

BARTH-HAAS HOPS ACADEMY

All there is to know about hops!



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Dipl.-Ing. (FH)

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Introduction into the world of hops

Challenges in the modern & successful
production of hops

A member of the BARTH-HAAS GROUP

Introduction

Stefan J. Stanglmair

- 44 years old (year of birth: 1974)
- married, 3 children

Apprenticeship:

- University of Applied Sciences Weihenstephan (Agriculture, 1994-1998, Dipl.-Ing. agr. (FH))
- practicum/traineeship 5 months in England, Kent, Hayle Farm

Career:

- grown up on a hop farm in the south Hallertau (~20 ha hops, ~14 ha crop farming, ~15 ha forestry)
- working for Joh. Barth & Sohn since 1998 (hop purchasing & advice/consulting, southern Hallertau & Slovenia)
- running his own hop production in the south Hallertau at 20 ha: (var.: Hallertau Mittelfrueh, Mandarina Bavaria, Hallertau Blanc, Huell Melon, Ariana, Polaris, Herkules)



Agenda (first part)

Introduction into the world of hops (20 min)

- Commercial aspects of hops
- Main hop regions in the world
- Overview hop production in the world
- Hop basics – ups & downs of a hop-cycle
- Hop varieties
- Botany of hops

Challenges in the modern & successful production of hops (40 min)

- Hop cultivation systems
- Measures to adjust varieties into different growing regions/climates
- Up to date Irrigation & fertigation
- Digitalisation in hop production
- Contemporary plant protection in hops
- Contemporary harvesting/kilning/drying of hops
- Up to date conditioning of hops
- Modern documentation and certification in hop production
- Production measures to reach highest quality in hops

Agenda (first part)

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- The Barth-Haas Group is a privately owned, vertically integrated, multinational company that grows, processes and trades hops and hop products worldwide.
- It is a specialty application business that caters mainly to the needs of the world-wide brewing industry, but also to other users.
- The Barth-Haas Group consists of a diverse range of small to mid-sized companies engaged in a broad spectrum of hop activities.
- The Barth-Haas Group is currently managed by the 7th and 8th generation of the Barth family and was founded in 1794.

Our Owners and Managing Partners - 7th and 8th Generation

BARTH-HAAS **HOPS ACADEMY**

All there is to know about hops!



Where are we?



- Predominant application: brewing (>95%)
Small market in terms of value
- Global use: >160 countries
Grown in few countries: top 5: > 90% of @-production
- Very volatile market:
Hops: ~~commodity~~ strategic raw material

- In 2016 Germany and USA represented
- 78% of alpha acids
- 72% of world acreage



- **Germany:**
60% aroma
40% bitter

- USA:**
78% aroma
22% bitter

- After almost 10 years acreage increase in the USA in 2017
- Germany presently more competitive with high alpha (Herkules!)

Main growing Countries

- **Czech Republic:** fine aroma
 - Saaz, Sladek
 - Serious economic difficulties

- **Poland:** bitter and aroma
 - Lublin (Saaz), Marynka, Magnum
 - Many small growers
 - Infrastructure to be improved

