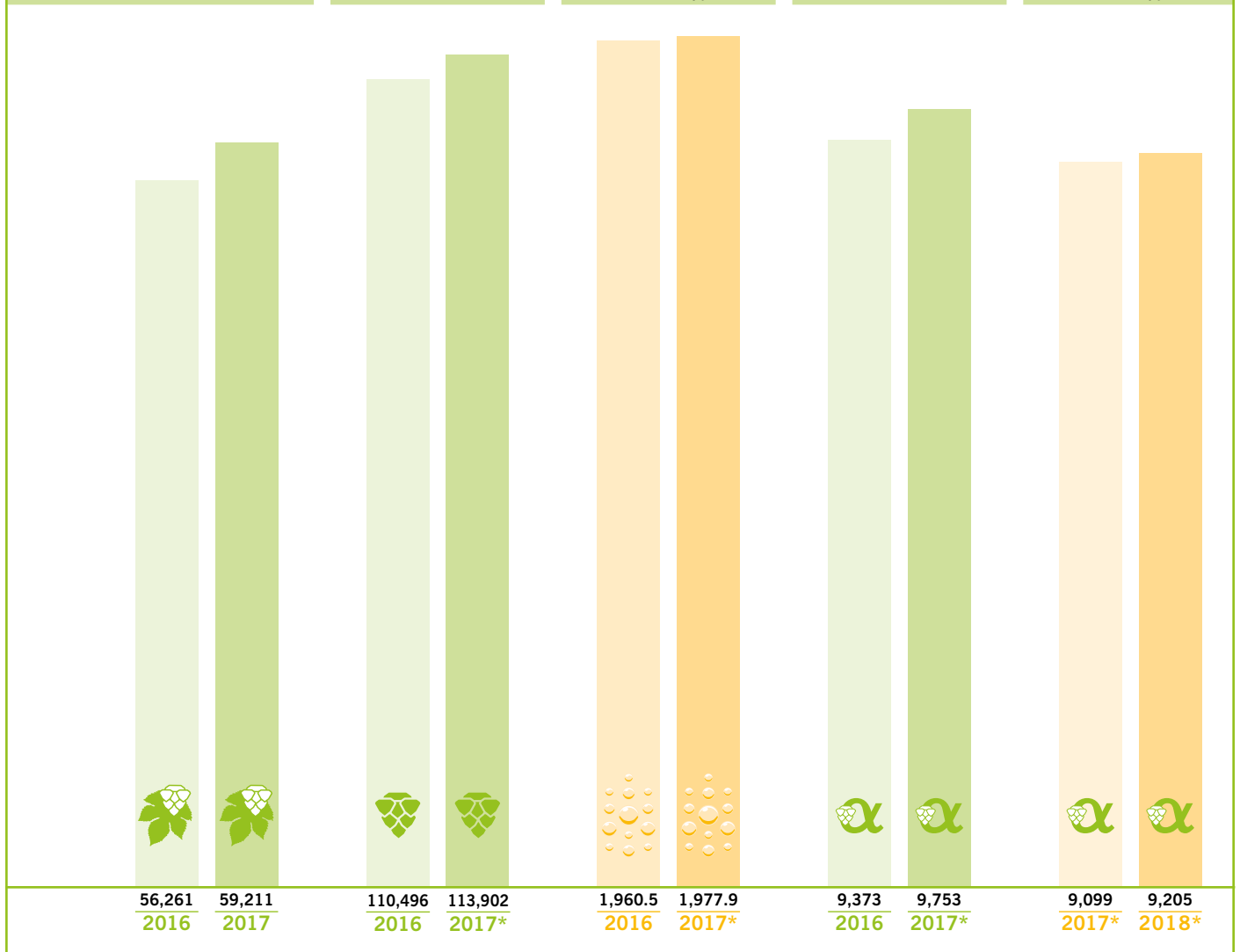


2017  
GUIDELINES  
FOR HOP BUYING

	World Hop Acreage	World Hop Crop	World Beer Production	World Alpha Acids Production	World Alpha Acids Demand
	(ha)	(mt)	(Mio. hl)	(mt)	(mt)
<b>2015</b>	51,640 + 7.5 %	87,358 - 9.6 %	1,967.1 + 0.5 %	6,838 - 18.1 %	8,852 + 2.8 %
<b>2016</b>	56,261 + 8.9 %	110,496 + 26.5 %	1,960.5 - 0.3 %	9,373 + 37.1 %	8,825 - 0.3 %
<b>2017</b>	59,211 + 5.2 %	113,902* + 3.1 %*	1,977.9* + 0.9 %*	9,753* + 4.0 %*	9,099* + 3.1 %*
<b>2018</b>	- -	- -	2,001.0* + 1.2 %*	- -	9,205* + 1.2 %*



\*Estimate

**International Conversion Table**

1 metr. ton (mt) → 1,000 kg → 2,204.6 lbs.  
 100 lbs. → 45.359 kg

1 hectare (ha) → 2.471 acres  
 1 acre → 0.405 hectare (ha)

1 hectolitre (hl) → 100 litres (Ltr.) → 0.8523 bbl. [USA] → 0.6114 bbl. [Brit.]  
 1 bbl. [USA] → 117.34 litres (Ltr.) → 1.1734 hectolitres (hl)  
 1 bbl. [Brit.] → 163.65 litres (Ltr.) → 1.6365 hectolitres (hl)

## Foreword

” The growing conditions in Europe for crop 2017 were challenging to say the least. It was not until well-timed rain fell in August that the situation became clearer and the crop matured to near-normal levels. Although alpha acid levels were below long-term averages, it did not turn out to be another “alpha clause year”. Nonetheless, it did turn into another year of high spot prices, as available bitter volumes were limited.

The crop in USA was generally good. Above-average precipitation during the winter of 2016-2017 provided plenty of irrigation water for the growing season, but also posed some new challenges for controlling disease and pests in the principal growing areas. The growth of the craft brewing industry slowed to single-digits in 2017, which has already resulted in some restructuring of hop contracts (as conditions have allowed), as well as greater spot availability of some aroma varieties.

We will keep you updated as the market develops.

Your Hopsteiner Team  
November 2017

“



- *Hallertauer Hopfenveredelungs-  
gesellschaft mbH  
Au, Hallertau, Pelletwerk*
- *Hallertauer Hopfenveredelungs-  
gesellschaft mbH  
Mainburg, Hallertau,  
Ethanol- und CO<sub>2</sub>-Extraktion*
- *Hops Extract Corporation  
of America, Yakima, Washington,  
CO<sub>2</sub>-Extraktion*
- *Golden Gate Hop Ranches Inc.  
Yakima, Washington,  
Hopfenanbaubetrieb*

