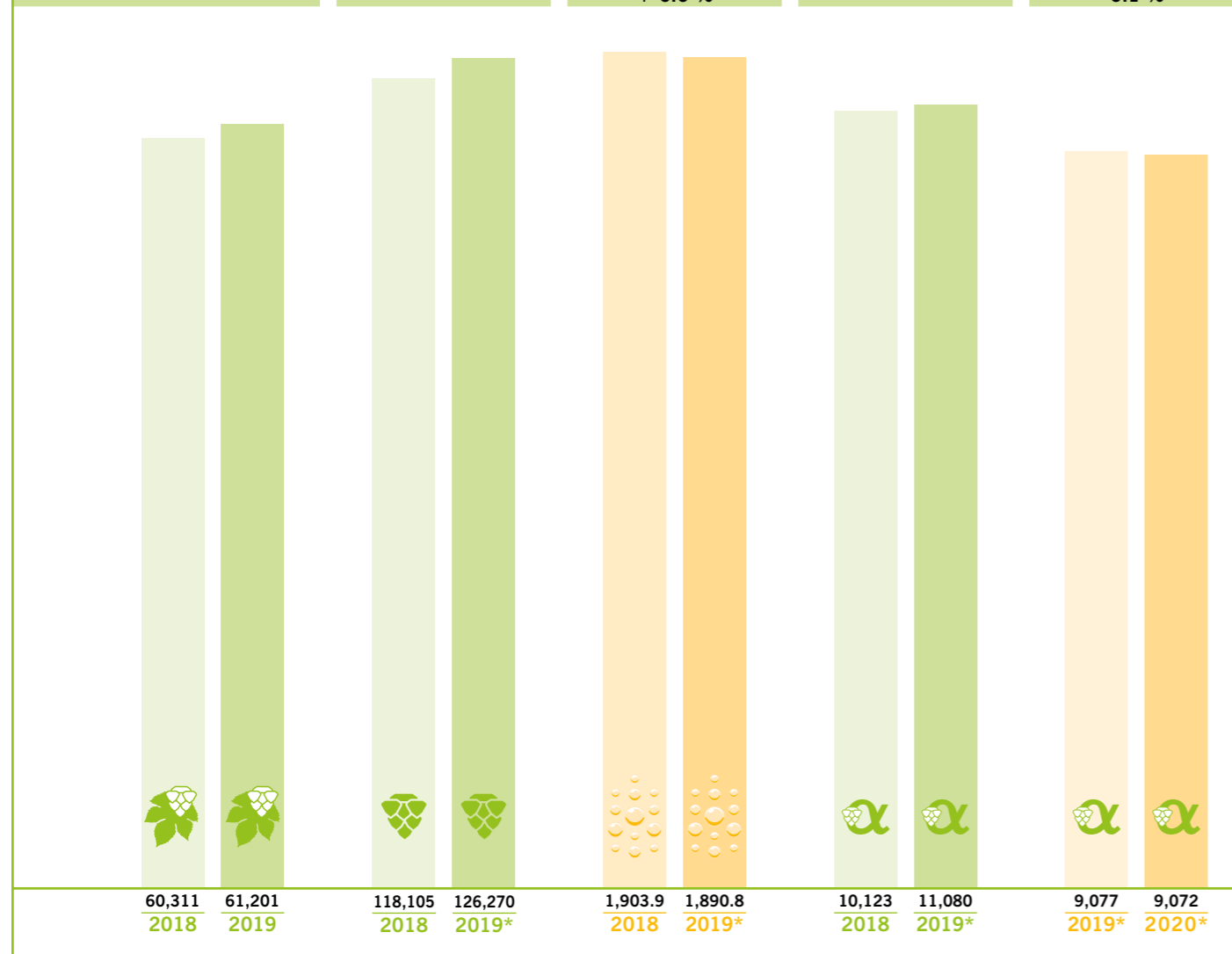


2019
GUIDELINES
FOR HOP BUYING

	World Hop Acreage	World Hop Crop	World Beer Production	World Alpha Acids Production	World Alpha Acids Demand
	(ha)	(mt)	(Mio. hl)	(mt)	(mt)
2017	59,118 + 5.1 %	117,718 + 6.5 %	1,944.8 - 0.8 %	9,901 + 5.6 %	8,947 + 1.4 %
2018	60,311 + 2.0 %	118,105 - 0.3 %	1,903.9 - 2.1 %	10,123 + 2.2 %	8,949 - 0.0 %
2019	61,201 + 1.5 %	126,270* + 6.9*	1,890.8* - 0.7 %*	11,080* + 9.4*	9,077* + 1.4 %*
2020	-	-	1,890.0* + 0.0 %*	-	9,072* - 0.1 %*



*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)

© Copyright 2019
Simon H. Steiner, Hopfen, GmbH, Mainburg, Germany

Foreword

” After a disappointing European crop in 2018, growing conditions were more favorable in 2019. The resulting crop was much improved, although some shortages still exist. The crop in USA was normal, again showing the importance of irrigation and the introduction of newer, more heat and disease-resistant varieties.

Worldwide hop acreage continues to increase despite a generally weaker beer market. As always, communication of demand and supply is critical to properly navigating the subtleties of the range of market segments that exist.