- **Slovenia:** aroma
 - Aurora, Savinjski Golding, Bobek, Celeia



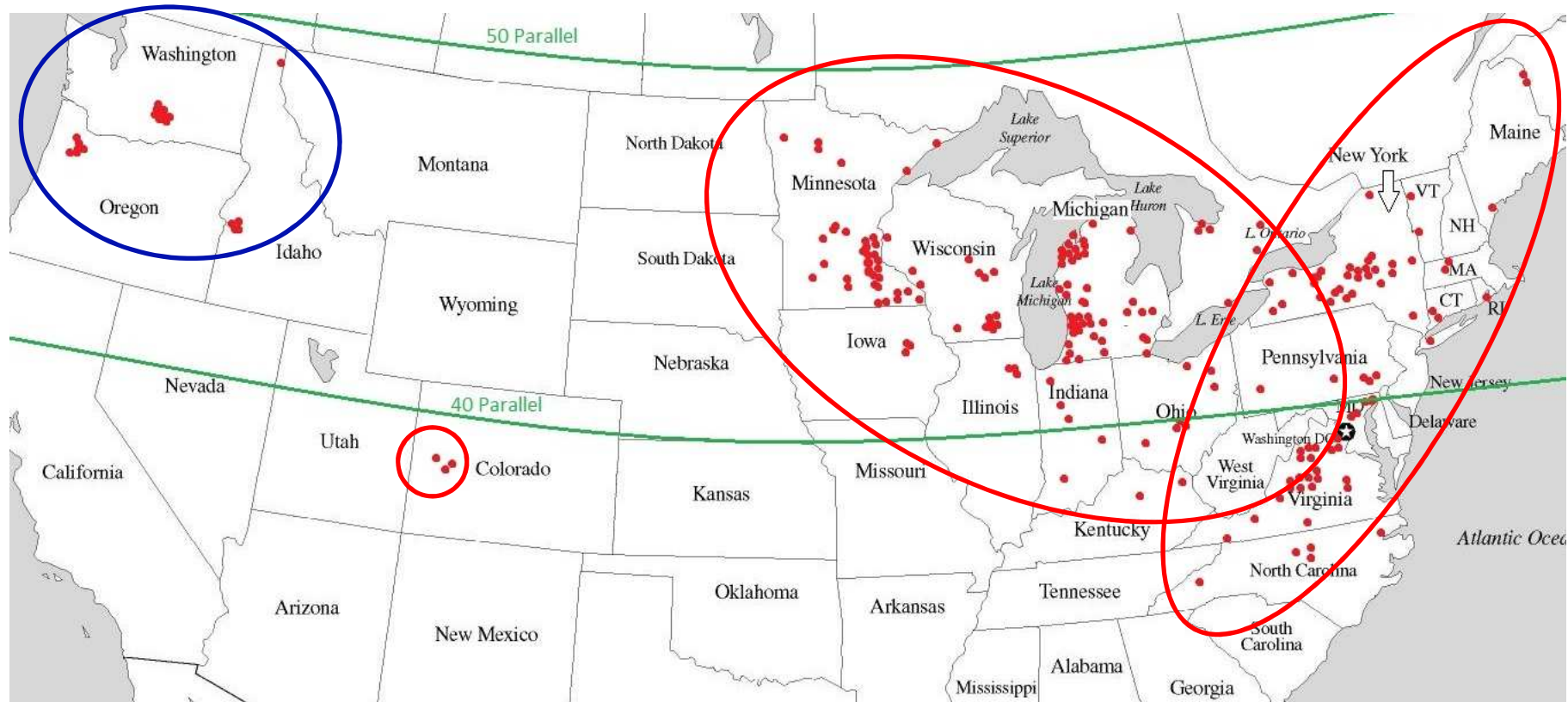
- **China:** mainly domestic market, aroma and bitter
 - Tsingdao Flower, Marco Polo
 - Considerable acreage reduction

- **Australia:** flavour hops
 - Galaxy, Ella, Enigma, Topaz ('fruity varieties')

- **England:** specialities for ales
 - Strong acreage reduction
 - Acreage stabilised by niche varieties (East Kent Golding, Fuggles)



US Hop Producing Regions - 2016



- 20+ non-PNW states. MI/WI/NY largest
- Several hundred growers but very small, many >1 acre
- Minimal infrastructure, local markets

