1990/91

HOPS

Joh. Barth & Sohn

Conversion Table

1 ha	= 2,934 bayerische Tagwerk
1 ha	= 2,471 acres
1 bayerisches Tagwerk	= 0,341 ha
1 acre	= 0,405 ha
1 yard = 3 feet = 36 inches = 91,44 cm	
1 hl = 100 l	= 26,42 gall = 0,8523 bbl (USA)
	= 22,01 gall = 0,6114 bbl (Brit.)
1 bbl (USA)	= 31 gall = 1,1734 hl
1 bbl (Brit.)	= 36 gall = 1,6365 hl
1 metr. ton = 1.000 kg	= 20 Ztr. = 2.204,6 lbs
1 Ztr. = 50 kg	= 110,23 lbs = 1,102 cwt (USA)
	= 110,23 lbs = 0,984 cwt (Brit.)
1 cwt (USA)	= 100 lbs = 45,359 kg
1 cwt (Brit.)	= 112 lbs = 50,800 kg
1 cental (Brit.) = 100 lbs	= 45,359 kg = 0,9072 Ztr.
1 kg	= 2,20462 lbs
1 lb	= 0,45359 kg

Conversion of thermometer degrees in Fahrenheit and Celsius:

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

$$30\ {}^{\circ}C = \frac{30 \cdot 9}{5} + 32 = 86\ {}^{\circ}F$$

Currency Exchange Table

As of July 1, 1991 the Frankfurt Currency Exchange Market listed:

	Spot Rate 1/7/91	
	Selling Rate	Buying Rate
New York *	1.8080	1.8160
London *	2.931	2.945
Dublin *	2.668	2.682
Montreal *	1.5810	1.5890
Amsterdam	88.670	88.890
Zurich	116.070	116.270
Brussels	4.849	4.869
Paris	29.420	29.580
Copenhagen	25.850	25.970
Oslo	25.585	25.705
Stockholm	27.620	27.780
Milan **	1.3395	1.3495
Vienna	14.190	14.230
Madrid	1.588	1.598
Lisbon	1.139	1.159
Tokyo	1.3125	1.3155
Helsinki	42.150	42.350

* = 1 unit, ** = 1000 units, all other 100 units

The world market's key data

	1990	1989	Diff. %
Acreage/ha	**91,271**	**90,177**	**+1.2**
Hop production/tons	**114,416**	**118.551**	**−3.5**
Alpha production/tons	**6,864**	**7,290**	**−5.8**
Beer production/1,000 hl	**1,141,733**	**1,104,336**	**+3.4**

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Unofficial dealings of July 1, 1991

	Selling Rate	Buying Rate
Australia	1.3820	1.3940
Yugoslavia	7.55	7.85
New Zealand	1.0385	1.0505

These rates are only given for the purpose of information.

Nuremberg, July 1991

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Political Situation

The major event of 1990 was the emerging new world order as a consequence of the reform movements in the formerly socialist block. The reunification of the two German states as well as the war in the Near East must be seen against this background.

In Germany the hopes for a united nation became true much faster than anybody would have dared to expect. The Currency and Social Union agreed between the Federal Republic of Germany and the German Democratic Republic (GDR) on July 1, 1990 was rapidly followed by measures to complete unity: on August 22, the GDR's parliament approved elections for all of Germany; on August 23, it decided to accede to the Federal Republic of Germany on October 3; on December 3, elections to the German Bundestag (lower chamber of parliament) were held followed by the formation of an all-German government by the successful coalition headed by Federal Chancellor Helmut Kohl.

President Gorbachev continues to fight the lasting political and economic crisis in the USSR. In June 1991 Boris Jelzin is elected president of the Russian Republic in free elections. In other Soviet republics noncommunist governments with a strong ethnic influence took power already before that, they reject the Soviet central state and are striving for more independence and market-related economy. The state machinery as such remains largely in the hands of the conservatives whose confrontations with the movements of the new order make the country appear on the brink of chaos sometimes. The West's interest in a peaceful evolution gave rise to extensive economic support to overcome the crisis.

The central government of Yugoslavia which is mainly supported by the Serbian part of the population threatens to clash with the northern republics Slovenia and Croatia.

In other former member countries of the Eastern block the transition to democratic forms of society with free market economy is no less painful. In Poland the government is trying to save the country with a courageous radical programme. The CSFR is putting its hopes into the conciliatory talents of its President Vaclav Havel. Bulgaria and Romania have many difficulties to cope with their political past. The last Stalinist-hardliner country, Albania, could not ward off liberalisation any longer and elected a new government.

Despite ongoing unrest between the black ethnic groups the South African government headed by President De Klerk seems willing to abolish the policy of Apartheid and work towards a participation of all groups of the population in the political decision-making process. The neighbouring country Namibia, under South African administration since 1918, won independence in March 1990. On August 2, 1990 the Iraqyi dictator Saddam Hussein invaded the sheikdom of Kuwait proclaiming its annexation as the Iraq's 19th province. For the first time East and West cooperated on the level of the UN Security Council to a significant extent, thus expressing the indignation of the world's public opinion. On the initiative of US President George Bush who had immediately sent US troops to Saudi Arabia to prevent another attack by Iraq, a number of UN resolutions were adopted exerting pressure on Iraq which was totally isolated, however, it could not be convinced of giving in. When the ultimatum of UN resolution no. 678, to withdraw from Kuwait until January 15, 1991, remained unanswered as well, several weeks of extensive allied air operations started in the middle of January, destroying Iraq's military and economic infrastructure to a large extent. The land attack that followed in March, again spearheaded by the US, led to the liberation of Kuwait and the complete military defeat of Iraq within a few days. The armistice signed on April 12, 1991 did not touch the integrity of Iraq as a state, but demanded recompensation and the destruction of all ABC arms. The subsequent internal crisis of Iraq has not yet ended.

Economic situation

In 1990 the world economy was characterized by a slow-down of economic activity in the USA, Australia and Great Britain. The economies of other industrialized nations in Asia and Europe have so far not experienced any recession. So all in all the industrialized nations were still able to record a growth rate of 2.6 percent.

The restructuring of the economies in the former Eastern bloc countries, whose industries and agriculture cannot compete on western markets, presents quite a burden on the world economy. Thus the opening of eastern markets led, on the one hand, to a big increase of sales from West to East, and, on the other hand, meant that the state-owned (continued on page 3.)

The key 1990 economic data for the **USA** and the **Federal Republic of Germany:**

Key data	USA	FRG
Gross national product	$ 4,157 bn	DM 2,447.7 bn
Balance of trade	– $ 108.1 bn	+ DM 117.7 bn
Balance of current acct.	–$ 99.3 bn	+ DM 77.4 bn
Inflation rate	+ 4.3 %	+ 2.7 %
Interest rate on Feb. 1, 1991	8.5 % (prime rate)	6.5 % (Federal Bank discount rate)
Unemployment rate on April 1, 1991	6.6 %	6.2 %

Table of Bitter Constituents

The bitter constituent values of the most important European varieties 1990:

variety	total resin	conductometric value	conductometric value in the total resin
Hallertau Hallertau	12,8	4,3	33,6
Hallertau Hersbruck	10,2	2,8	27,5
Hallertau Hüll	12,1	4,9	40,5
Hallertau Perle	12,3	5,4	43,9
Hallertau Record	13,2	5,1	38,6
Hallertau Northern Brewer	16,3	7,5	46,0
Hallertau Brewers Gold	14,3	6,2	43,4
Hallertau Orion	16,7	6,9	41,3
Tettnang	10,6	3,6	34,0
Spalt	10,2	3,0	29,4
Saaz	9,7	3,7	38,1
Yugoslavian Styrian Golding	14,3	5,6	39,2
Yugoslavian Super Styrian	17,7	8,6	48,6

The values are in % as is according to Woellmer (extraction with ether).
The values were measured in October/November after the harvest. For deliveries in the later course of the season reductions have to be taken into account.
The bitter values of other important varieties are listed in the respective country report.

World Beer Production 1989/90

Specification in 1,000 hl

EUROPE

Country	1990	1989
FRG – old Länder	104.271	93.200
FRG – new Länder	15.890	–
Great Britain	59.653	60.140
USSR	50.000*	56.000*
Spain	27.315	27.200[1]
Czechoslovakia	23.527	22.684
France	21.398	20.900
Netherlands	20.047	18.813
GDR	–	24.800
Belgium	14.141	13.166
Yugoslavia	13.540	11.107
Romania	13.100	14.000[2]
Poland	12.240	12.380
Italy	11.067	10.383
Hungary	9.823	9.388
Austria	9.600	9.200
Denmark	8.510	8.600
Portugal	6.995	6.810
Ireland	6.500	5.401[3]
Bulgaria	6.000*	7.000*
Sweden	5.100	4.586
Switzerland[4]	4.170	4.133
Finland	4.131	3.914
Greece	3.700*	3.700*
Norway	2.236	2.205
Luxemburg	600	611
Albania	190*	100*
Malta	170	163
Iceland	64	66
TOTAL	453.978	450.650

[1] later correction to 27,337
[2] 1989 estimated: 13,000
[3] the output is said to be higher
[4] Production year from 1. 10. to 30. 9.

