did not damage the plants during their winter dormancy. Spring work was carried out according to plan without any delay.

By the end of June, the development of the hops was for the most part average to good. Isolated cases of pests and disease were easily countered with the available pesticides. In view of the precipitation, the risk of

drought damage can probably be ruled out, but the weather in July and August will decide.

Compared to 1996, acreage has probably decreased by around 270 ha to approx. 21,540 ha.

### USA

Winter precipitation in all states was above normal, replenishing mountain reservoirs and assuring adequate irrigation water for the growing season. A record continuous snow cover in Washington protected plants against infrequent below-normal temperatures but also delayed spring work

slightly. Floods occurred again in Oregon, although not as severe as in the previous year. Although spring conditions have been slightly cooler and wetter than normal, plants have developed well. Occasional early bloom was reported in some varieties.

In early June, the USDA reported that US growers had expanded their total acreage by 119 ha to 18,002 ha, breaking last year's record. Based on average yields of the last four years, the total US crop is estimated at 36,740 to.

## OUTLOOK 1997

For the crop year 1997, combined acreage in Germany and the USA is expected to remain virtually unchanged from the previous year.

Reports of sharp reductions in acreage have been received only for the Czech Republic. Assuming normal crop levels, it is to be expected that

there will once again be a surplus to requirements for the coming year - with the corresponding consequences for the spot market.

# EUROPEAN MONETARY UNION (EMU)

## Stability pact for Europe?

The European Union (EU) currently comprises 15 states with a total population of 370 million and has a GDP of approx. DM 12 trillion, thus surpassing the USA and Japan. It is the world's largest trading partner and, as a political factor and community of democratic values, it combines significance with global influence.

Both the continuing radical changes in Central and Eastern Europe and new challenges on the international political front are making increasing demands upon the EU as a driving force for positive change. Because of its economic and political potential, the EU is becoming an important guarantor of peace and security both within and beyond Europe.

Behind the realization of EMU, as agreed in the Treaty of Maastricht (with effect of 1 November 1993), there is a political vision that EMU represents an important milestone on the way to an economically and politically united Europe. Monetary union is to commence at the beginning of 1999 for those European states which have proved their economic and fiscal stability.

At the same time, it needs to be emphasised that the introduction of the euro constitutes only one pillar of a strong united Europe, but not the basis of the Treaty of Maastricht. In

order to ensure that Europe would be a region of stability and thus form the basis for a strong common currency, four convergence criteria were stipulated for the future participants in EMU (see Barth Report 1995/96 for details).

The subsequent timetable for the launch of the new currency, the euro, is as follows:

**30.06.1998** - The heads of state and government in the EU have to decide by this date which countries will participate in EMU. The European Central Bank is established.

**01.01.1999** - The exchange rates between the currencies of the countries taking part and the euro are irrevocably fixed. The euro comes into force as an independent currency, but only in nominal form. As of this date, monetary and currency policy is in the hands of the European Central Bank.

**01.01.2002** - On this date, the conversion of national banknotes and coins into euros begins. As of 30.06.2002, the euro is also legal tender in the countries participating.

Due to the generally difficult situation of the European economies struggling with rising unemployment and sluggish economic growth, the

launch conditions for the euro are less than ideal. Meeting the criterion "limitation of annual public sector deficit to 3% of GDP" is causing some of the potential candidates, for example Germany and France, considerable problems. In order to meet the criteria nonetheless, some of the would-be participants are adopting questionable creative accounting practices with regard to their economies. These measures may formally contribute to fulfilling the criteria, but they also raise the question among members of the public as to whether the time is ripe for EMU. Nevertheless, it is to be expected that the introduction of the euro will be forced through politically. The heads of state and government will probably have to interpret the Maastricht criteria more flexibly than originally intended, however.

The extent to which the new euro can gain the trust of the financial markets and the people depends crucially on the shaping and politically independent role of the future European Central Bank.

In conclusion, although on the one hand the "euro vision" unites the politicians of the most important member states of the EU, it is regarded by a significant part of the people and the media on the other hand with critical scepticism.

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