Between the Water Rich Mountains and the Desert



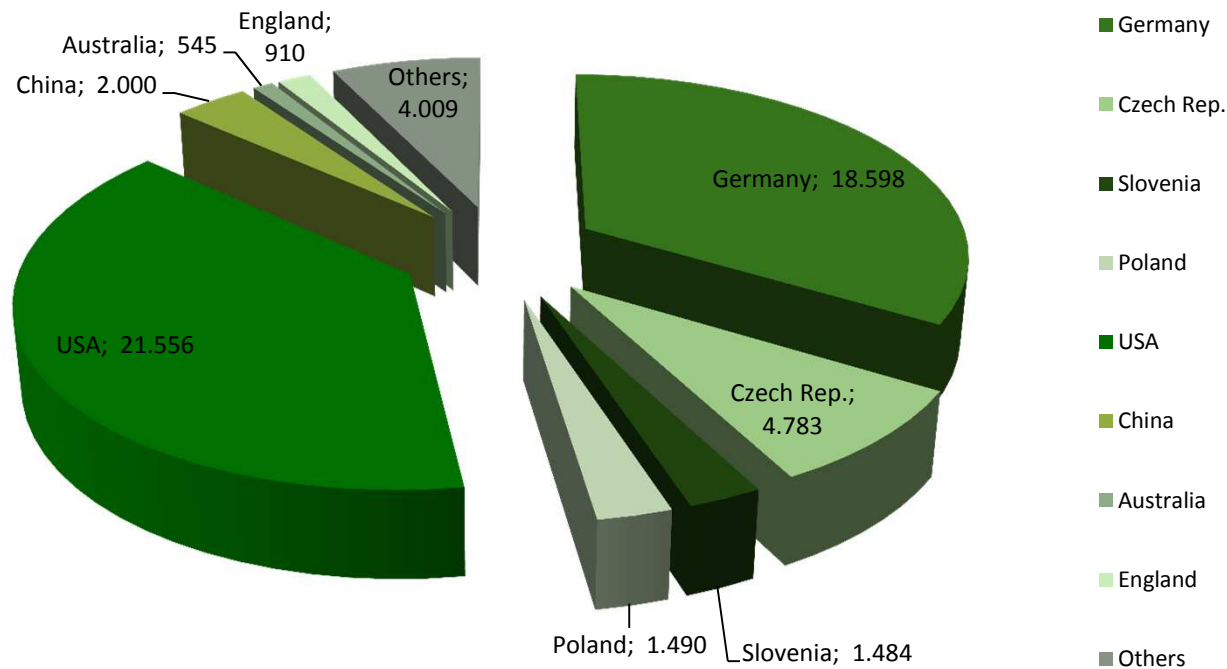




Hop Cultivation in Kent



Hectars, crop 2016

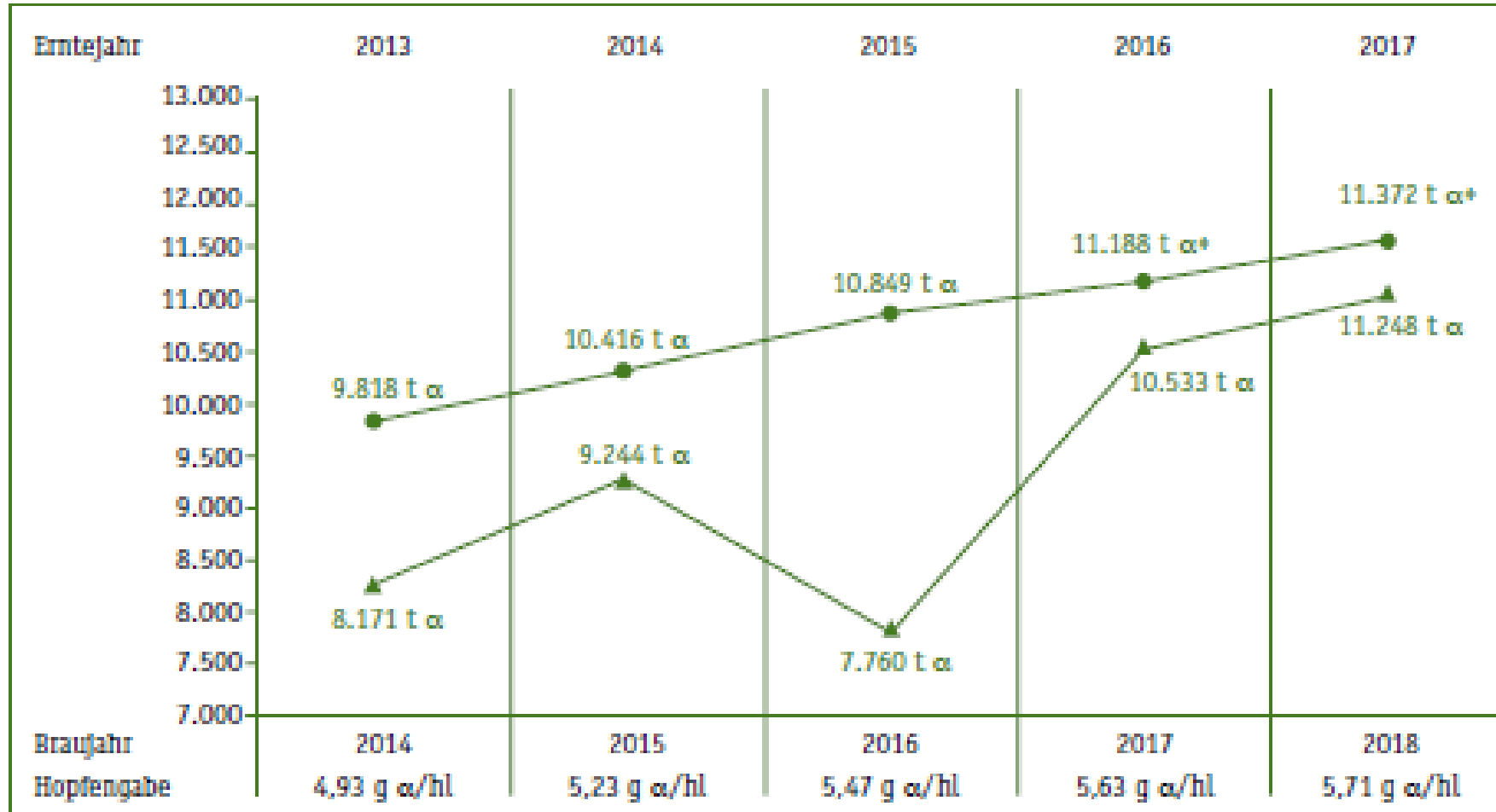


USA and Germany represent 72,5% of the worldwide hectarage
With a normal crop they produce **>80%** of the **world's alpha acids!**

WELTANBAUFLÄCHEN UND ERNTEMENGEN

		2016				2017			
		Fläche ha	Ernte t	β-Alpha %	Alpha t	Fläche ha	Ernte t	β-Alpha %	Alpha t
Deutschland	Hallertau	15.510	36.953,5	10,8%	3.984	16.310	35.540,2	9,9%	3.518
	Elbe-Saale	1.409	2.845,4	11,0%	312	1.466	2.938,8	10,7%	315
	Tettmang	1.282	2.194,2	6,9%	151	1.353	2.270,4	7,1%	160
	Spalt	376	730,0	6,8%	50	391	762,2	6,6%	50
	Sonstige	22	43,0	8,9%	4	22	44,7	8,8%	4
	Gesamt	18.598	42.766,1	10,5%	4.501	19.543	41.556,3	9,7%	4.047
Tschechien	Saaz	3.692	5.799,8	4,1%	239	3.815	5.116,4	3,8%	195
	Tirschitz	570	1.092,5	3,8%	42	600	864,2	2,7%	23
	Auscha	513	819,3	4,5%	36	530	816,2	3,8%	31
	Gesamt	4.775	7.711,6	4,1%	317	4.945	6.796,8	3,7%	249
Slowenien		1.484	2.475,5	5,3%	131	1.591	2.766,5	4,9%	134
Polen		1.475	3.043,6	8,3%	254	1.576	2.993,2	7,9%	236
England		920	1.423,9	7,4%	105	967	1.780,6	7,1%	126
Spanien (inkl. Galicien)°		540	947,5	11,6%	110	521	613,0	11,2%	69
Frankreich		459	771,8	3,8%	29	481	763,7	3,9%	30
Rumänien		260	180,0	10,0%	18	270	205,0	9,4%	19
Österreich		249	479,4	8,5%	41	250	442,0	8,0%	35
Belgien		147	197,9	9,3%	18	155	237,1	9,0%	21
Slowakei		147	186,6	3,4%	6	138	118,0	3,3%	4
Bulgarien*		18	40,0	10,4%	4	22	64,0	9,1%	6
Portugal		12	13,7	10,7%	1	12	16,4	9,5%	2
Niederlande		2	2,1	12,5%	0	2	2,0	11,8%	0