AMERICA

Country	1990	1989
USA	238.997	233.619
Brazil	58.000	55.000
Mexico	39.743	38.677[1]
Canada	22.565	22.710
Colombia	17.500	18.000
Venezuela	11.000	11.000
Argentina	6.900	6.100
Peru	4.900	5.400
Cuba	3.000*	3.333
Chile	2.670	2.765
Ecuador	1.700	1.700
Bolivia	1.280	1.000
Panama	1.236	980
Dominican. Rep.	1.160	1.467
Paraguay	1.100	1.000
Guatemala	1.000	900[2]
Honduras	807	738
Costa Rica	800	809
Jamaica	800	1.000
Puerto Rico	750	592
Uruguay	670	650
El Salvador	600	680
Nicaragua	440	300
Trinidad	435	450
Netherl. Antilles	165	165
Surinam	125	117
Guyana	120	120
Barbados	110	120
San Lucia	97	85
Bahamas	95	84
Haiti	78	70
Martinique	63	63
Belize	45	51
Grenada	32	30
Guadeloupe	30*	30*
St. Kitts	30	18
St. Vincent	28	38
TOTAL	419.071	409.861

[1] later correction to 39,131
[2] later correction to 980

AFRICA

Country	1990	1989
South Africa	22.500	21.000
Nigeria	8.000*	7.000
Cameroon	4.505	4.738
Kenya	3.700	3.900
Zaire	2.918	3.173
Zimbabwe	2.700	1.800
Ivory Coast	1.095	1.360
Burundi	998	916
Zambia	850	945
Gabon	750	800
Ghana	644	614
Algeria	640	366
P. Rep. Congo	632	700*
Ruanda	596	710
Ethiopia	545	706
Togo	531	438
Tansania	530	538
Egypt	500	460
Angola	500	700
Morocco	500	500
Namibia	500	498
Botswana	437	415
Tunesia	420	400
Burkina Faso	400*	500*
Moçambique	390	300
Lesotho	358	313
Madagascar	300	250
Mauritius	300	180[1]
Benin	251	206
Swaziland	220	213
Central. African Rep.	220	325
Réunion	189	135
Senegal	150	153
Uganda	145	130
Chad	115	113
Malawi	100*	150*
Sao Tome	100	(100)
Mali	80*	80*
Niger	80*	100*
People's Dem.Rep.Yemen	80	60
Liberia	75	143
Seychelles	63	53
Sierra Leone	56	43
Cap Verde	30	(30)
Guinea Bissau	20*	20
Gambia	10*	16
TOTAL	58.723	56.160

[1] later correction to 280

NEAR EAST

Country	1990	1989
Turkey	3.700	2.500
Israel	490	700[1]
Cyprus	335	314
Iraq	200*	400
Syria	90*	90
Lebanon	75	130
Jordan	61	37
TOTAL	4.951	4.171

[1] later correction to 425

FAR EAST

Country	1990	1989
People's Rep. China	70.000*	60.000*
Japan	65.617	61.005
Philippines	15.000	13.650
Rep. of Korea	12.690	10.500
Taiwan	4.557	4.000*
India	3.300	1.723
Thailand	2.620	1.900
Hong Kong	1.700	1.686
Indonesia	1.190	992
D. P. Rep. Korea	1.000*	1.000*
Vietnam	1.000	2.000*[1]
Malaysia	884	709
Singapore	663	441
Iran	100**	100**
Mongolia	100*	100*
Sri Lanka	88	71
Nepal	70	50
Burma	40	50*
Pakistan	12	9
Laos	10	10
Bangla-Desh	5*	5*
Cambodia	5*	5*
TOTAL	180.651	160.006

[1] 1989 estimated 1,000

AUSTRALIA/ OCEANIA

Country	1990	1989
Australia[1]	19.548	18.700
New Zealand[1]	3.858	3.890
New Guinea	476	494
Fiji Islands	225	170
Tahiti	121	121
New Caledonia	59	59
Samoa	52	54
Vanuatu	10	–
Salomon Islands	10	–
TOTAL	24.359	23.488

[1] brewing year

*estimated
**non-alcoholic

	1990	1989
WORLD	**1.141.733**	**1.104.336**

companies of the past lost their markets in the former COMECON countries. All of this contributed to the virtually unknown phenomenon of unemployment. In the USSR the disintegration of political structures became most apparent in the lasting shortages and bottlenecks faced by the supply sector.

In August 1990 the imminent danger of a war in the Middle East caused perturbances of the international stock exchanges. Oil prices jumped from 19.– US $ to a temporary high of 41.– US $ towards the end of September. In the meantime the situation has relaxed.

With the economic inclusion of the five new Bundeslaender (the former GDR) the German economy will be faced with tasks of a still unknown dimension. As a first measure East Germany will receive DM 115 billion from a special fund called "German Unity". It is to be expected that other financial means will be used to support this part of the country. In order to finance these activities taxes are raised. The newly-founded Treuhandanstalt has the task of privatizing, restructuring or closing down 8,000 companies that were formerly public ownership of the German Democratic Republic. It will be most important to get rid of the economic inefficiency and unemployment in the Eastern regions of the country that became so blatantly obvious when the East German currency was replaced by West German Marks.

In the face of such tremendous challenges posed to the world economy by the developments in Eastern Europe the lasting economic problems of Africa and South America faded into the background.

Output development

In the different continents production experienced the following changes (in 1,000 hl):

	1990 % rel.	1989 % rel.	1990 total	1989 total	+/– total
Europe	+ 0.7	+ 1.7	453,978	450,650	+ 3,328
America	+ 2.3	+ 2.7	419,071	409,861	+ 9,210
Africa	+ 4.6	+ 0.9	58,723	56,160	+ 2,563
Asia (Far East)	+ 12.9	+ 7.3	180,651	160,006	+ 20,645
Near East	+ 18.7	+ 3.7	4,951	4,171	+ 780
Australia/Pacific	+ 3.7	– 4.2	24,359	23,488	– 871
Total	+ 3.4	+ 2.7	1,141,733	1,104,336	+ 37,397

Market analysis

The world hop market situation in 1990 was mainly characterized by the simultaneous occurance of small crops in all three hop-growing continents: Europe, America and Australia.

In the first half of 1990 the world market was relaxed and quiet. Although surplus stocks detrimental to the market had been reduced and a slight increase of prices was observed, a relatively balanced market supply was expected in view of the worldwide acreage and the condition of the hop plants.

At the end of August 1990 which was harvesting time, it became obvious that the many weeks of draught in the main European growing areas had caused major losses in volume and in bitter acids. Offical estimates of the crop in German growing areas made between August 16 and 21, were still expecting a satisfactory quantity. But then – which is typical for small crops – "the crop withered away on the plant", i.e. the further harvesting progressed the smaller volume expectations became. The situation was similar in the US growing regions, but for different climatic reasons. In general the trend was to overestimate the crop's volume, therefore the quantities really available on the world market were not known until after the harvest.

The bottleneck situation on the market first caused supply problems between farmers and merchants, mainly in Europe, and consequently between merchants and the brewing industry. Industry on the other hand needed the hops early, because beer production soared. Hence a firm market with a strong increase in prices seemed imminent for the small volume of uncontracted spot hops available, this promptly happened and caused extraordinarily high prices, especially in Germany, between September and November 1990.

A great variety of solutions and ideas helped to secure supplies for the brewing industry nevertheless. In the course of the season the market even became quiet and additional orders of the brewing industry for spot market hops could be filled. Against this background the market's interest focussed on the 1991 crop early on. This crop has been contracted to a very high extent and is additionally burdened by transfers from the 1990 crop. However, the increase in acreage in the USA might contribute to a more relaxed market situation in 1991.

Our estimates of the contracting rate of the world's major growing regions on the basis of an average yield for the existing acreage are as follows for the coming years (in %):

Country	1991	1992	1993	1994	1995
Fed. Rep. of Germany (old)	80	65	50	40	30
USA	85	75	60	50	40
CSFR	85	70	60	40	40
United Kingdom	95	50	20	10	10
Yugoslavia	80	65	50	30	20