## Hop Acreage 2014 – 2017

	Acreage in ha				+/- %		
	2014	2015	2016	2017	14/15	15/16	16/17
Hallertauer	623	557	553	539	- 10.6	- 0.7	- 2.5
Hersbrucker	919	950	934	910	+ 3.4	- 1.7	- 2.6
Perle	2,857	2,868	2,780	2,653	+ 0.4	- 3.1	- 4.6
Spalter Select	434	443	440	437	+ 2.1	- 0.7	- 0.7
Tradition	2,696	2,790	2,704	2,592	+ 3.5	- 3.1	- 4.1
Saphir	360	387	400	416	+ 7.5	+ 3.4	+ 4.0
Northern Brewer	173	150	157	162	- 13.3	+ 4.7	+ 3.2
Magnum	1,934	1,671	1,527	1,387	- 13.6	- 8.6	- 9.2
Nugget	145	137	129	119	- 5.5	- 5.8	- 7.8
Taurus	564	440	340	270	- 22.0	- 22.7	- 20.6
Herkules	3,345	3,836	4,540	5,406	+ 14.7	+ 18.4	+ 19.1
Rest	417	681	1,009	1,419	+ 63.3	+ 48.2	+ 40.6
<b>Hallertau</b>	<b>14,467</b>	<b>14,910</b>	<b>15,510</b>	<b>16,310</b>	<b>+ 3.1</b>	<b>+ 4.0</b>	<b>+ 5.2</b>
Elbe-Saale	1,265	1,325	1,409	1,466	+ 4.7	+ 6.3	+ 4.0
Tettngang	1,209	1,237	1,282	1,353	+ 2.3	+ 3.6	+ 5.5
Spalt	348	355	376	391	+ 2.0	+ 5.9	+ 4.0
Rest	19	20	22	22	+ 5.3	+ 10.0	+ 0.0
<b>Germany total</b>	<b>17,308</b>	<b>17,847</b>	<b>18,598</b>	<b>19,543</b>	<b>+ 3.1</b>	<b>+ 4.2</b>	<b>+ 5.1</b>
Austria	247	249	249	256	+ 0.8	+ 0.0	+ 2.8
Belgium	148	148	149	169	+ 0.0	+ 0.7	+ 13.4
Bulgaria	14	14	18	22	+ 0.0	+ 28.6	+ 22.2
Czech Rep.	4,460	4,622	4,775	4,945	+ 3.6	+ 3.3	+ 3.6
England	1,051	895	919	980	- 14.8	+ 2.7	+ 6.6
France	431	440	459	481	+ 2.1	+ 4.3	+ 4.8
Poland	1,410	1,424	1,475	1,615	+ 1.0	+ 3.6	+ 9.5
Romania	250	270	270	270	+ 8.0	+ 0.0	+ 0.0
Russia	158	218	420	470	+ 38.0	+ 92.7	+ 11.9
Slovakia	137	137	137	137	+ 0.0	+ 0.0	+ 0.0
Slovenia	1,296	1,403	1,484	1,590	+ 8.3	+ 5.8	+ 7.1
Spain	520	534	536	537	+ 2.7	+ 0.4	+ 0.2
Turkey	350	350	350	350	+ 0.0	+ 0.0	+ 0.0
Ukraine	362	369	369	369	+ 1.9	+ 0.0	+ 0.0
Rest	195	194	194	182	- 0.5	+ 0.0	- 6.2
<b>Europe total</b>	<b>28,337</b>	<b>29,114</b>	<b>30,402</b>	<b>31,917</b>	<b>+ 2.7</b>	<b>+ 4.4</b>	<b>+ 5.0</b>
Ahtanum	79	59	63	134	- 25.3	+ 6.8	+ 112.9
Apollo	399	402	393	375	+ 0.8	- 2.2	- 4.6
Azacca	32	71	205	232	+ 121.9	+ 188.7	+ 13.2
Bravo	287	297	293	255	+ 3.5	- 1.3	- 13.0
Calypso	0	33	33	0	+ 0.0	+ 0.0	- 100.0
Cascade	2,679	2,748	3,068	2,896	+ 2.6	+ 11.6	- 5.6
Centennial	1,357	1,781	2,057	2,240	+ 31.2	+ 15.5	+ 8.9
Chinook	664	723	785	983	+ 8.9	+ 8.6	+ 25.2
Citra	713	1,211	1,819	2,138	+ 69.8	+ 50.2	+ 17.5
Cluster	295	270	252	250	- 8.5	- 6.7	- 0.8
CTZ	2,337	2,154	1,820	2,004	- 7.8	- 15.5	+ 10.1
Comet	0	44	66	116	+ 0.0	+ 50.0	+ 75.8
Crystal	85	206	298	300	+ 142.4	+ 44.7	+ 0.7
Equanot	0	0	0	356	+ 0.0	+ 0.0	+ 0.0
Eureka	11	26	50	132	+ 136.4	+ 92.3	+ 164.0
El Dorado	59	181	252	267	+ 206.8	+ 39.2	+ 6.0
Fuggle	0	34	57	42	+ 0.0	+ 67.6	- 26.3
							→

	Acreage in ha				+/- %		
	2014	2015	2016	2017	14/15	15/16	16/17
→ Galena	124	119	106	143	- 4.0	- 10.9	+ 34.9
Glacier	51	63	59	0	+ 23.5	- 6.3	- 100.0
Golding	133	118	0	18	- 11.3	- 100.0	+ 0.0
Jarrylo	30	49	53	0	+ 63.3	+ 8.2	- 100.0
Liberty	0	85	0	88	+ 0.0	- 100.0	+ 0.0
Loral	0	0	0	75	+ 0.0	+ 0.0	+ 0.0
Magnum	71	124	61	0	+ 74.6	- 50.8	- 100.0
Millenium	46	0	0	0	- 100.0	+ 0.0	+ 0.0
Mosaic	272	728	1,022	1,122	+ 167.6	+ 40.4	+ 9.8
Mt. Hood	170	169	167	166	- 0.6	- 1.2	- 0.6
Northern Brewer	53	50	0	0	- 5.7	- 100.0	+ 0.0
Nugget	659	682	666	592	+ 3.5	- 2.3	- 11.1
Palisade	90	184	235	211	+ 104.4	+ 27.7	- 10.2
Perle	40	0	0	30	- 100.0	+ 0.0	+ 0.0
Simcoe	763	1,338	1,753	1,820	+ 75.4	+ 31.0	+ 3.8
Sterling	53	85	92	92	+ 60.4	+ 8.2	+ 0.0
Summit	1,021	656	716	654	- 35.7	+ 9.1	- 8.7
Super Galena	361	212	153	200	- 41.3	- 27.8	+ 30.7
Tettnang	0	54	49	66	+ 0.0	- 9.3	+ 34.7
Vanguard	23	34	0	0	+ 47.8	- 100.0	+ 0.0
Warrior	78	0	0	0	- 100.0	+ 0.0	+ 0.0
Willamette	469	550	632	671	+ 17.3	+ 14.9	+ 6.2
Rest	1,881	2,118	3,308	3,240	+ 12.6	+ 56.2	- 2.1
PNW total	15,020	17,658	20,582	21,908	+ 17.6	+ 16.6	+ 6.4
Others	364	503	851	1,011	+ 38.2	+ 69.2	+ 18.8
<b>USA total</b>	<b>15,384</b>	<b>18,161</b>	<b>21,433</b>	<b>22,919</b>	<b>+ 18.1</b>	<b>+ 18.0</b>	<b>+ 6.9</b>
Argentina	195	195	195	195	+ 0.0	+ 0.0	+ 0.0
Australia	408	488	546	631	+ 19.6	+ 11.9	+ 15.6
Japan	154	154	154	154	+ 0.0	+ 0.0	+ 0.0
New Zealand	370	388	412	442	+ 4.9	+ 6.2	+ 7.3
P.R.China	2,701	2,574	2,508	2,298	- 4.7	- 2.6	- 8.4
South Africa	420	402	413	424	- 4.3	+ 2.7	+ 2.7
Rest	60	164	198	231	+ 173.3	+ 20.7	+ 16.7
<b>World total</b>	<b>48,029</b>	<b>51,640</b>	<b>56,261</b>	<b>59,211</b>	<b>+ 7.5</b>	<b>+ 8.9</b>	<b>+ 5.2</b>

# Hop Acreage 2004 – 2017

(ha and % share)