Your Hopsteiner Team
November 2019



• Hallertauer Hopfenveredelungsgesellschaft mbH
Au, Hallertau, Pelletwerk

• Hallertauer Hopfenveredelungsgesellschaft mbH
Mainburg, Hallertau,
Ethanol- und CO₂-Extraktion

• Hops Extract Corporation
of America, Yakima, Washington,
CO₂-Extraktion

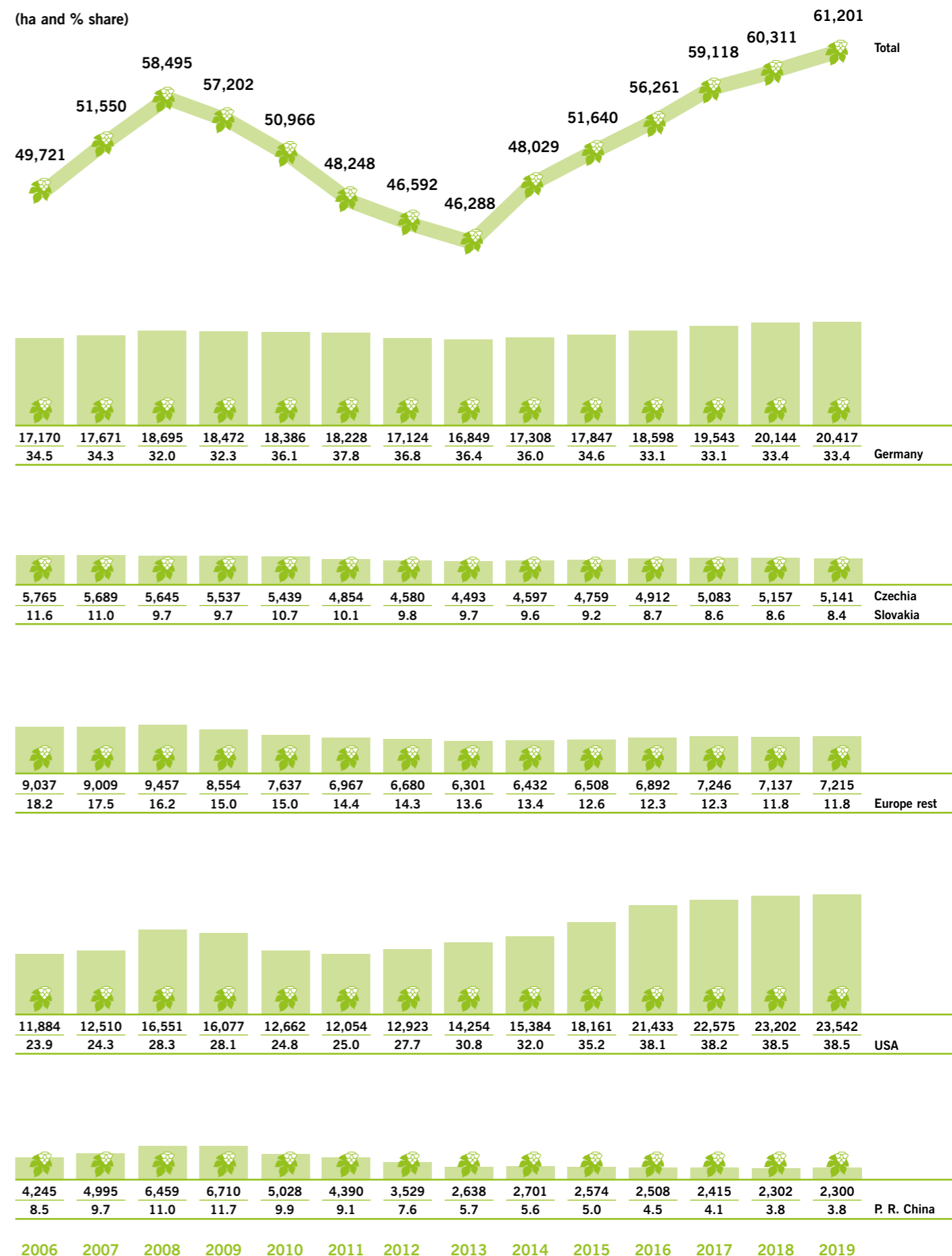
• Golden Gate Hop Ranches Inc.
Yakima, Washington,
Hopfenanbaubetrieb