Acreage and Hop Production

area	1990 acreage in ha	1990 ∅ tons per ha	1990 crop in tons = 1000 kg	1989 acreage in ha	1989 ∅ tons per ha	1989 crop in tons = 1000 kg
Hallertau	16.982	1,39	23.580,3	16.859	1,63	27.397,2
Spalt	812	1,05	855,0	821	1,21	989,7
Hersbruck	113	1,27	143,3	124	1,29	168,7
Jura	735	1,59	1.169,3	734	1,92	1.408,0
Tettnang	1.448	1,28	1.849,2	1.380	1,42	1.956,9
others	23	1,08	24,9	20	1,23	24,6
Fed. Rep. of Germany	**20.113**	**1,37**	**27.622,0**	**19.938**	**1,60**	**31.945,1**
England	**3.594**	**1,28**	**4.582,6**	**3.742**	**1,26**	**4.719,5**
Aalst	74	1,57	116,5	80	1,46	137,3
Poperinge	295	1,64	484,4	322	1,72	468,9
Belgium	**369**	**1,63**	**600,9**	**402**	**1,51**	**606,2**
Alsace	474	1,53	723,3	455	1,51	688,8
Nord	56	1,11	62,0	69	0,96	66,2
Burgundy	2	1,50	3,0	2	2,50	5,0
France	**531**	**1,49**	**788,3**	**526**	**1,44**	**760,0**
Ireland	**17**	**2,02**	**34,3**	**22**	**1,16**	**25,6**
Spain	**1.412**	**1,51**	**2.126,9**	**1.560**	**1,46**	**2.269,6**
Portugal	**106**	**1,61**	**170,6**	**118**	**2,11**	**248,4**
EEC	**26.143**	**1,37**	**35.925,6**	**26.308**	**1,54**	**40.574,4**
Saaz	7.538	0,84	6.363,0	7.690	0,97	7.481,0
Auscha	1.772	0,95	1.675,0	1.602	1,18	1.897,0
Tirschitz	1.135	1,23	1.397,0	1.144	1,24	1.414,0
Slovakia	1.362	0,87	1.182,0	1.505	0,98	1.481,0
Czechoslovakia	**11.807**	**0,90**	**10.617,0**	**11.941**	**1,03**	**12.273,0**
USSR	**15.000**	**0,60**	**9.000,0**	**15.000**	**0,63**	**9.500,0**
Slovenia	2.508	1,45	3.641,0	2.518	1,29	3.247,0
Bačka and Ilok	609	0,90	550,0[1]	685	1,35	926,0
Yugoslavia	**3.117**	**1,35**	**4.191,0**	**3.203**	**1,30**	**4.173,0**
(Germ. Dem. Rep.) Elbe-Saale	**2.286**	**1,17**	**2.662,3**	**2.239**	**1,37**	**3.074,8**
Poland	**2.257**	**1,03**	**2.320,0**	**2.372**	**1,03**	**2.450,0**
Bulgaria	**933**	**0,62**	**580,0**	**833**	**0,94**	**780,0**
Romania	**2.346**	**1,14**	**2.060,0**	**2.300**	**1,10**	**2.500,0**
Hungary	**382**	**1,10**	**421,7**	**441**	**1,36**	**599,7**
Mühlviertel	103	1,29	132,7	96	1,57	150,3
Leutschach	85	1,42	121,0	85	1,32	112,0
Waldviertel	8	0,40	3,2	5	0,60	3,0
Austria	**196**	**1,31**	**256,9**	**186**	**1,43**	**265,3**
Switzerland	**21**	**2,06**	**43,2**	**21**	**2,17**	**45,7**
Albania*	**70**	**1,00**	**70,0**	**70**	**1,00**	**70,0**
EUROPE	**64.558**	**1,06**	**68.147,7**	**64.914**	**1,18**	**76.305,9**
Washington	10.390	1,83	19.064,0	9.849	2,00	19.716,0
Oregon	2.874	1,68	4.938,0	2.999	1,80	5.390,0
Idaho	1.093	1,68	1.841,0	1.133	1,64	1.860,0
USA	**14.357**	**1,80**	**25.843,0**	**13.981**	**1,93**	**26.966,0**
Canada	**329**	**1,06**	**348,9**	**290**	**1,45**	**419,2**
Japan	**842**	**1,97**	**1.655,6**	**935**	**2,07**	**1.939,3**
Australia	**1.085**	**1,93**	**2.097,5**	**1.113**	**2,22**	**2.473,0**
New Zealand	**210**	**2,00**	**420,4**	**199**	**2,21**	**439,3**
People's Rep. of China	**6.500**[1]	**2,00**	**13.000,0**[1]	**5.000**	**1,40**	**7.000,0**
Dem. People's Rep. of North Korea	**2.000**[1]	**0,60**	**1.200,0**	**2.000**	**0,60**	**1.200,0**
Republic of South Korea	**324**	**0,78**	**254,0**	**410**	**1,33**	**545,0**
South Africa	**530**	**1,38**	**730,0**	**515**	**1,18**	**605,0**
India	–	–	–	**450**	**0,56**	**250,0**
Turkey*	**120**	**1,00**	**120,0**	**120**	**1,08**	**130,0**
Argentina	**270**	**1,00**	**270,0**	**250**	**1,11**	**278,0**
Zimbabwe	**146**	**2,25**	**328,5**	–	–	–
WORLD	**91.271**	**1,25**	**114.415,6**	**90.177**	**1,32**	**118.550,7**

* estimated

[1] see corresponding country report.

Alpha Acid Production

Alpha acid production on the world market was determined on the basis of the following groups of varieties:

Group A: finest aroma hops such as Saaz, Tettnang, Spalt

Group B: aroma hops such as Hallertau, Hersbruck, Hüll, Perle, Golding, Fuggle, Cascade and others

Group C: hop varieties without significance for the world market

Group D: bitter hops such as Northern Brewer, Brewers Gold, Cluster, Bullion, Pride of Ringwood, high-alpha hops from the USA and the UK

When grouping world hop production in this way the following alpha production results for 1990 which compares to the previous year's as follows:

	1990				1989			
Group	share %	crop tons	α % ∅	α tons	share %	crop tons	α % ∅	α tons
A	6	13,322	3.1	414	7	17,283	3.1	530
B	23	29,732	5.1	1,527	19	29,980	4.5	1,360
C	27	35,784	5.4	1,932	22	29,820	5.4	1,600
D	44	35,578	8.4	2,991	52	41,468	9.2	3,800
Total	100	114,416	6.0	6,864	100	118,551	6.2	7,290

Group A share remained nearly constant. The share of aroma hops is growing due to the increased cultivation of this variety in the U.S.A. The decrease of group D might be due to the low bitter values of European hops in connection with the decrease in crop of this variety.

Alpha Acid Balance

The deficit in alpha acid supply to the world market continued in 1990.

This shortage is due to the lower world crop obtained in 1990 and the lower content of bitter substances as well as to the increase in beer output.

We may assume that the deficit in the 1990 crop did not only result in a large-scale reduction of surpluses but, in some parts of the world brewing industry, also in an alarming stock decrease.

1988 demand (hopping rate 7.0 g alpha/hl)	7,529.0 tons alpha
1987 production	8,080.0 tons alpha
Surplus	551.0 tons alpha

1989 demand (hopping rate 7.0 g alpha/hl)	7,730.0 tons alpha
1988 production	7,276.0 tons alpha
Deficit	454.0 tons alpha

1990 demand (hopping rate 6.9 g alpha/hl)	7,877.3 tons alpha
1989 production	7,290.0 tons alpha
Deficit	587.3 tons alpha

1991 demand (estimated hopping rate 6.8 g alpha/hl)	7,900.0 tons alpha
1990 production	6,864.0 tons alpha
Deficit	1,036.0 tons alpha

European Community

Subsidies to Growers

On July 16, 1990, regulation (EEC) no. 2072/90 was adopted according to which the growers are granted subsidies for the 1989 crop.

Subsidies to Growers 1989

Type of variety	ECU = DM (per ha)	
Aroma	340	795.98
Bitter	390	913.04
Other	400	936.45

1989: 1 ECU = DM 2.34113

The new rate for converting ECU into DM was determined as per regulation (EEC) no. 1179/90. Up to now the conversion rate was DM 2.36110.

Subsidies for structural changes in hop acreage

Within the scope of regulation (EEC) no. 2997/87 for granting subsidies to hop growers for a change of variety (see our reports "Hops 1988/89" and "Hops 1989/90"), the commission adopted with regulation (EEC) no. 90/341 a modification of the programme with regard to the changes of variety in the Federal Republic of Germany.

The "Hopfenverwertungsgenossenschaft Hallertau eG.", "Hopfenverwertungsgenossenschaft Jura eG." and "Hopfenverwertungsgenossenschaft Spalt eG.", are now participating in this programme.

The programme started on April 1, 1988 and will last until November 30, 1992. Planting of new varieties must be completed before December 31, 1992. The relevant producers' associations are responsible for the preparation and execution of this programme.

800 ha of the regions Hallertau, Jura and Spalt are included in the programme. The following acreage is concerned:

Planned varieties and acreage (ha)

Aroma hops	
Hallertauer	4
Spalter	5
Hersbrucker Spät	457
Hallertauer Tradition	64
Spalter Select	37
Total	567

Super alpha hops *	
Nugget	40
Target	121
Yeoman	4
Hallertauer Magnum	68
Total	233

* As per article 2 of regulation (EEC) no. 2997/87 and article 1 paragraph 3 of regulation (EEC) no. 3889/87.

Federal Republic of Germany

Growth, estimated harvest and actual weight

Conditions of growth were favourable at first. It was only in June that low rainfall adversely affected the plants. Above all the light and sandy soil in the north of the Hallertau and in the Jura region suffered from such lack of precipitation.

July was rather cool and rainy – our market report talked about good plant development in German areas. However, the situation dramatized: for as much as five weeks – until mid August – there was no rainfall at all and the drought adversely affected hop growth. Some isolated rain showers which the Hallertau area experienced in mid August could not compensate for the deficiency in precipitation.