## Crop Quantities and Average Yields 2014 – 2017

	Crop Quantities in mt				+/- %			Ø Yields in mt / ha			
	2014	2015	2016	2017*	14/15	15/16	16/17*	2014	2015	2016	2017*
Hallertauer	1,026.7	618.6	982.9	730.3	- 39.7	+ 58.9	- 25.7	1.65	1.11	1.78	1.35
Hersbrucker	1,900.6	1,361.7	1,914.0	1,806.2	- 28.4	+ 40.6	- 5.6	2.07	1.43	2.05	1.98
Perle	6,103.0	3,917.8	6,461.6	5,184.2	- 35.8	+ 64.9	- 19.8	2.14	1.37	2.32	1.95
Spalter Select	957.2	625.8	999.1	901.4	- 34.6	+ 59.7	- 9.8	2.21	1.41	2.27	2.06
Tradition	5,521.4	3,882.8	6,234.2	5,009.9	- 29.7	+ 60.6	- 19.6	2.05	1.39	2.31	1.93
Saphir	734.3	541.6	876.6	798.3	- 26.2	+ 61.9	- 8.9	2.04	1.40	2.19	1.92
Northern Brewer	349.7	180.2	304.7	235.8	- 48.5	+ 69.1	- 22.6	2.02	1.20	1.94	1.46
Magnum	4,029.2	2,892.0	3,254.9	3,186.6	- 28.2	+ 12.5	- 2.1	2.08	1.73	2.13	2.30
Nugget	373.7	249.3	320.9	327.8	- 33.3	+ 28.7	+ 2.2	2.58	1.82	2.49	2.75
Taurus	1,253.7	685.4	753.6	548.0	- 45.3	+ 10.0	- 27.3	2.22	1.56	2.22	2.03
Herkules	10,290.7	8,062.3	13,019.3	14,243.6	- 21.7	+ 61.5	+ 9.4	3.08	2.10	2.87	2.63
Others	632.9	856.6	1,831.7	2,568.3	+ 35.3	+ 113.8	+ 40.2	1.52	1.26	1.82	1.81
<b>Hallertau</b>	<b>33,173.1</b>	<b>23,874.1</b>	<b>36,953.5</b>	<b>35,540.2</b>	<b>- 28.0</b>	<b>+ 54.8</b>	<b>- 3.8</b>	<b>2.29</b>	<b>1.60</b>	<b>2.38</b>	<b>2.18</b>
Elbe-Saale	2,567.9	2,355.3	2,845.4	2,938.8	- 8.3	+ 20.8	+ 3.3	2.03	1.78	2.02	2.00
Tett nang	2,022.4	1,694.9	2,194.2	2,270.4	- 16.2	+ 29.5	+ 3.5	1.67	1.37	1.71	1.68
Spalt	688.7	376.6	730.0	762.2	- 45.3	+ 93.8	+ 4.4	1.98	1.06	1.94	1.95
Rest	47.7	35.8	43.0	44.7	- 24.9	+ 20.1	+ 4.0	2.51	1.79	1.95	2.03
<b>Germany total</b>	<b>38,499.8</b>	<b>28,336.7</b>	<b>42,766.1</b>	<b>41,556.3</b>	<b>- 26.4</b>	<b>+ 50.9</b>	<b>- 2.8</b>	<b>2.22</b>	<b>1.59</b>	<b>2.30</b>	<b>2.13</b>
Austria	491.0	298.0	480.0	439.0	- 39.3	+ 61.1	- 8.5	3.32	2.01	3.22	2.60
Belgium	187.0	187.0	198.0	205.0	+ 0.0	+ 5.9	+ 3.5	1.26	1.26	1.33	1.21
Bulgaria	30.0	26.0	38.0	62.0	- 13.3	+ 46.2	+ 63.2	0.03	0.03	0.04	0.06
Czech Rep.	6,202.0	4,842.6	7,711.6	6,750.0	- 21.9	+ 59.2	- 12.5	1.39	1.05	1.61	1.37
England	1,455.0	1,357.0	1,400.0	1,781.0	- 6.7	+ 3.2	+ 27.2	1.38	1.52	1.52	1.82
France	636.0	555.0	772.0	763.0	- 12.7	+ 39.1	- 1.2	0.45	0.39	0.52	0.47
Poland	2,072.3	2,242.0	3,043.0	2,500.0	+ 8.2	+ 35.7	- 17.8	1.47	1.57	2.06	1.55
Romania	172.0	195.0	195.0	205.0	+ 13.4	+ 0.0	+ 5.1	1.09	0.89	0.46	0.44
Russia	162.0	162.0	444.0	500.0	+ 0.0	+ 174.1	+ 12.6	1.18	1.18	3.24	3.65
Slovakia	183.0	94.0	187.0	160.0	- 48.6	+ 98.9	- 14.4	0.14	0.07	0.13	0.10
Slovenia	2,318.8	1,677.6	2,476.0	2,736.0	- 27.7	+ 47.6	+ 10.5	1.79	1.20	1.67	1.72
Spain	933.0	1,115.0	946.0	662.0	+ 19.5	- 15.2	- 30.0	0.21	0.24	0.20	0.13
Turkey	390.0	390.0	390.0	390.0	+ 0.0	+ 0.0	+ 0.0	1.11	1.11	1.11	1.11
Ukraine	436.0	480.0	480.0	560.0	+ 10.1	+ 0.0	+ 16.7	1.20	1.30	1.30	1.52
Rest	294.7	296.0	279.5	261.5	+ 0.4	- 5.6	- 6.4	1.51	1.53	1.44	1.44
<b>Europe total</b>	<b>54,462.6</b>	<b>42,253.9</b>	<b>61,806.2</b>	<b>59,530.8</b>	<b>- 22.4</b>	<b>+ 46.3</b>	<b>- 3.7</b>	<b>1.92</b>	<b>1.45</b>	<b>2.03</b>	<b>1.87</b>
Ahtanum	148.0	102.0	71.0	172.0	- 31.1	- 30.4	+ 142.3	0.24	0.18	0.13	0.32
Apollo	1,100.0	1,147.0	944.0	1,004.0	+ 4.3	- 17.7	+ 6.4	1.20	1.21	1.01	1.10
Azacca	61.0	149.0	429.0	493.0	+ 144.3	+ 187.9	+ 14.9	0.02	0.05	0.15	0.19
Bravo	881.0	927.0	856.0	742.0	+ 5.2	- 7.7	- 13.3	2.03	2.09	1.95	1.70
Calypso	0.0	63.0	71.0	0.0	+ 0.0	+ 12.7	- 100.0	0.00	0.02	0.03	0.00
Cascade	5,263.0	5,885.0	5,816.0	5,967.0	+ 11.8	- 1.2	+ 2.6	1.96	2.14	1.90	2.06
Centennial	1,978.0	2,345.0	3,084.0	3,640.0	+ 18.6	+ 31.5	+ 18.0	1.46	1.32	1.50	1.63
Chinook	1,329.0	1,467.0	1,317.0	2,049.0	+ 10.4	- 10.2	+ 55.6	0.69	0.88	0.86	1.48
Citra	1,239.0	1,979.0	2,912.0	3,430.0	+ 59.7	+ 47.1	+ 17.8	1.74	1.63	1.60	1.60
Cluster	603.0	515.0	480.0	486.0	- 14.6	- 6.8	+ 1.3	1.07	1.17	1.41	1.80
CTZ	7,244.0	6,610.0	4,793.0	6,267.0	- 8.8	- 27.5	+ 30.8	2.17	1.72	1.06	1.16
Comet	0.0	87.0	70.0	175.0	+ 0.0	- 19.5	+ 150.0	0.00	0.13	0.07	0.12
Crystal	141.0	414.0	647.0	646.0	+ 193.6	+ 56.3	- 0.2	0.01	0.03	0.04	0.04
Equanot	0.0	0.0	0.0	788.0	+ 0.0	+ 0.0	+ 0.0	0.00	0.00	0.00	0.54
Eureka	26.0	56.0	117.0	377.0	+ 115.4	+ 108.9	+ 222.2	0.02	0.05	0.09	0.28
El Dorado	115.0	342.0	513.0	546.0	+ 197.4	+ 50.0	+ 6.4	0.33	0.96	1.36	1.40
Fuggle	0.0	41.0	65.0	47.0	+ 0.0	+ 58.5	- 27.7	0.00	2.05	2.95	2.14