Hop Acreage 2016 – 2019

	Acreage in ha				+/- %		
	2016	2017	2018	2019	16/17	17/18	18/19
Hallertauer	553	539	503	506	- 2.5	- 6.7	+ 0.6
Hersbrucker	934	910	918	911	- 2.6	+ 0.9	- 0.8
Perle	2,780	2,653	2,681	2,778	- 4.6	+ 1.1	+ 3.6
Spalter Select	440	437	468	489	- 0.7	+ 7.1	+ 4.5
Tradition	2,704	2,592	2,580	2,637	- 4.1	- 0.5	+ 2.2
Saphir	400	416	435	410	+ 4.0	+ 4.6	- 5.7
Northern Brewer	157	162	156	145	+ 3.2	- 3.7	- 7.1
Magnum	1,527	1,387	1,364	1,320	- 9.2	- 1.7	- 3.2
Nugget	129	119	116	111	- 7.8	- 2.5	- 4.3
Taurus	340	270	244	213	- 20.6	- 9.6	- 12.7
Herkules	4,540	5,406	5,897	6,122	+ 19.1	+ 9.1	+ 3.8
Rest	1,009	1,419	1,418	1,353	+ 40.6	- 0.1	- 4.6
Hallertau	15,510	16,310	16,780	16,995	+ 5.2	+ 2.9	+ 1.3
Elbe-Saale	1,409	1,466	1,541	1,547	+ 4.0	+ 5.1	+ 0.4
Tettngang	1,282	1,353	1,397	1,438	+ 5.5	+ 3.3	+ 2.9
Spalt	376	391	404	415	+ 4.0	+ 3.3	+ 2.7
Rest	22	22	22	22	+ 0.0	+ 0.0	+ 0.0
Germany total	18,598	19,543	20,144	20,417	+ 5.1	+ 3.1	+ 1.4
Austria	249	250	250	252	+ 0.4	0.0	+ 0.8
Belgium	149	180	183	182	+ 20.8	+ 1.7	- 0.5
Bulgaria	18	22	37	37	+ 22.2	+ 68.2	+ 0.0
Czech Rep.	4,775	4,945	5,020	5,004	+ 3.6	+ 1.5	- 0.3
England	919	967	948	953	+ 5.2	- 2.0	+ 0.5
France	459	481	496	498	+ 4.8	+ 3.1	+ 0.4
Poland	1,475	1,577	1,662	1,662	+ 6.9	+ 5.4	+ 0.0
Romania	270	270	277	280	+ 0.0	+ 2.6	+ 1.1
Russia	420	470	252	254	+ 11.9	- 46.4	+ 0.8
Slovakia	137	138	137	137	+ 0.7	- 0.7	+ 0.0
Slovenia	1,484	1,590	1,667	1,637	+ 7.1	+ 4.8	- 1.8
Spain	536	537	536	532	+ 0.2	- 0.2	- 0.7
Turkey	350	350	350	350	+ 0.0	+ 0.0	+ 0.0
Ukraine	369	369	369	472	+ 0.0	+ 0.0	+ 27.9
Rest	194	183	111	106	- 5.7	- 39.3	- 4.5
Europe total	30,402	31,872	32,438	32,773	+ 4.8	+ 1.8	+ 1.0
Amarillo	757	1,201	1,106	874	+ 58.7	- 7.9	- 21.0
Apollo	393	369	416	437	- 6.1	+ 12.7	+ 5.0
Bravo	293	257	149	118	- 12.3	- 42.0	- 20.8
Cascade	3,068	2,811	2,499	2,137	- 8.4	- 11.1	- 14.5
Centennial	2,057	2,132	1,850	1,559	+ 3.6	- 13.2	- 15.7
Chinook	785	981	1,143	958	+ 25.0	+ 16.5	- 16.2
Citra	1,321	2,072	2,692	3,656	+ 56.9	+ 29.9	+ 35.8
Col. / Tom. / Zeus	1,820	1,977	2,477	2,608	+ 8.6	+ 25.3	+ 5.3
Eureka!	50	147	220	250	+ 193.0	+ 50.2	+ 13.6
Mosaic	1,022	1,098	1,120	1,710	+ 7.4	+ 2.0	+ 52.7
Super Galena	153	203	270	248	+ 32.7	+ 32.9	- 8.1
Willamette	632	620	522	450	- 2.0	- 15.8	- 13.8
Rest	8,230	7,697	7,807	7,577	- 6.5	+ 1.4	- 2.9
PNW total	19,824	20,363	21,165	21,708	+ 2.7	+ 3.9	+ 2.6
Other	852	1,011	931	960	+ 18.7	- 7.9	+ 3.1
USA total	21,433	22,575	23,202	23,542	+ 5.3	+ 2.8	+ 1.5
Argentina	195	160	160	160	- 17.9	+ 0.0	+ 0.0
Australia	546	631	652	700	+ 15.6	+ 3.3	+ 7.4
Japan	154	120	120	120	- 22.1	+ 0.0	+ 0.0
New Zealand	412	442	531	700	+ 7.3	+ 20.1	+ 31.8
P.R.China	2,508	2,415	2,302	2,300	- 3.7	- 4.7	- 0.1
South Africa	413	424	427	427	+ 2.7	+ 0.7	+ 0.0
Rest	198	479	479	479	+ 141.9	+ 0.0	+ 0.0
World total	56,261	59,118	60,311	61,201	+ 5.1	+ 2.0	+ 1.5

PNW = Pacific North West

Hop Acreage 2006 – 2019



Hopsteiner Laboratory Values 2016 – 2019

Alpha Content in %					Alpha Content in %				
Aroma Varieties	2016	2017	2018	2019	Bitter Varieties	2016	2017	2018	2019
Hersbrucker	2.8	2.3	3.6	2.5	Herkules	17.3	15.5	14.6	16.2
Perle	8.2	6.9	5.5	6.7	Magnum	14.3	12.6	11.6	12.3
Tradition	6.4	5.7	5.0	5.4	Taurus	17.6	15.9	13.6	16.1
Select	5.2	4.6	3.5	4.4	US Super Galena	15.1	15.3	15.0	14.8
Tettnang	3.8	3.6	3.0	3.8	US Bravo	14.8	15.5	14.8	15.1
Spalt	4.3	3.2	3.5	3.9	US Nugget	12.5	13.4	13.7	13.3
Saaz	3.4	3.0	2.9	3.4	US Eureka!	18.3	18.6	19.0	18.3
Steirer Aurora	8.7	7.3	8.9	7.8	US CTZ	14.2	15.8	15.0	14.5
Steirer Golding (Celeia)	3.2	2.8	3.0	3.4	Pride of Ringwood	9.4	9.8	9.6	9.4
US Cascade	6.1	7.0	6.0	6.2					
US Willamette	4.8	5.1	4.5	5.0	Dual Purpose	2016	2017	2018	2019
Northern Brewer	10.5	7.8	7.4	8.1	US Centennial	10.0	11.0	10.0	10.3