Harvest commenced around August 25 and 26. It soon turned out that estimated harvest was not achieved in any of the German areas.

Official Crop Estimate

Area	Estimate tons	Actual weight 1990 as of March 31, 1991
Hallertau	26,850	23,580
Jura	1,360	1,169
Spalt	910	855
Tettnang	1,910	1,849
Hersbruck	155	143
Others	25	25
Total	31,210	27,621

The following table shows the difference in tons between estimated and actual quantity obtained in the Hallertau area:

Variety	Hallertauer	Hersbrucker	Hüller	Perle
Estimate	510	9,864	586	4,489
Actual crop	352	8,590	668	3,654
Variety	**Northern Brewer**	**Brewers Gold**	**Orion**	**Others**
Estimate	7,415	3,398	218	372
Actual crop	6,507	3,263	205	342

Varieties

In the German hop districts the following varieties were cultivated and produced the following crop quantities:

area	variety	ha	Ø-yield/tons	crop quantity/tons
Hallertau	Hallertauer	422	0,83	349,6
	Hersbrucker	6.748	1,27	8.589,8
	Hüller	496	1,35	668,3
	Perle	2.448	1,49	3.653,9
	Northern Brewer	4.808	1,35	6.507,1
	Brewers Gold	1.637	1,99	3.262,5
	Orion	128	1,60	204,5
	others	295	1,17	344,8
Jura	Hallertauer	37	0,96	35,6
	Hersbrucker	454	1,55	704,5
	Hüller	4	1,61	6,5
	Perle	90	1,84	165,2
	Northern Brewer	51	1,53	77,8
	Brewers Gold	83	2,02	167,9
	others	16	0,75	12,1
Spalt	Hallertauer	393	1,01	397,1
	Spalter	230	0,91	208,4
	Hersbrucker	149	1,21	180,8
	Perle	32	1,69	54,2
	others	8	1,83	14,6
Hersbruck	Hallertauer	52	1,08	56,0
	Hersbrucker	47	1,38	65,1
	others	14	1,59	22,3
Tettnang	Hallertauer	412	1,62	669,0
	Hersbrucker	6	1,09	6,6
	Tettnanger	1.030	1,14	1.173,7
remainder		23	1,08	24,9

Acreage Development

The following table shows the acreage development of the individual varieties resp. types of varieties in 1990 compared to the previous year:

Type of Variety	Variety	1990 ha	1989 ha	+/– ha
Aroma	Hallertauer	1,321	1,420	- 99
	Hersbrucker	7,404	7,041	+ 363
	Tettnanger	1,037	996	+ 41
	Perle	2,580	2,438	+ 142
	Spalt	241	239	+ 2
	Sub-Total	12,583	12,134	+ 449
Bitter	North. Brew.	4,868	5,013	- 145
	Brew. Gold	1,731	1,821	- 90
	Orion	131	136	- 5
	Sub-Total	6,730	6,970	- 240
Others		800	834	- 34
	Total	20,113	19,938	+ 175

Federal Republic of Germany

Acreage

In the **Federal Republic of Germany** the following acreage development resulted:

area	acreage development			aroma varieties					bitter varieties and others			
	acreage 1990 (ha)	+ / – (ha)	acreage 1989 (ha)	Hallertauer (ha)	Hersbrucker (ha)	Spalter (ha)	Tettnanger (ha)	Perle (ha)	Northern Brewer (ha)	Brewers Gold (ha)	Orion (ha)	others (ha)
Hallertau	16.982	+123	16.859	422	6.748	3	–	2.448	4.808	1.637	128	788
Jura	735	+ 1	734	37	454	8	–	90	51	83	3	9
Spalt	812	– 9	821	393	149	230	–	32	2	5	–	1
Hersbruck	113	– 11	124	52	47	–	–	5	6	3	–	–
Tettnang	1.448	+ 68	1.380	412	6	–	1.030	–	–	–	–	–
others	23	+ 3	20	5	–	–	7	5	1	3	–	2
total	20.113	+175	19.938	1.321	7.404	241	1.037	2.580	4.868	1.731	131	800

Source: Verband Deutscher Hopfenpflanzer, „Statistik über die Hopfenvermarktung 1990“.

Market·development

Right from the beginning, the market for the 1990 hop crop was characterized by the low quantities harvested and the low content of bitter substances of the German varieties. In addition, the 1989 crop was completely sold out and at the same time beer output in some major brewing countries increased.

The first purchases were already made in September. At the beginning, the merchants tried to remain below DM 1,000.00 for 50 kg of all varieties. However, the supply was insignificant and higher prices had to be paid reaching DM 1,500.00 for 50 kg of the varieties in demand like Hallertauer Perle and Hallertau Northern Brewer and of the aroma varieties like Spalt and Tettnang which were not on sale.

In spite of this price increase it was not possible to satisfy the demand. Thus the merchants and the breweries had to agree upon solutions to this problem, namely postponements and changes of variety. The merchants simultaneously increased their purchases on foreign hop markets so that finally supply and demand were balanced.

From late October until the end of the year the market was calm, only the German bitter hops Hallertau Northern Brewer and Hallertau Brewers Gold as well as the aroma variety Perle were in demand.

In early 1991, too, the spot market for the 1990 crop remained calm. Thus, single demands from the brewing industry for German hops could be satisfied even at the end of the season. However, the tight market of the 1990 crop led to a considerable decrease of the brewing industry's stock so that already in spring 1991 there was an increased demand for 1991 hops.

The high prices for spot hops, postponements from 1990 to later years as well as the low stocks of the brewing industry resulted in an active demand for hops from the 1991 crop. The contract market started rather early, namely in late September 1990. However, the growers showed little interest for contracts for 1991 and 1992 crop, as the spot prices differed too much from the contract prices. It was only after a price increase that the contract market for each variety became more active. Some contracts were concluded even until 1998. However, in this case, the merchants had to accept lower quantities for the 1991 and 1992 crop, mainly due to the fact that a large amount of hops from these years is already precontracted.

The purchase prices (in DM) for 1990 spot hops in farmer's bales of 50 kg were the following:

area/variety	9/90	10/90	11/90	12/90	1/91	2/91	3/91
Hallertau Hersbrucker	500	800	800	750	450	700	550
Hallertau Perle	800	1,100	1,500	1,500	1,100	1,150	900
Hallertau Northern Brewer	1,050	1,100	1,000	1,000	800	850	750
Hallertau Brewers Gold	700	1,000	700	750	650	650	600
Spalt	900	n.t.	1,500	1,500	n.t.	(1,500)	900
Tettnang	950	n.t.	1,500	1,500	n.t.	(1,500)	900

Eastern European countries took up the remaining lots held by the second hand in May 1991. n.t. = no trade

UNITED KINGDOM

Until early June the 1990 season seemed to be very promising. But then the plants suffered from a drought accompanied by extremely high temperatures which both lasted until the beginning of the harvest.

Those growers who do not avail of artificial irrigation systems faced great problems because of the lack of precipitation. The plants suffered considerably from water shortage for the second consecutive year. Plant growing and cone ripening decelerated or even stopped.

Additionally the plants suffered severely from spider mites and aphids as some pests survived the winter due to mild temperatures.

A large percentage of the English crop in farmers' hands was already pre-contracted. The few offered quantities were easily sold, the demand from the purchasing side exceeding the supply. For the first time after several years, the quotations obtained for spot hops were above contract prices.

UNITED KINGDOM

Varieties grown and yield

Compared to the previous year acreage per variety was as follows:

Variety:	Crop 1990 ha	Crop 1989 ha	Crop 1988 ha
Goldings	382	416	464
Fuggles	370	420	481
W.G.V.	79	87	117
Progress	58	44	47
Bramling Cross	35	41	38
Challenger	442	459	457
Subtotal Aroma varieties	1,366	1,467	1,604
Target	1,526	1,457	1,328
Yeoman	192	266	328
Zenith	17	17	59
Omega	51	59	62
Northdown	425	446	460
Northern Brewer	17	25	28
Keyworths	—	5	9
Subtotal Bitter hops	2,228	2,275	2,274
Total	3,594	3,742	3,878

In comparison with the previous year the bitter values as is in % were the following:

Variety	Crop 1990	Crop 1989
Goldings	5.1	4.9
Fuggles	4.6	4.4
W.G.V.	6.1	6.0
Progress	6.0	5.8
Bramling Cross	5.6	5.6
Target	10.0	10.5
Yeoman	10.3	10.4
Zenith	8.5	8.3
Omega	8.5	8.3
Challenger	7.5	7.5
Northdown	8.2	7.7
Northern Brewer	8.1	8.0

The total crop of 4,583 tons was distributed to the different varieties as follows:

Variety:	Harvest 1990/tons
Goldings	521.4
Fuggles	464.3
W.G.V.	82.9
Progress	56.3
Bramling Cross	25.9
Challenger	600.3
Subtotal Aroma varieties	1,751.1
Target	1,934.8
Yeoman	203.6
Zenith	20.1
Omega	45.4
Northdown	601.3
Northern Brewer	26.7
Bullion	–
Others	–
Subtotal Bitter hops	2,831.9
Total	4,583.0

(Note: Insignificant deviations may result from converting hundredweights into tons).