→

	Crop Quantities in mt				+/- %			Ø Yields in mt / ha			
	2014	2015	2016	2017*	14/15	15/16	16/17*	2014	2015	2016	2017*
→ Galena	250.0	263.0	201.0	317.0	+ 5.2	- 23.6	+ 57.7	0.01	0.01	0.01	0.02
Glacier	69.0	70.0	77.0	0.0	+ 1.4	+ 10.0	- 100.0	0.47	0.47	0.52	0.00
Golding	134.0	111.0	0.0	18.0	- 17.2	- 100.0	+ 0.0	1.01	0.94	0.00	1.00
Jarrylo	53.0	85.0	84.0	0.0	+ 60.4	- 1.2	- 100.0	0.05	0.09	0.09	0.00
Liberty	0.0	130.0	0.0	133.0	+ 0.0	+ 0.0	+ 0.0	0.00	0.30	0.00	0.28
Loral	0.0	0.0	0.0	173.0	+ 0.0	+ 0.0	+ 0.0	0.00	0.00	0.00	0.68
Magnum	86.0	203.0	102.0	0.0	+ 136.0	- 49.8	- 100.0	0.06	0.14	0.07	0.00
Millenium	102.0	0.0	0.0	0.0	- 100.0	+ 0.0	+ 0.0	0.41	0.00	0.00	0.00
Mosaic	677.0	1,692.0	2,637.0	2,899.0	+ 149.9	+ 55.9	+ 9.9	2.49	2.32	2.58	2.58
Mt. Hood	268.0	230.0	258.0	259.0	- 14.2	+ 12.2	+ 0.4	1.96	1.68	1.88	1.89
Northern Brewer	74.0	55.0	0.0	0.0	- 25.7	- 100.0	+ 0.0	0.06	0.04	0.00	0.00
Nugget	1,413.0	1,447.0	1,424.0	1,324.0	+ 2.4	- 1.6	- 7.0	2.72	2.71	2.66	2.47
Palisade	250.0	402.0	586.0	529.0	+ 60.8	+ 45.8	- 9.7	0.06	0.09	0.12	0.11
Perle	48.0	0.0	0.0	35.0	- 100.0	+ 0.0	+ 0.0	0.14	0.00	0.00	0.10
Simcoe	1,302.0	2,325.0	3,295.0	3,562.0	+ 78.6	+ 41.7	+ 8.1	1.71	1.74	1.88	1.96
Sterling	84.0	127.0	168.0	151.0	+ 51.2	+ 32.3	- 10.1	0.43	0.65	0.87	0.83
Summit	2,408.0	1,447.0	1,322.0	1,481.0	- 39.9	- 8.6	+ 12.0	0.08	0.05	0.04	0.05
Super Galena	993.0	613.0	410.0	590.0	- 38.3	- 33.1	+ 43.9	2.49	1.52	1.04	1.57
Tettnang	0.0	75.0	66.0	69.0	+ 0.0	- 12.0	+ 4.5	0.00	0.25	0.23	0.27
Vanguard	38.0	47.0	0.0	0.0	+ 23.7	- 100.0	+ 0.0	0.01	0.02	0.00	0.00
Warrior	159.0	0.0	0.0	0.0	- 100.0	+ 0.0	+ 0.0	0.12	0.00	0.00	0.00
Willamette	677.0	686.0	1,016.0	1,063.0	+ 1.3	+ 48.1	+ 4.6	1.02	0.95	1.29	1.08
Rest	2,992.0	3,628.0	5,693.0	4,833.0	+ 21.3	+ 56.9	- 15.1	1.28	1.68	3.13	2.41
PNW total	31,953.0	35,198.0	39,526.0	44,265.0	+ 10.2	+ 12.3	+ 12.0	2.13	1.99	1.92	2.02
Others	250.0	566.0	680.0	845.0	+ 126.4	+ 20.1	+ 24.3	0.69	1.13	0.80	0.84
<b>USA total</b>	<b>32,203.4</b>	<b>35,764.2</b>	<b>40,206.3</b>	<b>45,110.0</b>	<b>+ 11.1</b>	<b>+ 12.4</b>	<b>+ 12.2</b>	<b>2.09</b>	<b>1.97</b>	<b>1.88</b>	<b>1.97</b>
Argentina	300.0	300.0	300.0	300.0	+ 0.0	+ 0.0	+ 0.0	1.54	1.54	1.54	1.54
Australia	1,079.0	1,200.5	1,104.8	1,438.0	+ 11.3	- 8.0	+ 30.2	2.64	2.46	2.02	2.28
Japan	300.0	300.0	300.0	300.0	+ 0.0	+ 0.0	+ 0.0	1.95	1.95	1.95	1.95
New Zealand	765.0	740.0	794.0	760.0	- 3.3	+ 7.3	- 4.3	2.07	1.91	1.93	1.72
P.R.China	6,700.0	5,790.0	4,880.0	5,513.0	- 13.6	- 15.7	+ 13.0	2.48	2.25	1.95	2.28
South Africa	820.0	769.4	865.0	710.0	- 6.2	+ 12.4	- 17.9	0.30	0.30	0.34	0.29
Rest	40.0	240.0	239.7	240.0	+ 500.0	- 0.1	+ 0.1	0.67	1.46	1.22	1.03
<b>World total</b>	<b>96,670.0</b>	<b>87,358.0</b>	<b>110,496.0</b>	<b>113,901.8</b>	<b>- 9.6</b>	<b>+ 26.5</b>	<b>+ 3.1</b>	<b>2.01</b>	<b>1.69</b>	<b>1.96</b>	<b>1.92</b>



# World Hop Crop 2004 – 2017

(1.000 mt and % share)



\*Estimate

## Hopsteiner Laboratory Values 2014 – 2017

Alpha Content in %					Alpha Content in %				
Aroma Varieties	2014	2015	2016	2017	Bitter Varieties	2014	2015	2016	2017
Hersbrucker	2.1	2.3	2.8	2.3	Herkules	17.5	15.1	17.3	15.5
Perle	8.0	4.5	8.2	6.9	Magnum	13.0	12.6	14.3	12.6
Tradition	5.8	4.7	6.4	5.7	Taurus	17.4	12.9	17.6	15.9
Select	4.7	3.2	5.2	4.6	US Super Galena	15.4	15.4	15.1	15.3
Tettnang	4.1	2.1	3.8	3.6	US Bravo	14.8	14.4	14.8	15.5
Spalt	3.4	2.2	4.3	3.2	US Nugget	13.8	14.4	12.5	13.4
Saaz	2.9	2.1	3.4	3.0	US Summit	16.8	16.2	16.5	17.3
Steirer Aurora	10.2	8.5	8.7	7.3	US CTZ	15.9	15.6	14.2	15.8
Steirer Golding	5.1	3.2	3.2	2.8	Pride of Ringwood	8.9	9.0	9.4	9.8
US Cascade	5.8	6.6	6.1	7.0					
US Willamette	5.0	5.2	4.8	5.1	<b>Dual Purpose</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
Northern Brewer	9.7	5.4	10.5	7.8	US Centennial	9.8	9.9	10.0	11.0

## Worldwide use of Hops and Hop Products 2004 – 2017

	Hops total		Pellets total		Extract total	
	(mt)		(mt)	(% total)	(mt)	(% total)
<b>2004</b>	91,132		56,800	62.3	28,600	31.4
<b>2005</b>	93,448		61,582	65.9	28,595	30.6
<b>2006</b>	85,266		56,361	66.1	26,177	30.7
<b>2007</b>	91,418		59,513	65.1	29,345	32.1
<b>2008</b>	113,125		69,119	61.1	40,951	36.2
<b>2009</b>	111,386		65,161	58.5	43,997	39.5
<b>2010</b>	96,680		55,108	57.0	39,639	41.0
<b>2011</b>	97,376		54,531	56.0	41,482	42.6
<b>2012</b>	86,696		47,683	55.0	37,886	43.7
<b>2013</b>	82,631		50,653	61.3	31,069	37.6
<b>2014</b>	96,670		63,319	65.5	30,934	32.0
<b>2015</b>	87,358		63,160	72.3	22,189	25.4
<b>2016</b>	110,496		84,972	76.9	23,757	21.5
<b>2017*</b>	113,902		84,629	74.3	27,450	24.1

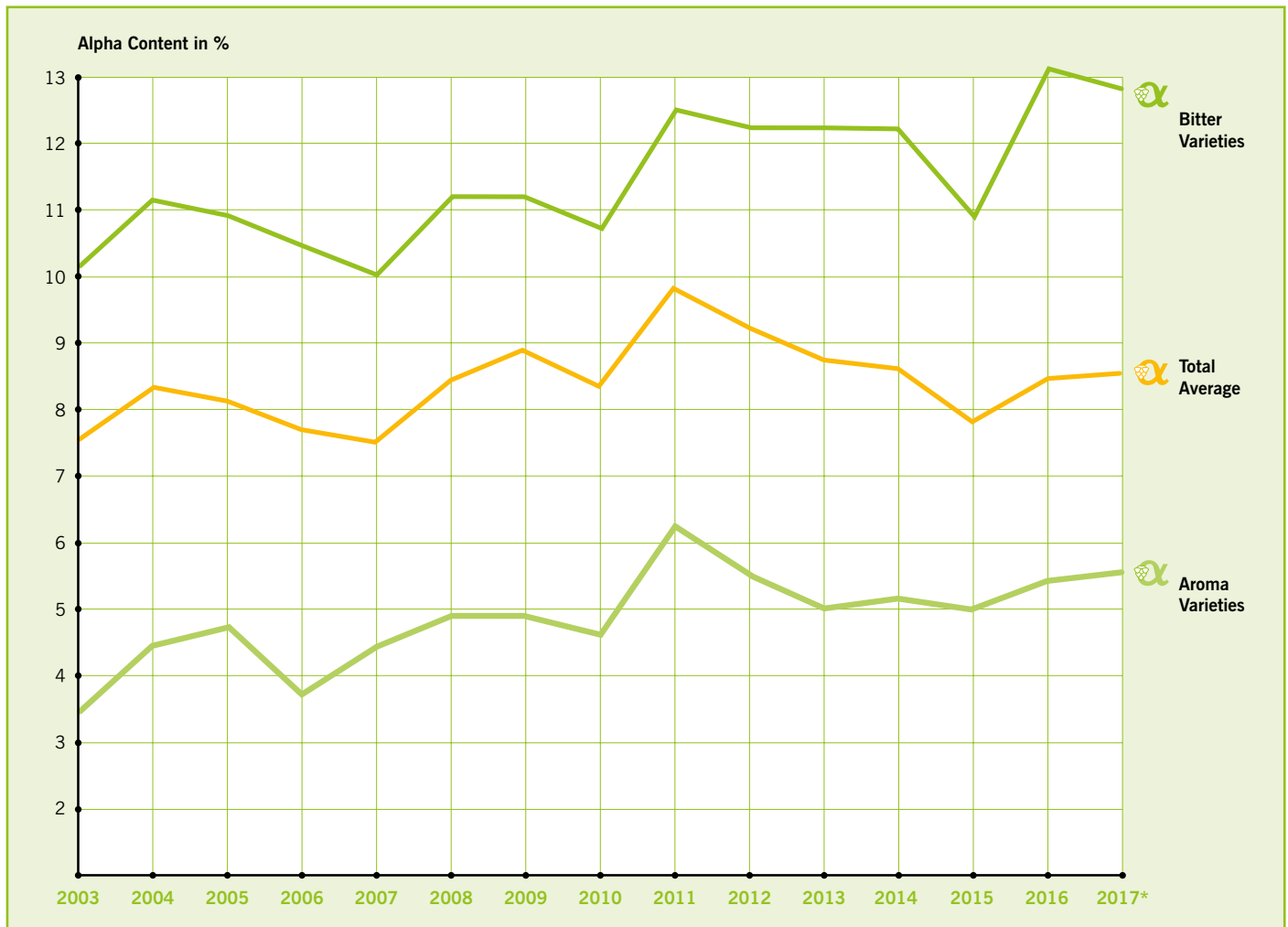
## World Alpha Acids Production 2014 – 2017