World Alpha Acids Production 2016 – 2019

Total Crop Quantities in mt					% share			
	2016	2017	2018	2019*	2016	2017	2018	2019*
Aroma Varieties	67,232	72,305	69,928	72,477	60.8	61.4	59.2	57.4
Bitter Varieties	43,264	45,413	48,177	53,793	39.2	38.6	40.8	42.6
Total	110,496	117,718	118,105	126,270	100.0	100.0	100.0	100.0

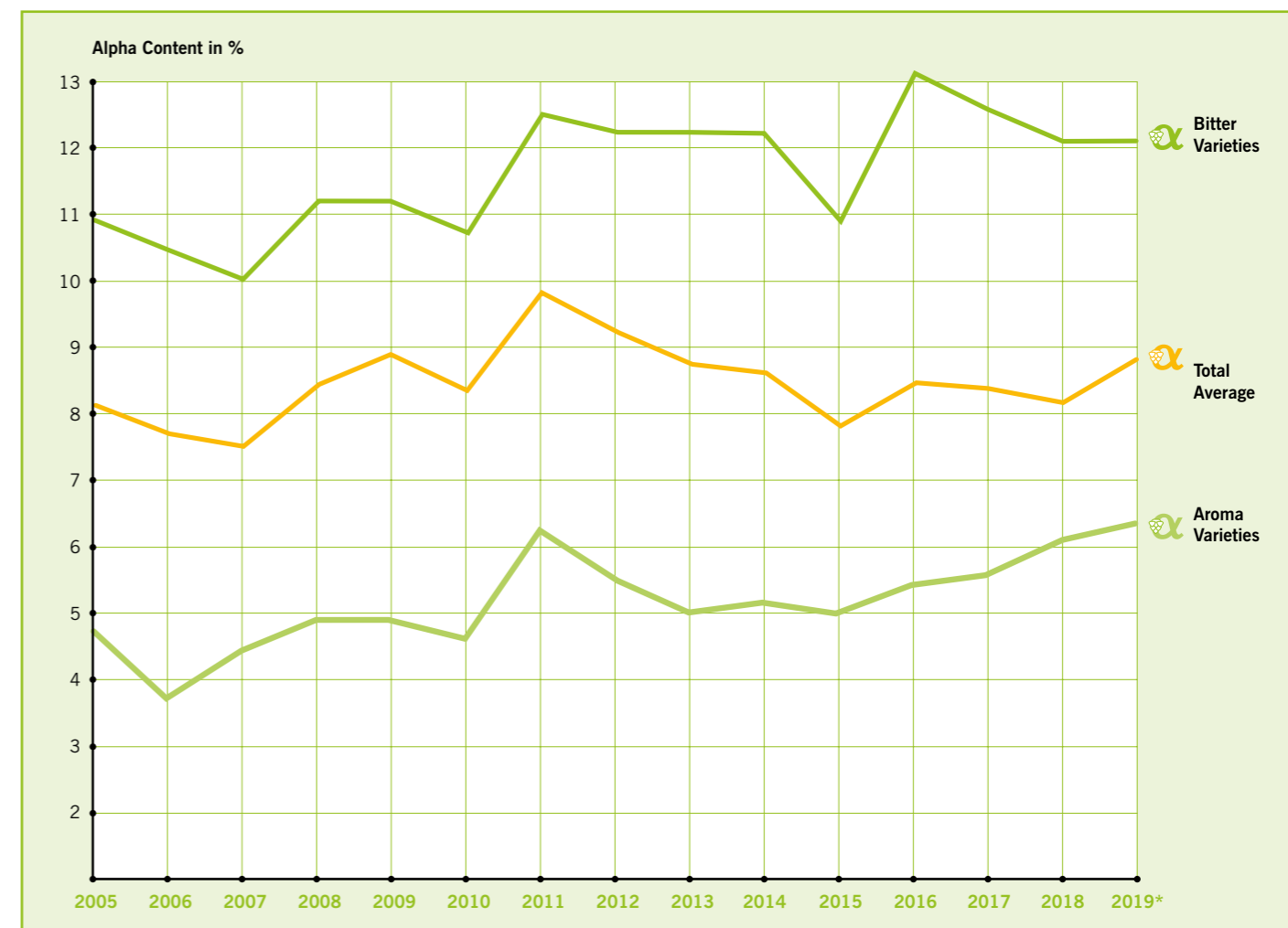
Alpha Amount in kg					Alpha Content in %			
	2016	2017	2018	2019*	2016	2017	2018	2019*
Aroma Varieties	3,604,700	4,117,300	4,285,600	4,583,000	5.4	5.7	6.1	6.3
Bitter Varieties	5,768,700	5,783,500	5,837,800	6,496,600	13.3	12.7	12.1	12.1
Total	9,373,400	9,900,800	10,123,400	11,079,600	8.5	8.4	8.6	8.8