FRANCE

Growth and market development

The continuous drought again resulted in a crop reduction. This was especially the case in the north of France and in Alsace. Above all, the variety Brewers Gold as well as high-alpha varieties were concerned.

On the other hand, the crop of the aroma variety Strisselspalter increased by 5% compared to the previous year.

In Alsace acreage was increased by 18 ha. The change in varieties within the scope of the EC Commissions structural improvement programme (also see our report "Hops 1989/90" – European Community) had been concluded on December 31, 1990 for Alsace. Now 94% of the acreage are cultivated with the variety Strisselspalter. The programme for the "Nord" will last until December 31, 1991.

At the time of reporting, the French crop was sold out as the majority of the amount harvested was already pre-contracted. The export rate was more than 50%.

FRANCE

Cultivation of varieties

The table below shows which varieties were grown on which acreage and in which region:

variety/ha	total		Aroma hops		Brewers Gold		Northern Brewer		High Alpha		Others	
area	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989
Alsace	473.5	455.0	427.0	394.5	33.0	52.0	–	–	13.5	5.5	–	3.0
Nord	56.0	69.0	12.0	11.0	7.0	11.0	16.0	25.5	21.0	21.0	–	0.5
Burgundy	2.0	2.0	–	–	2.0	2.0	–	–	–	–	–	–
Total	531.5	526.0	439.0	405.5	42.0	65.0	16.0	25.5	34.5	26.5		3.5

The following amounts were harvested of the different varieties (to):

variety/area	total	Aroma hops	Brewers Gold	Northern Brewer	High Alpha	Others
Alsace	723.3	640.7	68.2	–	14.4	–
Nord	62.0	6.9	16.5	18.0	20.6	–
Burgundy	3.0	–	3.0	–	–	–
Total	788.3	647.6	87.7	18.0	35.0	–

BELGIUM

The winter was very mild with temperatures reaching 15°C in February and 22°C in March. The plants were growing quickly. On the other hand the gardens suffered from a lack of precipitation. For this reason the average crop per ha and even the alpha acid values were lower than the year before.

Acreage in Belgium decreased again, namely from 402 ha to 369 ha. These figures however do not include the acreage of 35 ha which is planted with baby hops. Due to water deficiency there was no crop from these gardens.

Acreage in ha is distributed to the varieties as follows:

Area/ha	Total acreage ha	Northern Brewer ha	Hallertauer ha	Brewers Gold ha	Others ha
Poperinge	295	135	52	22	86
Aalst/Asse	74	18	39	1	16
Total	369	153	91	23	102

In the region of Poperinge, "others" comprises an area of 57 ha planted with Target and Yeoman as well as an area of 29 ha planted with Challenger, Hersbrucker, Spalter and Star. In the growing region of Aalst/Asse, the remaining 16 ha are planted with Record (11 ha) and Saaz (5 ha) hops.

The total crop of 600.9 tons consists of the different varieties as follows:

Area/ variety	Total to	Northern Brewer to	Hallertauer to	Brewers Gold to	Remaining Bitter hops to	Remaining Aroma hops to
Poperinge	484.4	229.8	81.1	42.0	89.7	41.8
Aalst/Asse	116.5	29.0	68.8	1.3	12.1	5.2
Total	600.9	258.8	149.9	43.3	101.8	47.0

Market Development

Immediately after the harvest the prices for spot hops on the market rapidly increased to BFR 30,000.00 for Northern Brewer and to 25,000.00 for Hallertauer, for 50 kg. For the 5 to 6 % of crop still unsold in mid October the prices dropped, however.

At the time of reporting some insignificant amounts of Northern Brewer and Record still were unsold. Aroma hops were sold out completely.

YUGOSLAVIA

Slovenia

Winter 1989/90 was very mild with temperatures rarely falling below 0°C. From April to June the conditions of growth were rather normal. The month of July was very hot and artificial irrigation became necessary. Thereby a decrease in quantity was avoided and a satisfying crop and good hop quality were obtained.

Compared to the previous year the acreage changed as follows:

Variety	Acreage ha 1990	Acreage ha 1989
Golding	988	1,063
Aurora	1,272	1,227
Others	248	228
Total	**2,508**	**2,518**

In comparison with last year's crop the amount harvested of the different varieties was as follows:

Variety	to 1990	to 1989
Golding	1,197	1,044
Aurora	2,140	1,924
Others	304	279
Total	**3,641**	**3,247**

For the harvest in 1991 we do not expect considerable changes with regard to acreage. Restructuring will be continued by increasing cultivation of virus-free varieties.

Bačka

During the vegetation period the plants suffered from a severe drought. The lack of precipitation was only partially compensated for by artificial irrigation. As a consequence the plants suffered severely from the red spider. The hailstorm on July 4 further reduced the expected crop.

Total acreage was reduced by 76 ha. Acreage per variety was as follows:

Variety:	Acreage/ha
Bačka	273
Plisk	22
Vojvodina	15
Others	299
Total	**609**

The average yield ranged between 400 and 700 kg/ha for aroma varieties and between 900 and 1,000 kg/ha for bitter hops. The exact crop could not be determined, it is said to have varied between 480 and 550 tons.

The bitter values for aroma varieties ranged between 3.0 % and 5.9 % and between 7.0 % and 7.8 % for bitter hops.

CSFR

1990 Crop

The acreage remained virtually the same in this country at a total of 11,870 ha (11,941 ha). However, in Slovakia acreage was substantially cut from 1,505 ha to 1,362 ha. Average yield dropped from 1.03 tons last year to a mere 0.90 tons, thus total yield was 1,656 tons, i.e. almost 14 % less than in the previous year.

The worse average yield in the CSFR was mainly caused by a lack of rainfall in the summer which impeded the plants' growth. The heat wave which continued until shortly before the harvest negatively affected the hops' cone-formation.

Marketing

This major hop growing country, concentrating on the production of finest aroma hops, is undergoing a dramatic political and economic restructuration just as all other former eastern block countries.

In our report last year we described the organisation of hop distribution and marketing within the system of a state-planned economy.

In the meantime, liberalisation has been introduced into hop marketing as well. The agricultural production cooperatives – mergers of private farms coerced by the former regime – are now operating as private legal entities. At the same time the large farms are subdividing into smaller units with similar production.

Hops are marketed following the principles of market economy, i.e. the different farms are offering their products directly to the market without any state trading institution in between. A volunteer marketing organisation of the farmers in Saaz is presently coordinating the production offered by some of the Saaz hop farmers.

Although this country which can look back onto a long tradition in international hop trade and brewing, must stand the test of a transition period, there is no doubt that the CSFR will reach its objectives as one of the first countries of the former eastern block.

PORTUGAL

At present this country is changing to the cultivation of bitter hops within the scope of the EC Commissions structural improvement programme in hop growing (see our report "Hops 1989/90", European Community).

Apart from the changes in variety, unfavourable weather namely continuous cold in spring and a long dry spell in summer negatively affected plant growth.

In the Portuguese hop growing areas the following crop quantities were produced on the following acreage:

Area	Acreage ha	Crop tons
Braga	27.3	19.1
Braganca	78.5	151.6
Total	105.8	170.7

SPAIN

Like some of the other European hop growing areas, Spain, too, experienced a heat wave in July and August. Extremely high temperatures and low precipitation damaged the hop plants.

The plants were healthy and without diseases, however the hops had not ripened sufficiently at the time of the harvest.

Thus above all the amount harvested of variety H/3 was disappointing.

The following amounts were harvested of the different varieties:

Variety	Amount
H/7	674.4 tons
H/3	1,451.0 tons
Others	1.5 tons
Total	**2,126.9 tons**

The content of bitter substances also was lower than last year. The average bitter value for H/3 was only 6.0 % in contrast to 7.4 % last year and 6.0 % for H/7 (compared with 6.6 % in 1989).

POLAND

A crop of 2,320 tons was reported to us – consisting of 2,100 tons of aroma hops and 220 tons of bitter hops. Other sources however reported a crop of 2,470 tons.

The acreage which, compared to the previous year was reduced by 115 ha, was planted with the following varieties:

Variety	Acreage/ha	Crop/tons
Lublin	2,057	2,060
Pulawy	5	5
Northern Brewer	140	190
Estera	25	25
Marynka	10	15
Others	20	25
Total	**2,257**	**2,320**

Spring was cold and dry. Ground frosts were registered even during the second and third decade of May.

It was only at the end of July that conditions improved by starting rain – until early July, soil moisture was insufficient.

Quality of the average amount harvested was good. Bitter substances in aroma hops amount up to 5.2% and to 9.0% in bitter hops (dry matter).

GERMAN DEMOCRATIC REPUBLIC (Federal Republic of Germany – the New Länder)

On August 30, 1990 the Unification Treaty was signed by the Federal Republic of Germany and the German Democratic Republic – thereby lying down the unification of both German states by treaty.

Due to the fact that the unification took place during the current crop, the official statistics of the European community mention hop cultivation of the former German Democratic Republic separately. We adopted this method, too. From crop 1991 on, the hop growing regions of Eastern Germany will be included into the report of the Federal Republic of Germany as region "Elbe-Saale".