Europäische Union		29.086	60.239,6	9,2%	5.535	30.473	58.354,6	8,5%	4.978
Ukraine*		380	380,0	6,0%	23	370	420,0	5,8%	24
Russland		300	428,0	4,2%	18	344	522,0	4,3%	22
Türkei		297	260,5	10,3%	27	283	187,7	9,9%	19
Belarus/Weißrussland		58	86,0	9,5%	8	55	60,0	9,0%	5
Schweiz		17	29,3	9,2%	3	16	17,7	8,2%	1
Restliches Europa		1.052	1.183,8	6,7%	79	1.068	1.207,4	5,9%	71
EUROPA		30.138	61.423,4	9,1%	5.614	31.541	59.562,0	8,5%	5.049
USA	Washington	15.153	29.686,2	10,5%	3.104	15.556	35.694,9	11,4%	4.075
	Oregon	3.143	5.622,1	8,5%	478	3.177	5.403,8	9,1%	492
	Idaho	2.286	4.217,4	10,0%	424	2.830	6.241,3	10,7%	669
	PNW-Staaten	20.582	39.525,7	10,1%	4.006	21.564	47.340,0	11,1%	5.236
	Übrige Staaten	988	680,4	7,1%	48	1.012	850,5	7,5%	64
	Gesamt	21.570	40.206,1	10,1%	4.054	22.576	48.190,5	11,0%	5.300
Kanada*		137	155,0	8,9%	14	172	155,0	9,6%	15
Argentinien		167	232,4	8,3%	19	153	266,7	8,4%	22
AMERIKA		21.874	40.593,5	10,1%	4.087	22.901	48.612,2	11,0%	5.337
China	Kinjiang	1.647	4.752,0	6,0%	284	1.648	4.506,0	6,5%	293
	Gansu	992	2.349,4	7,5%	176	1.035	2.538,0	6,8%	172
	Gesamt	2.639	7.101,4	6,5%	460	2.683	7.044,0	6,6%	465
Japan		133	244,6	6,9%	17	120	273,4	6,5%	18
ASIEN		2.772	7.346,0	6,5%	477	2.803	7.317,4	6,6%	483
Südafrika		395	863,5	14,9%	129	421	710,6	12,9%	92
AFRIKA		395	863,5	14,9%	129	421	710,6	12,9%	92
Australien		546	1.104,8	13,1%	145	631	1.438,3	14,6%	211
Neuseeland		412	794,0	10,2%	81	442	760,5	10,0%	76
AUSTRALIEN/OZEANIEN		958	1.898,8	11,9%	226	1.073	2.198,8	13,1%	287
WELT		56.137	112.125,2	9,4%	10.533	58.739	118.401,0	9,5%	11.248