Total Crop Quantities in mt					% share			
	2014	2015	2016	2017*	2014	2015	2016	2017*
Aroma Varieties	48,529	45,361	67,232	66,789	50.2	51.9	60.8	58.6
Bitter Varieties	48,141	41,997	43,264	47,113	49.8	48.1	39.2	41.4
<b>Total</b>	<b>96,670</b>	<b>87,358</b>	<b>110,496</b>	<b>113,902</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Alpha Amount in kg					Alpha Content in %			
	2014	2015	2016	2017*	2014	2015	2016	2017*
Aroma Varieties	2,465,900	2,247,700	3,604,700	3,714,700	5.1	5.0	5.4	5.6
Bitter Varieties	5,883,800	4,589,900	5,768,700	6,038,300	12.2	10.9	13.3	12.8
<b>Total</b>	<b>8,349,700</b>	<b>6,837,600</b>	<b>9,373,400</b>	<b>9,753,000</b>	<b>8.6</b>	<b>7.8</b>	<b>8.5</b>	<b>8.6</b>

## Alpha Values over time 2003– 2017



\*Estimate

## World Beer Production 2014 – 2017

	Beer Production in Mio hl				+/- %		
	2014	2015	2016	2017*	14/15	15/16	16/17*
Germany	95.6	95.7	95.3	95.5	+ 0.1	- 0.4	+ 0.2
Russia	76.6	73.0	86.2	85.2	- 4.7	+ 18.1	- 1.2
England	41.2	44.1	42.4	42.1	+ 7.0	- 3.9	- 0.7
Poland	39.2	39.8	41.5	41.5	+ 1.5	+ 4.3	+ 0.0
Spain	33.5	34.8	36.3	37.8	+ 3.9	+ 4.3	+ 4.1
Netherlands	23.7	23.7	24.2	24.5	+ 0.0	+ 2.1	+ 1.2
Belgium	18.0	18.3	21.3	22.5	+ 1.7	+ 16.4	+ 5.6
France	18.8	20.5	21.3	21.9	+ 9.0	+ 3.9	+ 2.8
Czechia	19.7	20.1	20.6	21.1	+ 2.0	+ 2.5	+ 2.4
Romania	16.5	16.1	18.3	19.1	- 2.4	+ 13.7	+ 4.4
Ukraine	24.5	19.4	17.5	15.7	- 20.8	- 9.8	- 10.3
Italy	13.0	15.4	14.5	14.9	+ 18.5	- 5.8	+ 2.8
Austria	9.2	9.3	9.5	9.5	+ 1.1	+ 2.2	+ 0.0
Turkey	10.1	9.0	9.5	9.2	- 10.9	+ 5.6	- 3.2
Ireland	8.0	7.3	7.9	7.9	- 8.8	+ 8.2	+ 0.0
Hungary	6.2	6.5	6.3	6.7	+ 4.8	- 3.1	+ 6.3
Denmark	6.1	6.1	6.4	6.3	+ 0.0	+ 4.9	- 1.6
Portugal	7.4	6.5	6.4	6.2	- 12.2	- 1.5	- 3.1
Bulgaria	4.9	4.8	5.3	5.5	- 2.0	+ 10.4	+ 3.8
Sweden	4.4	4.7	4.2	4.2	+ 6.8	- 10.6	+ 0.0
Greece	3.7	3.7	3.8	4.0	+ 0.0	+ 2.7	+ 5.3
Finland	4.0	4.0	3.8	3.9	+ 0.0	- 5.0	+ 2.6
Switzerland	3.4	3.4	3.7	3.7	+ 0.0	+ 8.8	+ 0.0
Croatia	3.4	3.4	3.6	3.6	+ 0.0	+ 5.9	+ 0.0
Slovakia	2.9	2.4	3.2	3.2	- 17.2	+ 33.3	+ 0.0
Lithuania	3.1	3.2	2.9	2.8	+ 3.2	- 9.4	- 3.4
Norway	2.4	2.5	2.6	2.7	+ 4.2	+ 4.0	+ 3.8
Slovenia	2.0	2.0	2.0	2.0	+ 0.0	+ 0.0	+ 0.0
Estonia	1.5	1.4	1.5	1.5	- 6.7	+ 7.1	+ 0.0
Latvia	1.0	0.9	1.5	1.4	- 10.0	+ 66.7	- 6.7
Albania	0.6	0.6	0.6	0.6	+ 0.0	+ 0.0	+ 0.0
Cyprus	0.2	0.3	0.4	0.4	+ 50.0	+ 33.3	+ 0.0
Luxembourg	0.3	0.3	0.4	0.3	+ 0.0	+ 33.3	- 25.0
Malta	0.1	0.2	0.1	0.1	+ 100.0	- 50.0	+ 0.0
Europe rest	13.6	13.2	13.1	12.7	- 2.9	- 0.8	- 3.1
<b>Europe total</b>	<b>518.8</b>	<b>516.6</b>	<b>538.1</b>	<b>540.2</b>	<b>- 0.4</b>	<b>+ 4.2</b>	<b>+ 0.4</b>
USA	225.9	225.0	200.6	196.6	- 0.4	- 10.8	- 2.0
Brazil	134.5	138.0	127.2	131.0	+ 2.6	- 7.8	+ 3.0
Mexico	82.0	90.0	109.8	116.4	+ 9.8	+ 22.0	+ 6.0
Colombia	22.0	22.7	22.8	22.5	+ 3.2	+ 0.4	- 1.3
Canada	22.6	22.7	20.8	20.6	+ 0.4	- 8.4	- 1.0
Argentina	16.3	18.1	18.3	17.3	+ 11.0	+ 1.1	- 5.5
Peru	13.5	13.7	13.9	14.1	+ 1.5	+ 1.5	+ 1.4
Venezuela	22.4	21.0	12.9	8.9	- 6.3	- 38.6	- 31.0
Chile	6.2	6.5	6.8	7.0	+ 4.8	+ 4.6	+ 2.9
Equador	6.0	7.0	5.9	5.4	+ 16.7	- 15.7	- 8.5
Dominican Rep.	3.6	3.8	4.6	4.8	+ 5.6	+ 21.1	+ 4.3
Bolivia	3.6	3.7	4.2	4.2	+ 2.8	+ 13.5	+ 0.0
Cuba	2.8	2.8	3.3	3.2	+ 0.0	+ 17.9	- 3.0
Panama	2.1	2.8	2.6	2.9	+ 33.3	- 7.1	+ 11.5
Guatemala	1.6	1.9	2.2	2.2	+ 18.8	+ 15.8	+ 0.0
Paraguay	1.5	1.5	2.1	2.1	+ 0.0	+ 40.0	+ 0.0
Costa Rica	1.7	1.7	1.8	1.8	+ 0.0	+ 5.9	+ 0.0
Honduras	1.0	1.6	1.3	1.5	+ 60.0	- 18.8	+ 15.4
Nicaragua	1.0	1.1	1.3	1.3	+ 10.0	+ 18.2	+ 0.0
El Salvador	1.1	1.0	1.1	1.2	- 9.1	+ 10.0	+ 9.1
Jamaica	1.0	1.1	1.1	1.1	+ 10.0	+ 0.0	+ 0.0