The acreage of 2,286 ha mainly remained unchanged with regard to the previous year. The crop was 2,660 tons, nearly 15% lower than last year. The average crop was 1.17 tons compared to last year's 1.37 tons.

The majority of the crop consists of the variety "Nordischer Brauer". The other varieties grown are Bullion, Saazer and Braustern. As per regulation (EEC) No. 3687/89, the latter also is classed as Northern Brewer.

In 1990, approx. 60 production facilities, most of them Agricultural Production Collectives, were growing hops. The crop was marketed by the newly founded producers' association "Elbe-Saale" in Leipzig, whereby the farmers committed themselves to supply the total hop crop to this association. The crop was either sold directly to the breweries or via the hop trade of the Federal Republic of Germany (the old Länder).

It is difficult to predict whether hop growing will be continued in its present form and extent.

SWITZERLAND

The favourable conditions in spring positively influenced plant growth. Around July 20 the plants reached the top of the trellisses. From July to the time of harvest it was very dry which adversely affected the plants. In spite of that an average crop was obtained.

The acreage of 21.2 ha is planted with the varieties Hallertau (5.85 ha), Orion (0.85 ha) and Perle (14.5 ha).

The total crop was bought by the Swiss breweries. The farmers were paid SFR 720.00 for 50 kg.

ROMANIA

In the course of the political changes Romania underwent more detailed information on beer production and hop growing in this country is available – up to now, we had to rely on estimates to a large extent.

Beer production of the last few years is indicated as follows:

Year	Beer output in million hl
1985	11.5
1988	13.0
1990	13.1

During the last 10 years acreage increased steadily, however, the amounts harvested per ha were rather variable. Hop production of the last 10 years is indicated as follows:

Year	Acreage ha	Total crop tons	Average amount tons/ha
1980	1.590	1.750	1.1
1985	2.000	1.777	0.9
1988	2.200	3.119	1.4
1989	2.350	3.013	1.3
1990	2.346	2.060	0.9

Obviously crop failure in this country also results from the severe drought during the summer of 1990.

Up to now hops were grown in state-owned farms which will now be converted into stock corporations with stocks for the employees.

BULGARIA

Although acreage was extended by 100 ha the yield was lower than that of the previous year. The average yield dropped to 0.62 tons/ha.

The total crop consists of 195 tons of aroma hops and 385 tons of bitter hops.

HUNGARY

With only 421.7 tons crop was nearly 30% less than last year, even though acreage was reduced by only 59 ha, that is nearly 15 %.

Crop failure was caused by an extraordinarily hot and dry summer. Thus bloom started too early and the cones remained small.

Apart from the reduced crop, the bitter values of the Hungarian hops were much lower than in the previous years. The content of alpha-acids in aroma hops was 3.1 % and 5.9 % in bitter hops.

AUSTRIA

Mühlviertel:

Acreage was extended by 7 ha. Nevertheless, the total crop of 132.7 tons was lower than last year, the average crop decreased from 1.57 tons/ha to 1.29 tons/ha.

A warm May was followed by a rainy and sometimes even cold June. During four weeks of July and August, the weather was hot and dry which may have contributed to the low amount harvested. On the other hand, the bitter values were higher than last year.

The main varieties still are Malling with 75%, followed by Sanntaler with 12% and Aurora with 10 % of the total crop.

99.8 % of the hops harvested were categorized as class I. Prices calculation was stipulated by contract. For class I the price paid to the growers was ÖS 76.60 per kg.

Note: the price indicated in our 1989/90 report was the price paid by the breweries.

Styria (Leutschach):

Acreage remained the same, namely 85 ha. The amount harvested was slightly higher than the previous year, a fact probably resulting from some varietal changes. The main variety still is Sanntaler which is cultivated on more than 50% of the acreage.

The Styrian breweries took up the total Styrian crop.

Waldviertel:

The "Waldvierteler Hopfenverein" (hop association of the Waldviertel) with its seven farms and the "Fachschule Edelhof" (technical college with the name of Edelhof) planted an acreage of 8 ha with hops. The only variety grown is a type of Perle called Zwettler Perle. The crop was bought by a brewery located in the vicinity of this region.

USSR

We still only avail of few data about this major brewing and hop growing country.

In comparison with the previous years, beer output seems to have decreased rather than remained constant which is due to the brewing industry's considerable bottlenecks in supply. The values indicated in our table "Beer Output" are based on rather vague estimates.

The same applies to hop cultivation. The main growing region is situated in the Ukraine, the centre being at Zhitomir. Further regions are approx. 600 km to the east of Moscow in one of the Soviet Republics called Tschuwasch with its capital of Tchepoksary and in Georgia.

OTHER COUNTRIES

JAPAN

Compared to the previous year acreage decreased by 92.6 ha, above all in the areas Iwate, Jamagata and Fukushima. In Japan 1,677 growers are still cultivating hops – that is 229 farmers less than the previous year.

Japanese hop growing regions experienced a hot and dry summer. In May and June precipitation was insufficient. These unfavourable conditions adversely affected the bloom and as a consequence the amount harvested. The average crop was 1.97 tons/ha compared to 2.07 tons/ha last year.

The total crop is taken up by the four Japanese breweries as follows:

Brewery	acreage	Production/ to
Kirin	512.8	978.2
Sapporo	194.8	422.3
Asahi	122.5	231.2
Suntory	12.0	23.9
Total	**842.1**	**1,655.6**

The 1990 crop was bought at the same conditions as last year. The price per kg which was paid by the breweries ranged between 2,129 and 1,684 Yen (100 Yen = 1.15 DM).

INDIA

The former Indian hop growing area is situated in Cashmere, a federal state the majority of the population of which is of Moslem faith. Due to continuous unrest and the Moslems' negative attitude towards alcohol, hop growing has been discontinued in this country.

On the other hand, the beer consumption of this country seems to be growing, even if on a small scale only (0.25 l per person). In future the hop need of this country will have to be covered on the world market.

ALBANIA

We still did not receive any recent information about hop growing in this country. One can only hope that in view of the recently more open attitude of this country towards its neighbours, information policy will become more liberal, too.

ZIMBABWE

1990 was the year of this country's first crop from the newly planted gardens. The total acreage amounts up to 146 ha.

The total crop was 330 tons resulting in an average crop of 2.25 tons/ha.

The gardens are artificially illuminated and irrigated. The water needed for irrigation is supplied by a retaining dam situated in the nearby mountains. During the growing period the plants are subjected to artificial illumination from 10 p.m. to 2 a.m. that is 4 hours a day.

The height of the trellisses in this country is 7 metres. The varieties planted are Southern Brewer and the experimentals Galena, Perle and other aroma varieties. At present picking is effected by hand, but in future the crop will be picked by machines in this country, too.

The total crop is bought by the local brewing industry.

REPUBLIC OF KOREA

Acreage was further decreased in this country. For 1991 another decrease is to be expected.

The reason for the ever decreasing acreage is on the one hand the uneconomical cultivation of the gardens and, on the other hand, the Republic of Korea tries to reduce the disequilibrium of the trade balance by supporting imports.

The growing region is situated in the province of Kangwon. The varieties cultivated are Hallertauer varieties as well as a Japanese one called Shinshuwasei.

DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA

Unfortunately, this country did not provide us with any data on the 1990 yield. We assume that in this country hop culture is not subject to important changes. For this reason we adopted last year's figures.

PEOPLE'S REPUBLIC OF CHINA

Still only the evaluation of inofficial data can give any clues about this hop growing and beer producing country that is gaining ever more significance.

It is said that beer production is continuing to grow although at a slower pace than planned. In contrast to the expected growth rate of 30 % per year it seems to grow by only 5-10 %. If this increase continues the 100 million hl limit could be exceeded around the middle of the decade. There are different reports about the 1990 production, some sources put it as high as 74 million hl. We decided to include a production of 70 million hl in our table.

The main Chinese hop growing areas are Xinjiang, accounting for 65 %, Gansu 25 % and Ningxia 8 %. The remainder is grown in the northeast. The major variety is "Tsingdao Flower", on some smaller areas Hallertauer, Cascade and Eroica are grown.

Since the early sixties hops have been farmed in Xinjiang. They are still harvested by hand. The trellisses are about 1.50 to 1.60 m high and the gardens are artificially irrigated. This irrigation system is fed from reservoires in the near-by mountains. Xinjiang, situated in China's northwest, has typical continental climate.

Evaluating all data available for the quantity of hops produced, a crop of 13,000 tons can be assumed for 1991. The regions mentioned contributed the following shares:

Growing region	crop
Xinjiang	about 8,000 tons
Gansu	about 4,000 tons
Ningxia and others	about 1,000 tons
Total	about 13,000 tons

It seems that the assumed acreage must be reconsidered as well. Because low trellisses are used, yield per ha can be hardly more than 1.5 tons from which an acreage of 8,500- 9,000 ha can be estimated.

USA

Growth

All U.S. hop growing areas reported normal to above normal temperatures for the winter months. Precipitation in all growing areas was normal to slightly below normal, resulting in adequate water supplies.