Worldwide use of Hops and Hop Products 2006 – 2019

	Hops total		Pellets total		Extract total	
	(mt)	(% total)	(mt)	(% total)	(mt)	(% total)
2006	85,266	66.1	56,361	66.1	26,177	30.7
2007	91,418	65.1	59,513	65.1	29,345	32.1
2008	113,125	61.1	69,119	61.1	40,951	36.2
2009	111,386	58.5	65,161	58.5	43,997	39.5
2010	96,680	57.0	55,108	57.0	39,639	41.0
2011	97,376	56.0	54,531	56.0	41,482	42.6
2012	86,696	55.0	47,683	55.0	37,886	43.7
2013	82,631	61.3	50,653	61.3	31,069	37.6
2014	96,670	65.5	63,319	65.5	30,934	32.0
2015	85,911	73.5	63,160	73.5	22,189	25.8
2016	110,496	76.9	84,972	76.9	23,757	21.5
2017	117,718	75.0	88,312	75.0	28,017	23.8
2018	118,105	68.6	81,053	68.6	35,573	30.1
2019*	126,270	67.5	85,232	67.5	39,396	31.2

*Estimate

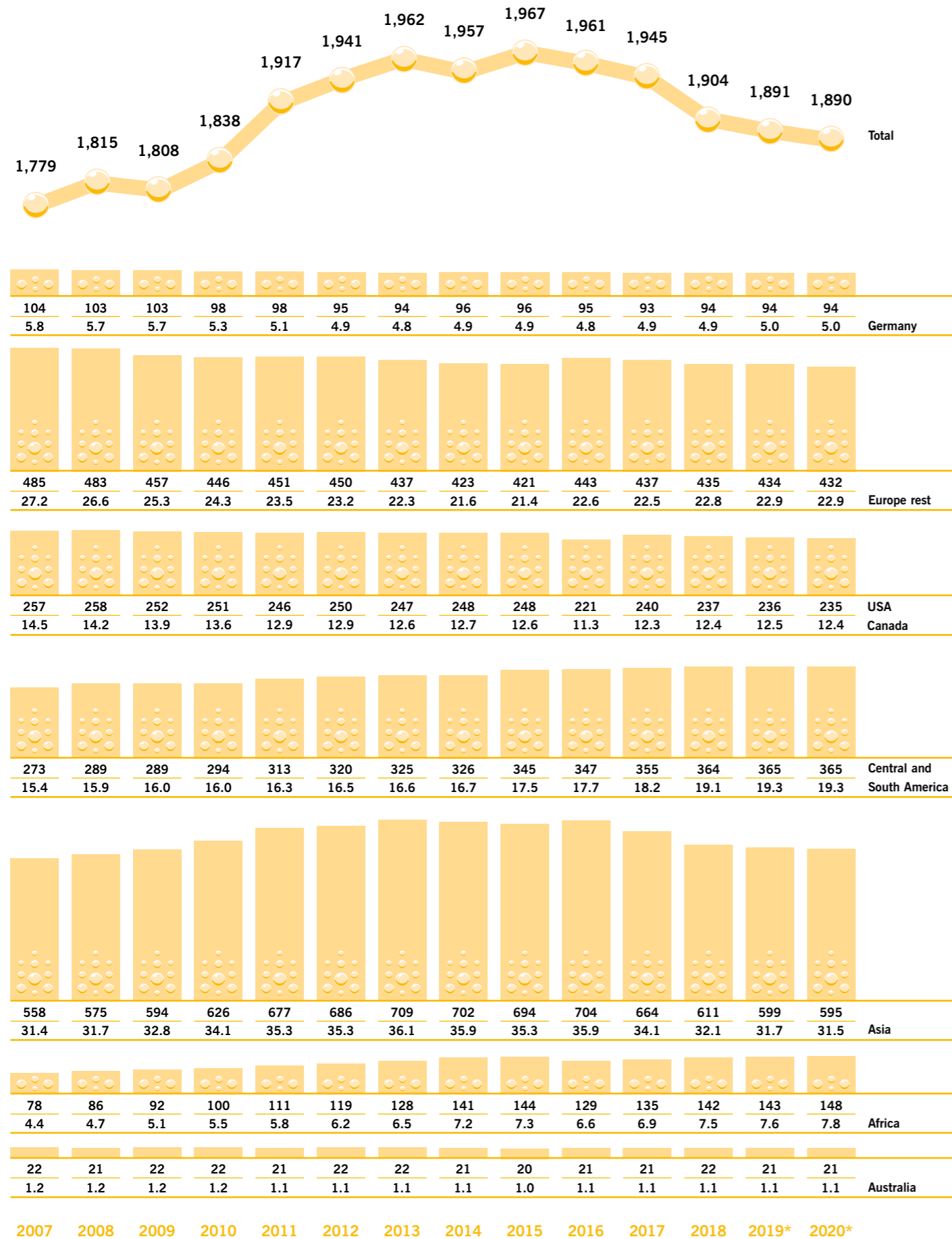
Alpha Values over time 2005– 2019



*Estimate

World Beer Production 2007– 2020

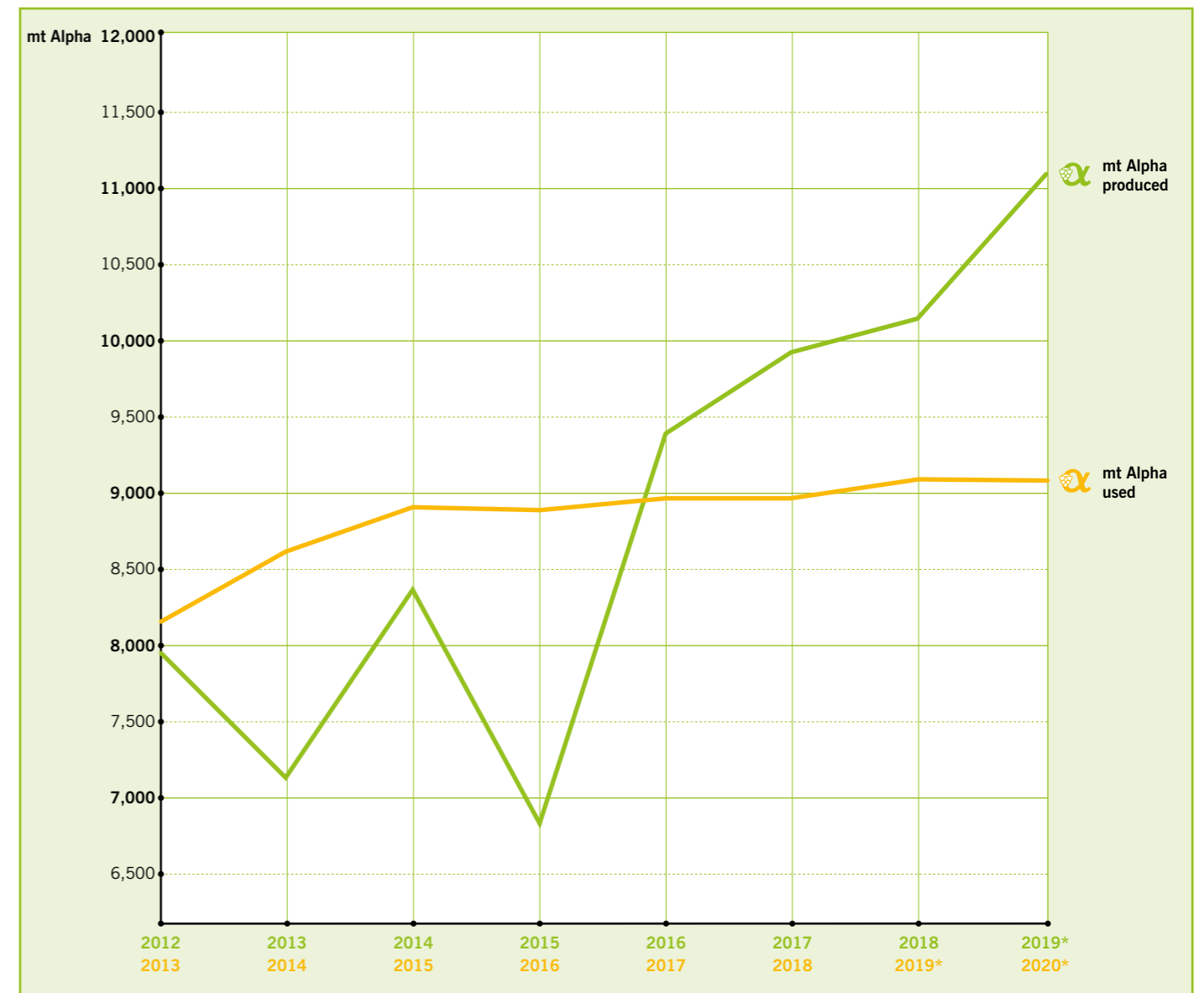
(Mio hl and % share)