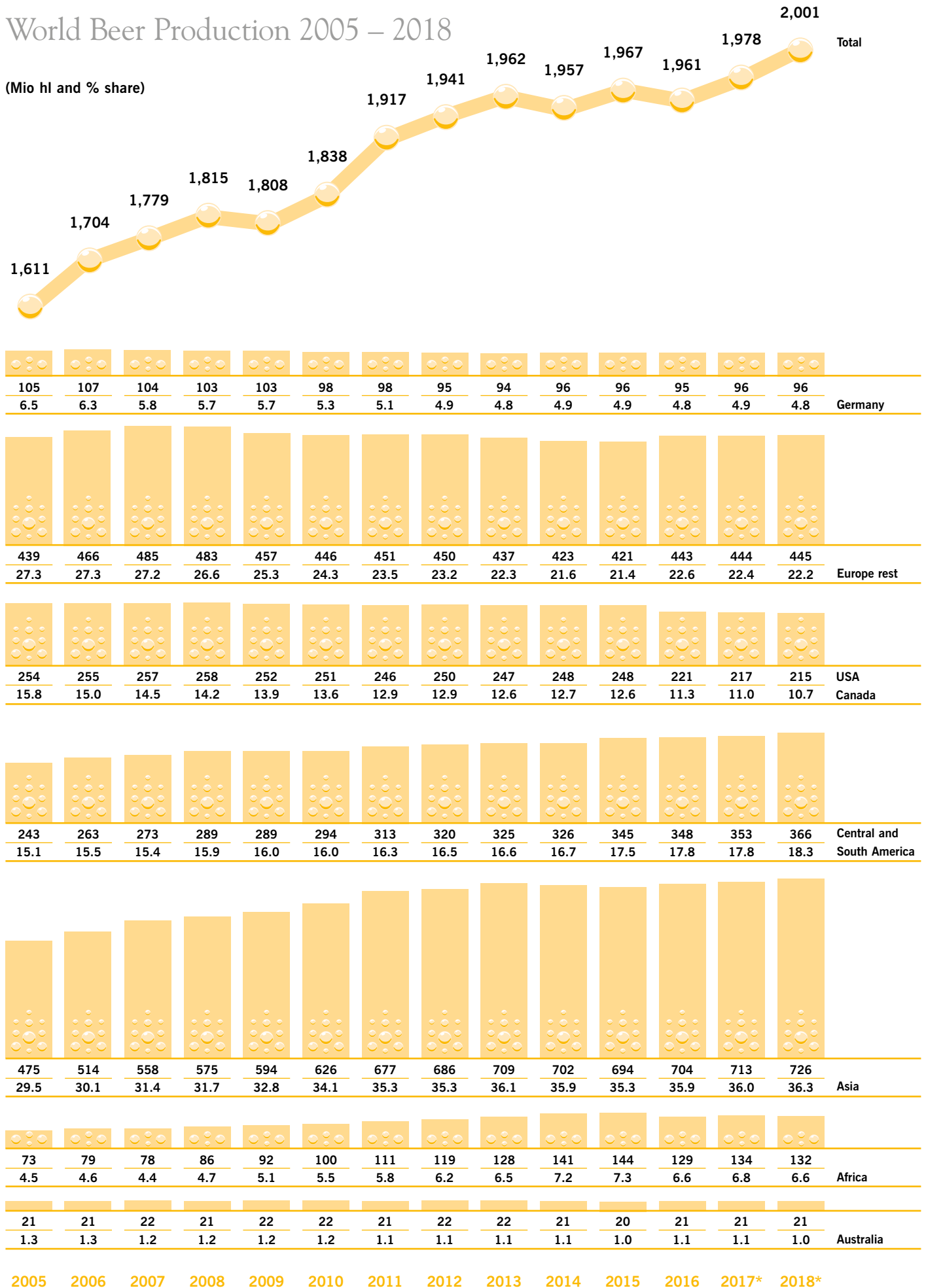
\*Estimate

	Beer Production in Mio hl				+/- %		
	2014	2015	2016	2017*	14/15	15/16	16/17*
→ Trinidad	0.4	0.4	1.0	1.0	+ 0.0	+ 150.0	+ 0.0
Uruguay	1.0	1.0	0.9	0.9	+ 0.0	- 10.0	+ 0.0
Puerto Rico	0.7	0.9	0.8	0.8	+ 28.6	- 11.1	+ 0.0
America rest	1.8	2.4	1.5	1.6	+ 33.3	- 37.5	+ 6.7
<b>America total</b>	<b>574.1</b>	<b>592.4</b>	<b>568.8</b>	<b>570.4</b>	<b>+ 3.2</b>	<b>- 4.0</b>	<b>+ 0.3</b>
P.R.China	493.0	471.6	485.1	488.6	- 4.3	+ 2.9	+ 0.7
Japan	53.9	53.8	54.3	53.9	- 0.2	+ 0.9	- 0.7
Vietnam	35.4	39.3	40.6	43.2	+ 11.0	+ 3.3	+ 6.4
India	20.0	20.5	27.4	27.6	+ 2.5	+ 33.7	+ 0.7
Thailand	22.4	25.5	21.8	22.2	+ 13.8	- 14.5	+ 1.8
South Korea	20.8	18.8	20.6	20.7	- 9.6	+ 9.6	+ 0.5
Philippines	17.0	17.2	17.7	17.8	+ 1.2	+ 2.9	+ 0.6
Cambodscha	4.8	8.9	6.3	6.8	+ 85.4	- 29.2	+ 7.9
Taiwan	5.3	5.4	3.9	3.9	+ 1.9	- 27.8	+ 0.0
Myanmar	3.0	4.5	3.3	3.8	+ 50.0	- 26.7	+ 15.2
Laos	4.0	4.2	3.3	3.7	+ 5.0	- 21.4	+ 12.1
Malaysia	2.6	2.8	2.2	2.2	+ 7.7	- 21.4	+ 0.0
Indonesia	2.9	2.0	2.1	2.2	- 31.0	+ 5.0	+ 4.8
Sri Lanka	1.0	1.2	1.5	1.6	+ 20.0	+ 25.0	+ 6.7
Singapore	1.2	1.4	1.4	1.4	+ 16.7	+ 0.0	+ 0.0
Israel	1.2	1.3	1.3	1.3	+ 8.3	+ 0.0	+ 0.0
Mongolia	0.8	0.9	1.1	1.1	+ 12.5	+ 22.2	+ 0.0
Nepal	0.6	0.7	0.8	0.8	+ 16.7	+ 14.3	+ 0.0
Lebanon	0.3	0.3	0.2	0.2	+ 0.0	- 33.3	+ 0.0
Jordan	0.1	0.1	0.1	0.1	+ 0.0	+ 0.0	+ 0.0
Pakistan	0.1	0.1	0.1	0.1	+ 11.1	+ 0.0	+ 0.0
Asia rest	11.5	13.1	8.8	9.2	+ 13.9	- 32.8	+ 4.5
<b>Asia total</b>	<b>701.9</b>	<b>693.5</b>	<b>703.9</b>	<b>712.4</b>	<b>- 1.2</b>	<b>+ 1.5</b>	<b>+ 1.2</b>
South Africa	31.5	32.1	31.6	32.3	+ 1.9	- 1.6	+ 2.2
Nigeria	27.0	27.0	15.6	16.7	+ 0.0	- 42.2	+ 7.1
Ethiopia	5.1	6.8	9.9	11.0	+ 33.3	+ 45.6	+ 11.1
Angola	11.0	11.0	8.9	8.2	+ 0.0	- 19.1	- 7.9
Cameroon	7.8	7.6	6.5	6.6	- 2.6	- 14.5	+ 1.5
Zaire	6.0	4.5	4.8	5.2	- 25.0	+ 6.7	+ 8.3
Kenya	5.1	4.7	4.9	5.2	- 7.8	+ 4.3	+ 6.1
Tanzania	4.3	4.3	4.6	4.9	+ 0.0	+ 7.0	+ 6.5
Uganda	3.4	3.3	3.5	3.6	- 2.9	+ 6.1	+ 2.9
Mosambique	3.1	2.7	3.1	3.2	- 12.9	+ 14.8	+ 3.2
Ivory Coast	2.3	2.7	2.5	2.8	+ 17.4	- 7.4	+ 12.0
Namibia	2.5	2.5	2.7	2.8	+ 0.0	+ 8.0	+ 3.7
Zimbabwe	2.2	2.3	2.3	2.3	+ 4.5	+ 0.0	+ 0.0
Zambia	3.0	3.7	1.7	1.7	+ 23.3	- 54.1	+ 0.0
Ghana	2.7	2.7	1.6	1.7	+ 0.0	- 40.7	+ 6.3
Tunisia	2.0	1.7	1.8	1.7	- 15.0	+ 5.9	- 5.6
Algeria	1.6	1.6	1.5	1.6	+ 0.0	- 6.3	+ 6.7
Madagascar	1.2	1.3	1.4	1.5	+ 8.3	+ 7.7	+ 7.1
Egypt	1.0	1.0	1.2	1.3	+ 0.0	+ 20.0	+ 8.3
Marocco	0.8	0.8	0.8	0.8	+ 0.0	+ 0.0	+ 0.0
Mauritius	0.4	0.3	0.4	0.4	- 25.0	+ 33.3	+ 0.0
Africa rest	17.1	19.5	17.5	18.5	+ 14.0	- 10.3	+ 5.7
<b>Africa total</b>	<b>141.1</b>	<b>144.1</b>	<b>128.8</b>	<b>134.0</b>	<b>+ 2.1</b>	<b>- 10.6</b>	<b>+ 4.0</b>
Australia	16.9	16.2	16.7	16.7	- 4.1	+ 3.1	+ 0.0
New Zealand	2.8	2.8	2.8	2.9	+ 0.0	+ 0.0	+ 3.6
Oceania	1.4	1.4	1.3	1.4	+ 0.0	- 7.1	+ 7.7
<b>Australia total</b>	<b>21.1</b>	<b>20.4</b>	<b>20.9</b>	<b>20.9</b>	<b>- 3.3</b>	<b>+ 2.5</b>	<b>+ 0.0</b>
<b>World total</b>	<b>1,957.0</b>	<b>1,967.1</b>	<b>1,960.5</b>	<b>1,977.9</b>	<b>+ 0.5</b>	<b>- 0.3</b>	<b>+ 0.9</b>