Spring arrived early with unseasonably high temperatures in April. These temperatures stimulated plant growth and accelerated spring work. Temperatures in May cooled down, bringing the growing season back into balance. The summer was considerably hotter than usual which reduced yields in many varieties. Also, the warmer temperatures enhanced the development of insects creating damage in the hops.

Acreage increased in 1990 by approximately 915 acres (= 370 ha), resulting in a total crop of 56,850,000 lbs. vs. 59,330,000 lbs. in 1989. Although there was additional acreage planted in 1990, the summer heat caused a 4.8 % reduction in yield. The average yield per acre went from 1,717 lbs./acre in 1989 to 1,603 lbs./acre in 1990.

Washington

The 1989/90 winter was very mild in the Yakima Valley. The Yakima Valley saw very little snow or rainfall throughout the winter although the mountains surrounding Yakima showed a good snow pack in late January to March, securing adequate water supplies.

An early spring with temperatures in April reaching into the high seventies Fahrenheit advanced the growing season. Through all of May, temperatures were cooler and then normal until mid-June. From mid-June through mid-August, temperatures remained in the ninety degree Fahrenheit range.

Insects were detected early in May. The introduction of new aphicides controlled insects although spider mites remained a concern throughout the growing season and caused damage in the cones.

The 1990 Washington crop was 41,840,000 lbs. with an average yield of 1,634 lbs./acre vs. 1,760 lbs./acre in 1989. Almost all varieties showed lower yields.

Oregon

Moderate weather during late winter and early spring brought about vigorous plant growth in all varieties by April. May, with much cooler temperatures, brought average amounts of rainfall. Vine development slowed significantly and downy mildew occurred as a consequence. Plant growth continued slowly throughout June, but improved in July with the return of higher seasonal temperatures. Most of the mildew infections were controlled by that time.

The blooming period was noticeably late, with some aroma varieties starting only in the third week of July. Unlike in 1989, there was little second or continuous blooming, resulting ultimately in a lighter cone set. Oregon's overall crop averaged 1,530 lbs./acre compared to 1,600 lbs. in 1989. The lighter crop was predominantly a result of low yields in Nuggets (1,970 lbs./acre vs. 2,030) and Willamettes (1,420 lbs./acre vs. 1,740).

Idaho

With only light to moderate snow pack in the mountains, water supplies for Idaho looked uncertain. The dry and above normal temperatures in all of March and the first half of April accelerated spring work. In the second half of April, good rainfall brought cooler temperatures.

Summer came suddenly in late May, with temperatures going into the 100 degree Fahrenheit range. Most of the summer temperatures remained between 90 degree Fahrenheit to 108 degree Fahrenheit. Hot and dry putting considerable stress on the plant. As a result, the spider mite population built up and caused damage to the hop crop. Average yield per acre was 1,500 lbs., up slightly from the 1989 average of 1,460 lbs. Yield per acre, however, for many of the varieties was below expectation.

Quality

There was little, if any, hop mold detected in the crop this year, but spider mites could not always be kept in check, therefore there was some red tint in some of the hops.

The picking quality fell as the average leaf and stem content increased from .95 % to 1.09 %. Seed content decreased slightly.

Despite the overall lower crop results, the alpha production increased from 2,430 tons to 2,480 tons due to the acreage increase in high alpha varieties. However, the average alpha dropped to 8.7 %, Clusters from 7.5 to 7.2 %. The high alpha varieties showed alphas between 10.5 and 13.2 %, down from 11.3 to 14.3 % in 1989. The aroma varieties came in at 3.6 to 5.5 %, with Perle showing alphas between 6.7 and 7.7 %.

Spot Market Crop 1990

By the beginning of 1990, there were few 1989 spot hops in the hands of growers. The balance was sold in January at prices of $ 1.30/lb. for Cluster while high alpha hops reached $ 1.50/lb.

The 1990 spot market began in late August with Tettnang selling for $ 2.25/lb. and Willamette at 2.15/lb. and Cascades were traded at $ 1.80/lb. By mid-September, growers have harvested most of their aroma varieties at yields below expectation. As the news of the poor crop trickled down, growers became reluctant to sell their Cluster or high alpha spots until after harvest. In late September, spot Clusters and high alphas sold for $ 3/lb. as prices had quickly increased through the two-dollar range. Some of the growers held out for even higher prices, leaving approx. 4,500 to 5,000 bales in growers' hands by year end, representing one-third of the total spot market of 15,000 bales. Most of the 1990 spot hops were made up of Clusters and high alpha varieties with only very few aroma hops offered.

The September hop stock report remained virtually unchanged, however, the structure was different with dealer stocks lowered by 2.5 million pounds while brewers' stocks went up by the corresponding amount.

1984	68.6 Million Pounds
1985	70.6 Million Pounds
1986	70.9 Million Pounds
1987	70.6 Million Pounds
1988	60.6 Million Pounds
1989	51.7 Million Pounds
1990	51.9 Million Pounds

Exports increased again for the fifth consecutive year to 49.1 million pounds, up 1.6 million pounds from 1989. Imports increased from 12.3 million pounds in 1988/89 to 17.2 million pounds in 1989/90, reflecting largely timing differences in shipment dates rather than actual increased purchases.

USA

Varietal Structure

Acreage per variety and yield in the U.S. hop growing areas are as follows:

Acreage per Variety/Variety Group (%)

Variety/	Washington		Oregon		Idaho		Total	
Variety Group	90	89	90	89	90	89	90	89
Cluster	24	26	–	–	21	17	19	20
Cascade	5	5	–	–	–	–	3	4
Highalpha	43	42	21	19	42	40	39	36
Aroma varieties	22	23	74	73	–	–	31	32
others*	6	4	5	8	37	43	8	8
total	100	100	100	100	100	100	100	100

Acreage (ha) per Variety/Variety Group (absolute)

Variety/	Washington		Oregon		Idaho		Total	
Variety Group	90	89	90	89	90	89	90	89
Cluster	2.451	2.580	–	–	227	198	2.678	2.778
Cascade	514	525	–	–	–	–	514	525
Highalpha	4.519	4.045	604	577	460	449	5.583	5.071
Aroma varieties	2.334	2.305	2.113	2.189	–	–	4.447	4.494
others*	572	394	157	233	406	486	1.135	1.113
total	10.390	9.849	2.874	2.999	1.093	1.133	14.357	13.981

Yield (to) per ha

Variety/	Washington		Oregon		Idaho		Total	
Variety Group	90	89	90	89	90	89	90	89
Cluster	2,12	2,29	–	–	2,24	2,26	2,13	2,29
Cascade	1,83	2,22	–	–	–	–	1,83	2,22
Highalpha	2,00	2,16	2,21	2,25	1,60	1,84	1,99	2,14
Aroma varieties	1,26	1,32	1,58	1,66	–	–	1,41	1,49
others*	1,64	2,21	1,68	1,95	1,47	1,21	1,58	1,72
total	1,83	2,00	1,68	1,80	1,68	1,64	1,80	1,93

Yield (to) 1990

Variety/Variety Group	Washington	Oregon	Idaho	Total
Cluster	5.201	–	509	5.710
Cascade	941	–	–	941
Highalpha	9.054	1.335	737	11.126
Aroma varieties	2.930	3.339	–	6.269
others*	938	264	595	1.797
total	19.064	4.938	1.841	25.843

* Others include **Washington** - Hallertau, Hersbrucker, Northern Brewer, Mt. Hood, Fuggle, Aquila, Banner, Experimental. **Oregon** - Hallertau, Chinook, Bullion, Aquila, Banner, Eroica, Cluster, Cascade, Mt. Hood, Experimental. **Idaho** - Hallertau, Hersbrucker, Mt. Hood, Tettnang, Cascade, Talisman, Nugget, Aquila, Banner, Willamette, Experimental.

Contract Markets in 1990

The contracted markets started early in January with larger quantities of Clusters and high alpha hops being traded. The Cluster price started at $ 1.30/lb. in 1990, the high alpha varieties at $ 1.35/lb. in 1990, both increasing by 5 cents/lb. each year throughout 1994.

The high alpha market maintained a 5 cent premium over Clusters until August 1990.

Small amounts of Willamettes traded from 1991 through 1995, starting at $ 2.05/lb. plus 5 cents for each year.

Initially, dealers also showed interest for Perle at $1.90/lb., but had to take prices back to $1.50 for 1990 crop plus 5 cents for each year, up to 1995.

Contracts made January 1990 – February 1990

Variety/$	1990	1991	1992	1993	1994	1995
Cluster	1.30	1.35	1.40	1.45	1.50	
Hi-Alpha	1.35	1.40	1.45	1.50	1.55	
Willamette and Fuggle		2.05	2.10	2.15	2.20	2.25
Tettnang			(No Activity)			
Perle				1.50	1.55	1.60
Cascade			(No Activity)			

The market continued to be active, but without much price change, from March through July. Most of the activities centered on Clusters and high alpha varieties. After the price increase from the earlier part of the year, the Cluster contracts were traded only for 1990 through 1992 while high alphas traded up to 1995. Willamette prices dropped slightly.