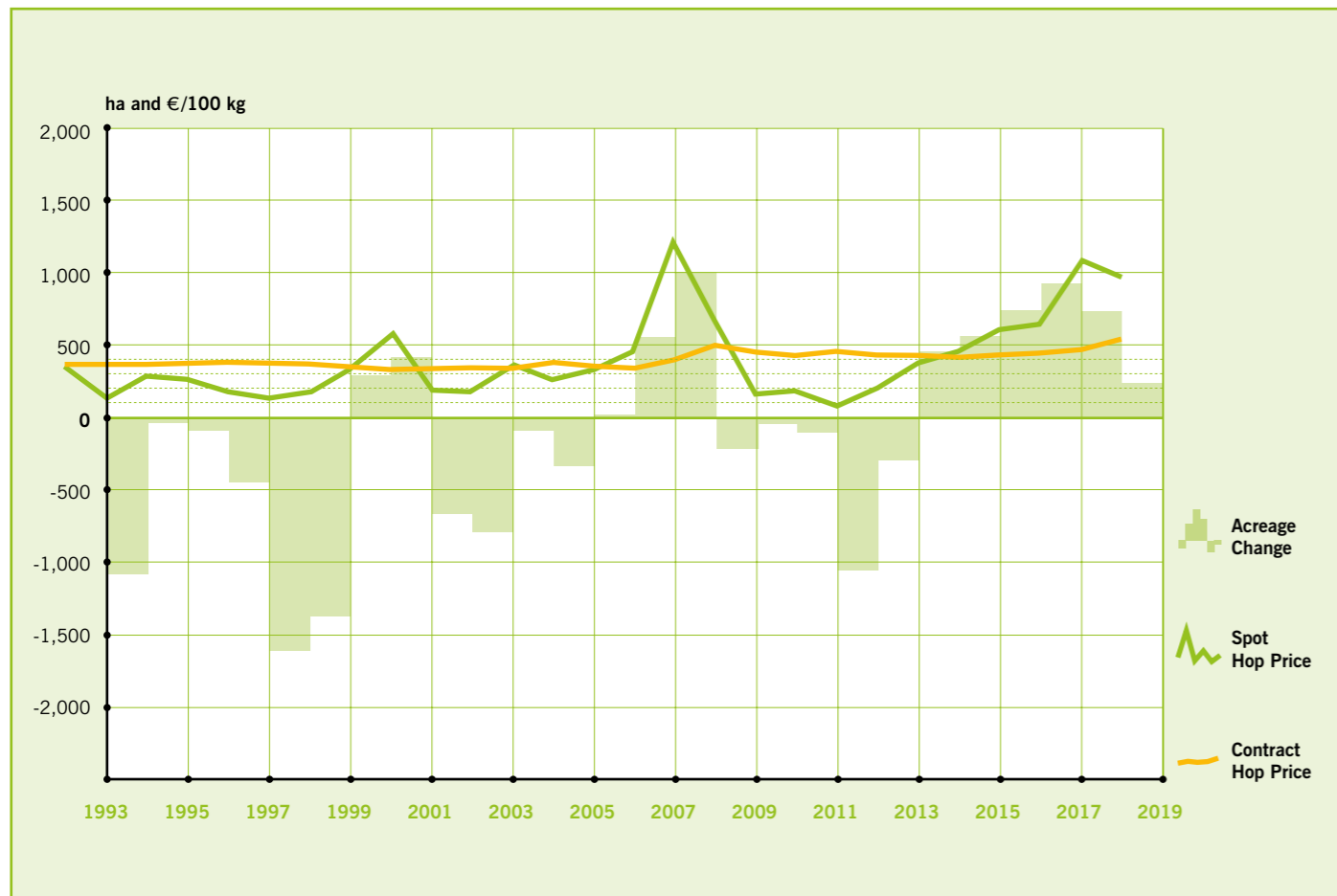
*Estimate

World Hop Acid Supply and Demand 2012 – 2019

	Production (mt Alpha)	Beer Production (Mio hl)	Alpha Dosage (g Alpha/hl)	Alpha Usage (mt Alpha)	Annual Balance (mt Alpha)
2012	7,955	1,962	4.2	8,240	- 285
2013	7,211	1,957	4.4	8,611	- 1,400
2014	8,350	1,967	4.5	8,852	- 502
2015	6,838	1,961	4.5	8,825	- 1,987
2016	9,373	1,945	4.6	8,947	426
2017	9,901	1,904	4.7	8,949	952
2018	10,123	1,891	4.8	9,077	1,046
2019*	11,080	1,890	4.8	9,072	2,008



*Estimate



Hop Market Review and Outlook

Looking back

In Europe crop 2018 was below average due to poor growing conditions. Low weight yields were compounded by low alpha levels, which resulted in the alpha clause being invoked for most aroma varieties. Many discussions with breweries ensued to determine their actual requirement versus contract volume. Subsequent adjustments allowed for sufficient coverage for most brewers.

The 2018 average alpha value was 8.6%, which was a slight improvement over 2017's 8.4%. The world crop of approximately 118.1 million kg represented 10,123 million kg alpha, or slightly more than the theoretical demand of 9,077 million kg based on the expected world beer production of 1.891 million hectoliters for 2019.

The few available spot quantities from crop 2018 quickly found a market, as the overwhelming majority of hops grown have been under contract. The smaller crop and lower alphas further reduced the possible quantity of spot hops and largely eliminated the theoretical alpha surplus. In years like this it remains critically important to be able to work with brewers to adjust varieties and volumes to fill all of their needs. Constant communication and timely notice of supply and demand is essential. This good cooperation is highly appreciated.



Looking forward

There were acreage increases in all of the main growing regions in 2019. The total worldwide increase was 1.5% to a total of 61,201 hectares which was less than in each of the previous two years. This is an indication that the current hop acreage is sufficient to cover the demands. The slowdown in the growth of the USA craft beer industry – and related shift of the growth to the “long tail” of thousands of small brewers – is certainly a key factor. The last crop which resulted in a theoretical undersupply was 2015.

During the growing season conditions were again quite challenging in all European regions. The cool spring slowed plant development approximately 14 days. Midsummer brought tremendous hot and dry weather to Germany and the Czech Republic. Fortunately, August had enough precipitation to somewhat rescue the crops and avoid the feared crop failure. Most varieties produced average yields. Nevertheless, alpha levels were generally below average and again invoked the alpha clause for some varieties.

Slovenia was badly affected by hail storms but also by the appearance of the „Citrus Bark Cracking Viroid.“ We estimate crop 2019 to be 500 MT below crop 2018. (2,600 MT vs 3,078 MT). The appearance of the viroid will also impact future crops. All affected acres must be removed and left idle to fully remove any traces of the disease before any replanting is possible.

In USA the crop was normal in both volume and alpha levels. The crop should exceed 49,500 mt.

The crop in Germany is expected to reach approximately 48,270 MT. The total European crop should be approximately 66,636 MT.