\*Estimate

# World Beer Production 2005 – 2018

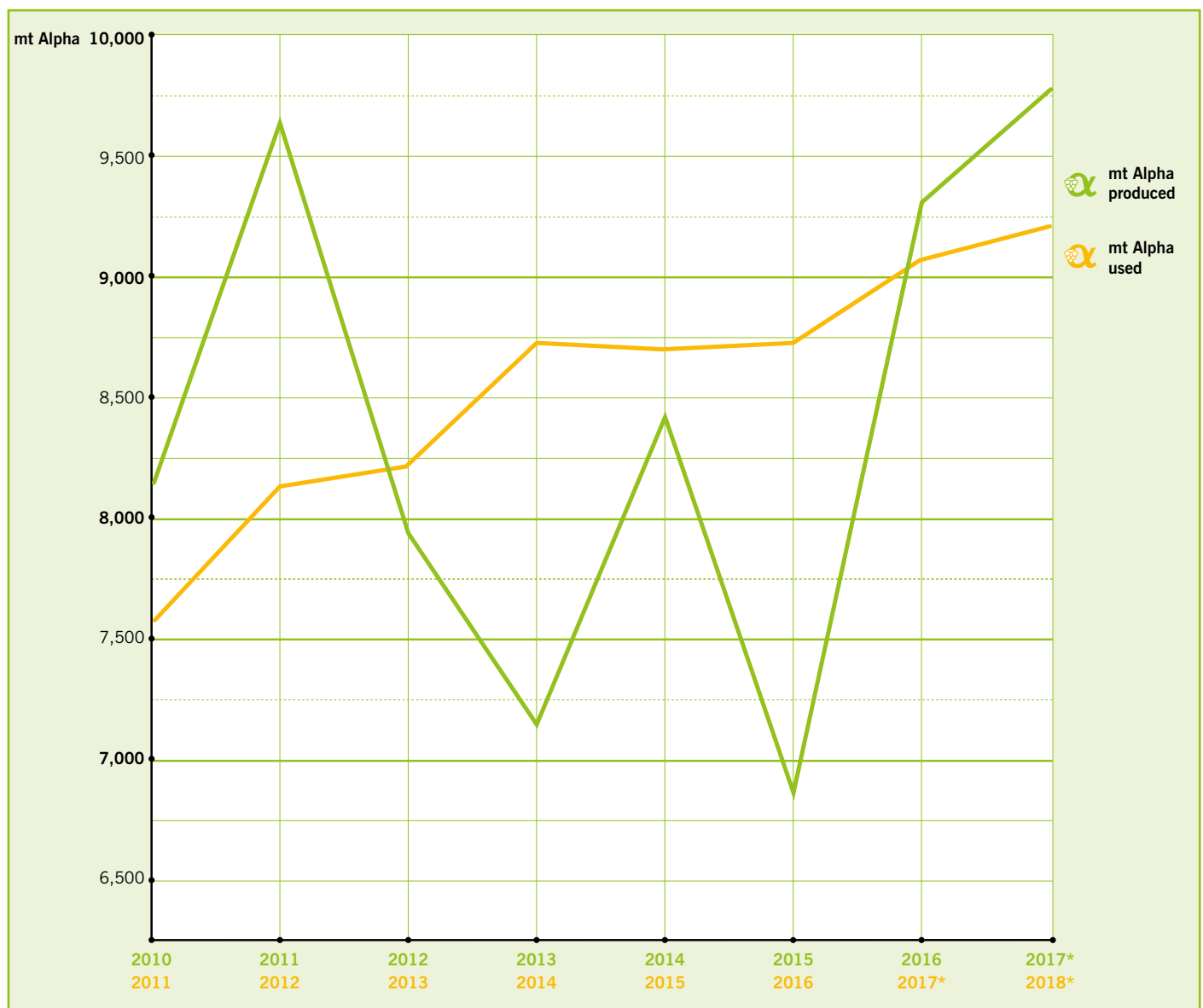
(Mio hl and % share)