Contracts made March 1990 – July 1990

Variety/$	1990	1991	1992	1993	1994	1995
Cluster	1.50	1.55	1.60			
Hi-Alpha	1.55	1.60	1.65	1.70	1.75	1.80
Willamette and Fuggle				2.10	2.15	2.20
Tettnang				2.70	2.75	2.80
Perle			(No Activity)			
Cascade			(No Activity)			

In August, growers, receiving information from other hop growing areas of the world of possible hop shortages and realizing that their own yields were lower than expected, became reluctant sellers. Correspondingly, prices increased and growers used some of their spot hops to tie up later year contracts for Cluster and high alpha hops.

Under the impression of the firm 1990 market, a new level of prices – more favorable for the growers – developed.

Price increases made in late August – mid-November

Variety/$	1990	1991	1992	1993	1994	1995
Cluster	3.00	1.90	1.90	1.90	1.90	
Hi-Alpha	3.00	2.00	2.00	2.00	2.00	
Willamette and Fuggle	2.20	2.25				
Tettnang	2.55					
Perle						
Cascade	1.80					
Mt. Hood	2.50	2.75	2.80	2.85	2.90	

This is the second consecutive year that the average price returned to the growers increased. At the same time, however, cost increases because of higher labor cost and energy increases balanced out the better returns. Also, if return is figured on a per-acre basis, actual money returned to the grower decreased. For many growers, these returns remain unsatisfactory.

Average Price Return for Growers

Year	$/lb.	income $/acre
1985	1.98	3.502
1986	1.74	3.419
1987	1.56	2.761
1988	1.34	2.195
1989	1.38	2.309
1990	1.47	2.356

Growth 1991

The winter of 1990/91 was noticeably colder than normal in all growing areas. Intermittently, cold arctic air masses entered all growing areas from December through February, bringing temperatures of zero degree Fahrenheit to minus 27 degree Fahrenheit. Along with the cold came winds, reducing temperatures even lower due to windchill factors. Brief warm spells further confused the plants and caused some damage. Throughout the winter, there had been little precipitation in the Idaho and Washington growing areas. Oregon has adequate rain and snowfall. Water seems to be no problem for the 1991 crop.

Spring work has begun on time, but colder than normal temperatures have held back growth. Depending on the location, some varieties suffered winter damage, both in Washington and Oregon. Due to cool temperatures into June 1991, growth of hops is about two to three weeks behind normal.

In the United States, there will be an increase of approx. 3,955 acres for crop 1991, bringing the total acreage to 39,617 acres.

Variety	Washington		Oregon		Idaho		United States	
	1990	1991	1990	1991	1990	1991	1990	1991
Aquila	348	346	0	0	103	103	451	449
Banner	361	366	0	0	107	161	468	527
Cascade	1,270	1,240	0	0	0	0	1,270	1,240
Chinook	1,454	2,112	0	0	292	468	1,746	2,580
Cluster	6,054	6,230	0	0	560	749	6,614	6,979
Eroica	439	398	0	0	317	242	756	640
Fuggles	0	0	608	487	0	0	608	487
Galena	6,161	7,628	99	99	528	514	6,788	8,241
Mt. Hood	513	820	47	47	0	0	560	867
Nugget	2,827	2,955	1,393	1,695	0	0	4,220	4,650
Olympic	280	337	0	0	0	0	280	337
Perle	798	758	134	177	0	0	932	935
Tettnang	2,362	2,254	618	577	0	0	2,980	2,831
Willamette	2,604	2,609	3,859	3,590	0	0	6,463	6,199
Other	192	218	342	518	793	1,919	1,327	2,655
	25,663	**28,271**	**7,100**	**7,190**	**2,700**	**4,156**	**35,463**	**39,617**
change in %		**10.2 %**		**1.3 %**		**53.9 %**		**11.7 %**

1990: Acres harvested
1991: Acres strung for harvest

1991 Harvest

ARGENTINA

In spite of this year's drought both quality and quantity of the harvested hops were satisfying. Insects and diseases were controlled successfully.

The bitter value of the variety Cascade ranged between 4.5 % and 5.5 %, that of the variety Ringwood was 6.0 %. The bitter values of the new varieties varied between 4.5 % and 8.5 %.

Acreage and crop were distributed to the two regions Rio Negro/Alto Valle and Bolson as follows:

RIO NEGRO/ALTO VALLE

Variety	ha	Production/to
Cascade	77	56.2
Ringwood	34	28.3
Cluster	9	12.0
Experimentals	20	21.0
Total	**140**	**117.5**

BOLSON

Variety	ha	Production/to
Cascade	161	170.0
Bullion	2	2.0
Total	**163**	**172.0**

AUSTRALIA

The expected results of 1991 crop which were available at the time of reporting are the following:

Region	ha	Crop tons
Tasmania	817	1,995
Victoria	308	680
Total	**1,125**	**1,675**

Thus these results roughly correspond to the estimates shortly before harvest.

SOUTH AFRICA

Acreage increased by 57 ha. The total crop was 1,010 tons whereby the average crop increased from 1.38 to 1.72 tons per ha.

NEW ZEALAND

Due to the favourable weather the harvest was much better than expected. Compared to the 420.4 tons last year the crop amounted to 454.5 tons this year.

Average bitter values and yields were as follows:

Variety	% alpha Acid	Acreage ha	Ø in to/ha	Crop
Roborghs Super Alpha	13.0	78	2.47	192.7
Pacific Gem	14.5	29	2.49	72.2
Green Bullet	13.0	33	2.51	82.8
Sticklebract	12.9	24	2.53	60.8
New Zealand Hallertau Aroma	8.3			
Hallertau Mittelfrüh	7.4	18	2.55	46.0
Tettnanger	8.9			
Total		**182**	**2.50**	**454.5**

The local brewing industry will absorb approximately 40 % of the crop. For 1992 about 30 ha more acreage can be expected on which mainly New Zealand Hallertauer will be grown.

ZIMBABWE

This country plans an increase of the acreage for more than 300 ha within the coming 3 to 4 years. The land cultivated with hops are former tobacco fields.

The newly planted gardens, too, are artificially irrigated with the help of sprinkler systems. The required water and the energy for artificial illumination of the gardens is provided by a nearby retaining dam where also a power plant is situated.

The total 1991 crop was bought by the local brewing industry.

Outlook 1991

For the first time the 1990 hop market brought after several years spot hop prices for the growers which were above the production costs. However, due to the low crop quantity harvested, the farmers could offer only small quantities on the spot market.

On the contract market, the high spot prices caused an increase in contract prices for all crop years. On the other hand, the price rise of the crop 1990 will initiate an acreage expansion in the USA. Therefore, one must wait and see whether the growers' hopes for lasting higher price levels will fulfill. In the general interest of hop market it would be desirable that the prices of the last years, which were below the production costs, would belong to the past.

Prospects for 1990/91 (Europe)

At first it was a mild winter with low snowfall. The new year brought a rather long cold spell during which snow was abundant in the most important European growing areas.

March and April were characterized by various weather conditions, warm temperatures of early spring gave way to cold and rainy days and vice-versa. Spring work started in due time, cutting and opening was effected in late March and early April.

Later on the weather was less favourable with too low temperatures and water deficiency. At the end of the reporting period – that is late June – hop growth was late for approx. 2 weeks.

As far as insect control of hops to be exported to the U.S.A. is concerned, the range of products which are admitted still is rather limited. We may hope that also in 1991 the growers will be able to successfully control the insects and thus to contribute to secure their export markets.

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The publication of our Hop Report involves obtaining data from all parts of the world. We wish to express our gratitude to all who assisted us.

650 Years of Hop Growing in Spalt

The small Franconian region of Spalt where the world famous Spalt-hops are grown is celebrating its 650th anniversary this year.

It is true that Hallertau is claiming to be Germany's oldest hop-growing region, because it is said that there was a hop garden in Geisenfeld as early as 736 A.D. However, no document has been found to prove this and one can certainly not speak of a true growing region. Rather the hop gardens were dispersed, the hops were mostly grown directly next to the breweries resp. the hop-using royal courts, monasteries or directly in front of the city gates.

In contrast to Hallertau it is an undisputed fact that the Spalt hop growing region gained world fame already in the Middle Ages, causing the municiple authorities of Spalt to prohibit the export of Spalt cuttings under the threat of punishment in 1511.

Around the same time the first attempts were made to apply to the local prince, the Prince Bishop of Eichstätt of the time, Christopherus Graf von Pappenheim-Stüling for a sealing right to protect the genuineness of the plants from Spalt.

In 1538 this request was granted – thus the city of Spalt and the associated growing region own the oldest sealing rights in Germany.

More hop growing areas around Spalt followed suit and applied for sealing rights as well.

Evidently Hallertau was of lesser importance at the time, because it was not until 1834 that the Hallertau village of Wolnzach received its sealing rights, because "although documents proved that hops had been grown for about 1,000 years in the Hallertau area, they did not gain more than local importance until the early 19th century". (From: Dr. Lorenz Kettner, Hallertauer Hopfenbau. Geschichte und Gegenwart – Hop growing in Hallertau. Past and Present).