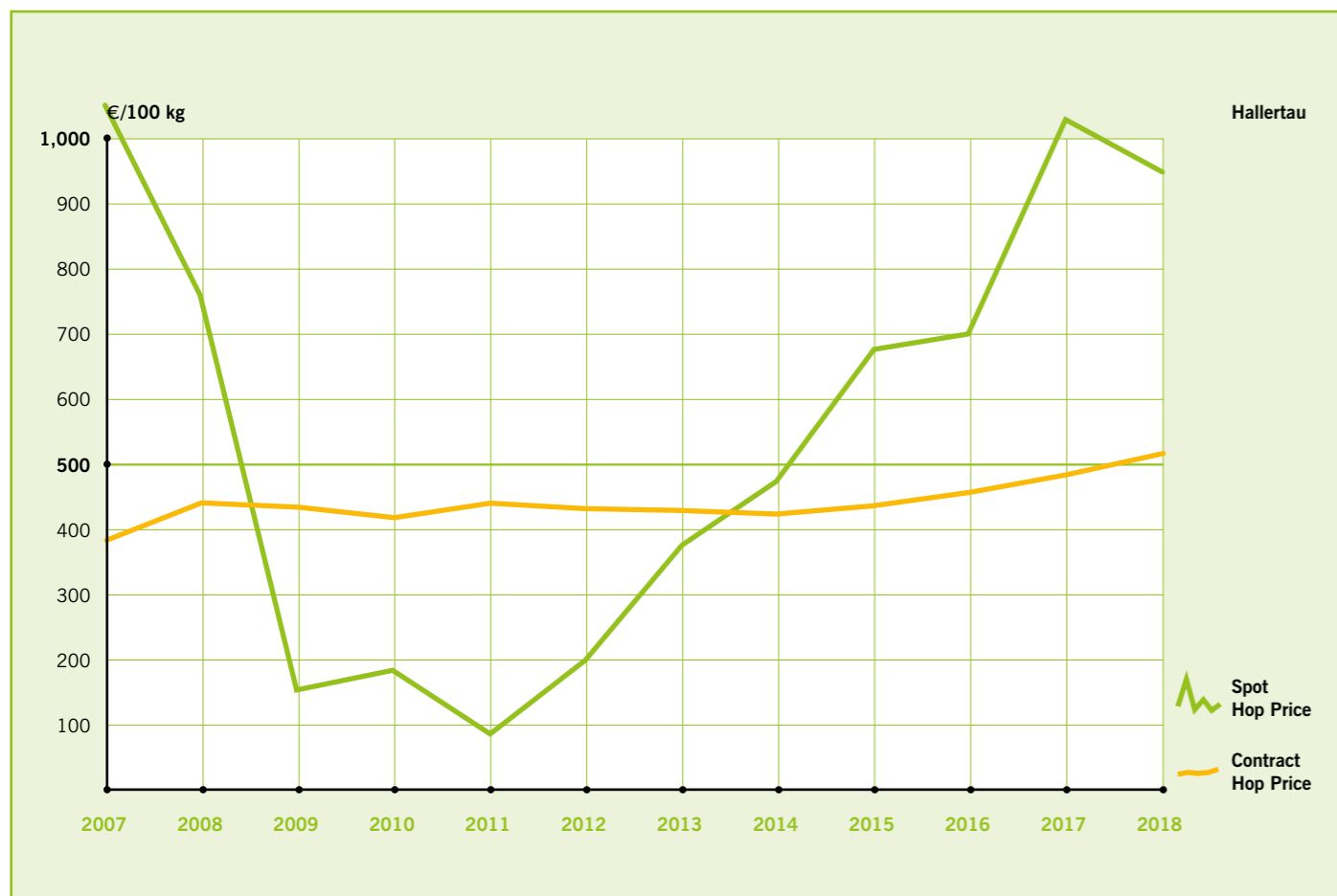
Overall the world will produce 126,270 MT in 2019, or 6.9% more than in 2018. The crop's alpha level will also be slightly higher at 8.8%.

Our analysis indicates that world beer production is slightly lower in both 2019 and 2020. The demand for alpha for a production of 1,890

million hl is approximately 9,072 million kg, so there is technically a surplus of alpha based on the total estimated alpha production of 11,080 million kg alpha. Despite the general alpha oversupply, some varieties might still be in short supply.

An increasing hop acreage and crop volume therefore presents a challenge in the face of slowing beer consumption. The calculated crop 2019 oversupply of 2,000 mt alpha is still just theoretical, because even at this early stage of the spot market season, spot volumes of high-demand varieties do not appear to be adequate. With the increased number of varieties, the industry will have to make continuous adjustments to balance supply and demand.

Clear communication of both supply and demand is still the way to best handle these challenges. Due to the very high pre-contract rates, we expect continued tight situations for crops 2020 and 2021 based on average crops. Therefore, early notice of demand will be important to allow the needed acre adjustments. The weather, disease and plant protection challenges faced by growers also illustrate the importance of breeding and the introduction of new varieties.




Hopsteiner®

COMMITTED TO THE BREWER.



Simon H. Steiner, Hopfen, GmbH

Auhofstraße 18 | D-84048 Mainburg, Germany
Tel +49 (0) 87 51-86 05-0 | Fax +49 (0) 87 51-86 05-80
E-mail info@hopsteiner.de

S.S. Steiner, Inc.

655 Madison Avenue, New York, N.Y., 10065, USA
Tel +1 212 838-8900 | Fax +1 212 593-4238
E-mail sales@hopsteiner.com

Steiner Hops Limited

185-189 High Street, Epping, Essex CM16 4BL, England
Tel +44 (0) 1992 572 331 | Fax +44 (0) 1992 573 780
E-mail enquiries@hopsteiner.co.uk

Steiner Asia

Steiner Hops (Zhuhai) Co., Ltd.
1503 Jiu Chang Building, No. 8, Hai Zhou Road, Ji Da District,
Zhuhai, Guangdong, China 519015
Tel +86 756 322-3340 | Fax +86 756 322-3345
E-mail info@hopsteiner.com.cn

www.hopsteiner.com