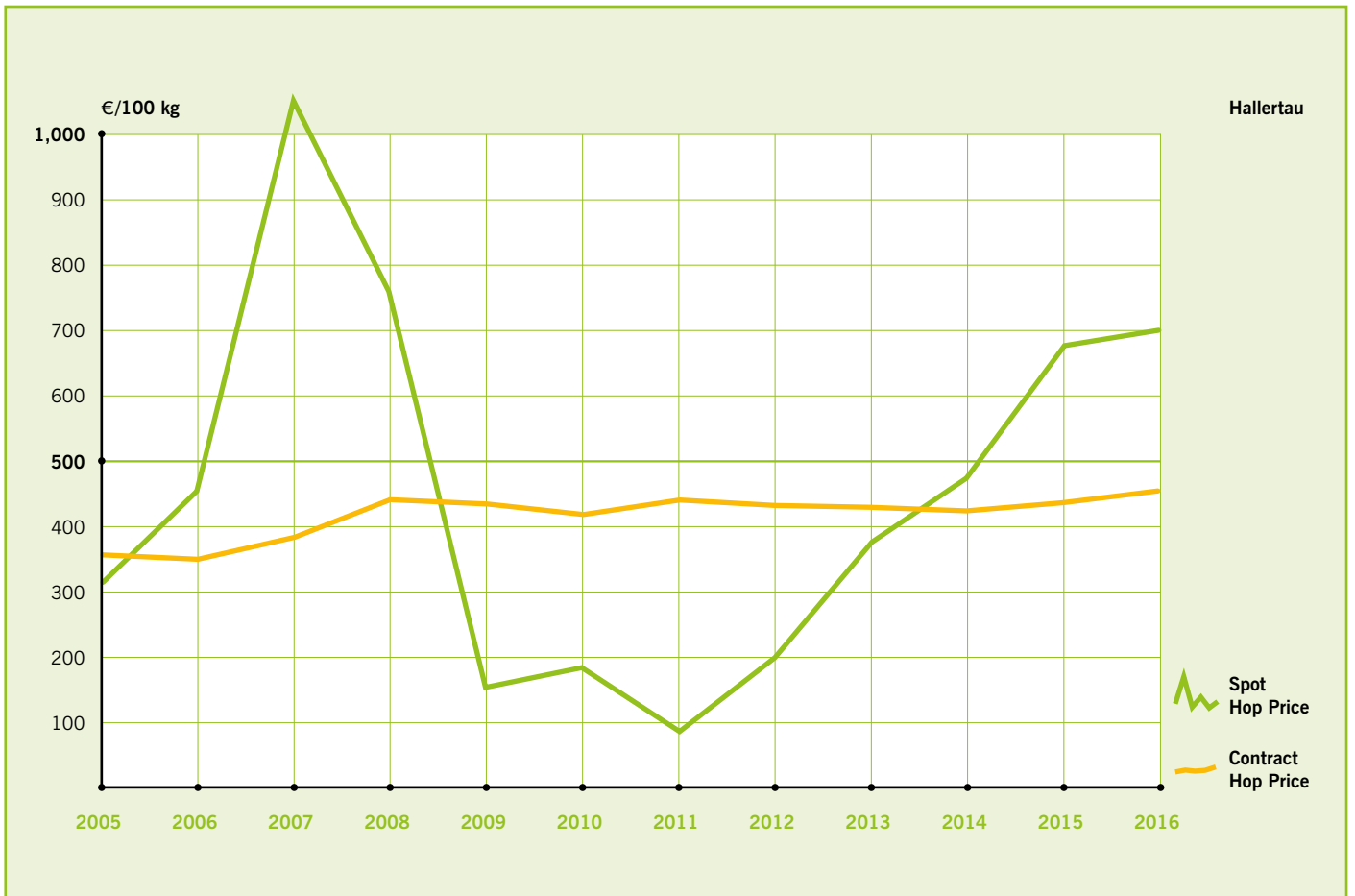
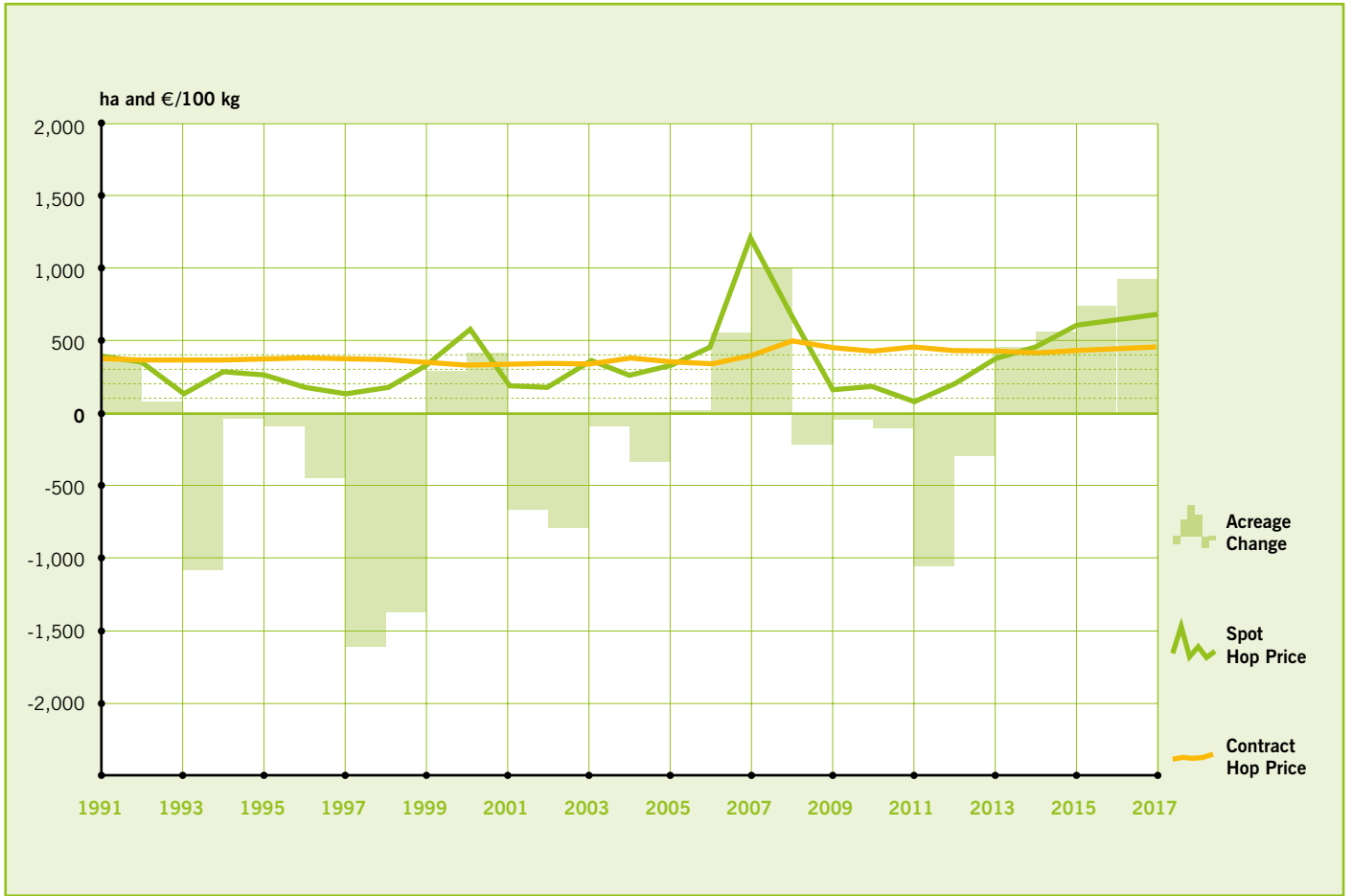
\*Estimate

## World Hop Acid Supply and Demand 2010 – 2017

Production		Beer Production		Alpha Dosage	Alpha Usage	Annual Balance
(mt Alpha)		(Mio hl)		(g Alpha/hl)	(mt Alpha)	(mt Alpha)
2010	8,192	2011	1,917	4.0	7,668	524
2011	9,560	2012	1,941	4.2	8,152	1,408
2012	7,955	2013	1,962	4.2	8,240	-285
2013	7,211	2014	1,957	4.4	8,611	-1,400
2014	8,350	2015	1,967	4.5	8,852	-502
2015	6,838	2016	1,961	4.5	8,825	-1,987
2016	9,373	2017*	1,978	4.6	9,099	274
2017*	9,753	2018*	2,001	4.6	9,205	548



\*Estimate





# Hop Market Review and Outlook

## Looking back

Crop 2016 had generally positive yields and quality. Despite a high sold-ahead percentage, there were some spot volumes available. Demand was steady during the period following the crop and these spot volumes were largely sold out by spring 2017, with a continuing trend of rising prices. The future crop market remained busy as well, although new contracts did not reach quite as far forward as they had in some years past.

The worldwide average alpha content of crop 2016 was 8.5%, an increase over crop 2015's average of 7.8%. The world crop of approximately 110,500 metric tons resulted in a harvested alpha volume of 9,373 metric tons, compared to a calculated alpha demand of approximately 9,099 metric tons. At the same time, beer production rose slightly to 1,978 million hectoliters, which meant that crop 2016 resulted in a more or less balanced supply-demand situation with an excess of just 274 metric tons. This was a fitting result for the largest crop since 2009, albeit one produced from a much larger acreage.



## Looking forward

The principal growing areas increased acreage significantly in 2017. Specifics are listed in the tables that follow. European acreage increased 5% and USA acreage increased 6.9%. This further extended USA's lead as the world's largest hop growing country. It should be noted, however, that the increase in USA was less than the past few years, which may indicate that supply and demand are coming closer into balance and perhaps into oversupply for some of the main public varieties such as Cascade and Centennial. Crop 2017 was harvested on 59,211 hectares, or 5.2% more than crop 2016.

The crop 2017 growing season presented a range of conditions and challenges.

In the Hallertau, June and July were extremely hot and dry. As a result, early crop estimates were muted. Consequently, the mood amongst growers during the IHGC Congress in early August in Yakima was quite reserved. All of this changed in August when adequate rainfall gave the crop a visible boost that removed the early doubts about the crop.

In the Czech Republic, April's frost had an early effect on yields. May proved to be too dry, but conditions improved in June and July. In Slovenia the whole summer was dry. In Spain the crop was affected by both early frost and a major hailstorm just prior to harvest that destroyed a large part of the crop.

In USA, the crop estimate was matched in both volume and alpha content. The crop should come in approximately 12% larger than 2016.

As we go to press, the estimate for the German crop is 41,556 metric tons, or 3% less than crop 2016. Similarly, the Europe-wide crop looks to be down approximately 4%.

Beer production is estimated to grow slightly to 2,001 million hectoliters in 2017 and 2018. Craft production growth is less than in recent years, but is still gaining market share in USA and worldwide. Our estimated alpha demand for 2018 is approximately 9,205 metric tons, or 548 tons below the volume produced by crop 2017. It should be noted, however, that the oversupply is calculated for the overall crop, not specific varieties. Spot market demand has shown that traditional bitter hops remain in tight supply, while the production of

some of the principal aroma varieties is now in surplus. Please refer to the tables on the following pages.

Over 60% of the world's hop crop is now aroma varieties, and the volume of bitter hop alpha produced was just approximately 270 metric tons larger than in 2016. This was largely a result of growing conditions in Germany, where an acreage increase of nearly 20% for Hercules produced 5% less alpha. The increase in aroma production in USA was therefore the main cause of the 3.1% increase in general alpha acid production. While it is clear that the line has blurred between aroma and bitter from both alpha content and usage perspectives, it is important to differentiate the categories. The estimated alpha oversupply of 548 metric tons consists primarily of aroma hops with a range of alpha contents, stability, and uses. This also means that the actual supply of alpha is still tight, as is evidenced by the sold ahead percentage, prices and the willingness of spot market buyers to purchase alpha produced from varieties that would otherwise be categorized as aroma hops.

Crop 2017 may prove to be the point where the continuous increases in hop acreage finally allows supply to catch up to demand. Craft beer growth in the USA has slowed down, and it is unlikely, at least in the short term, that the growth of craft beer elsewhere can make up for the decreased demand from the slowdown in the USA. The rest of the beer market continues on its languid, but still upward growth pattern, with strong gains in volume coming from developing countries making up for the losses in mature markets.

  
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