Alpha Acid Bilanz



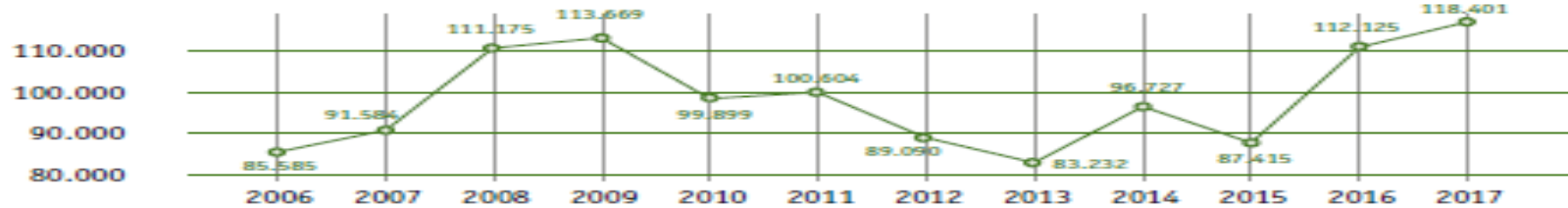
Source: Barth-Report 2017/2018

ENTWICKLUNG IN DEN JAHREN 2006 - 2017

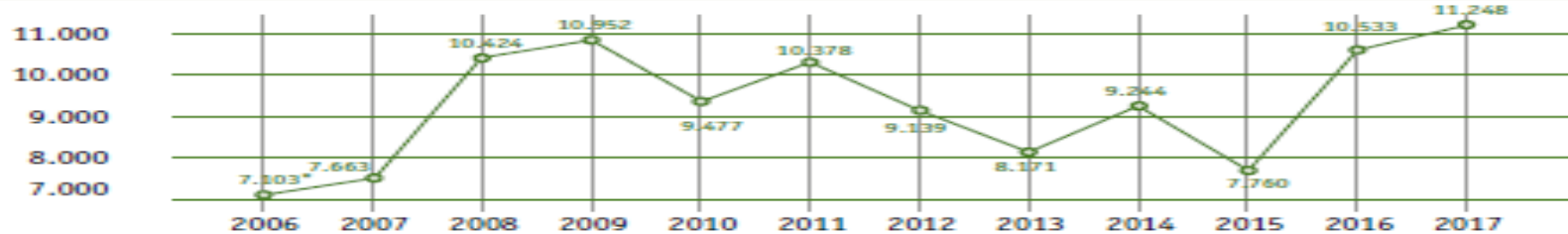
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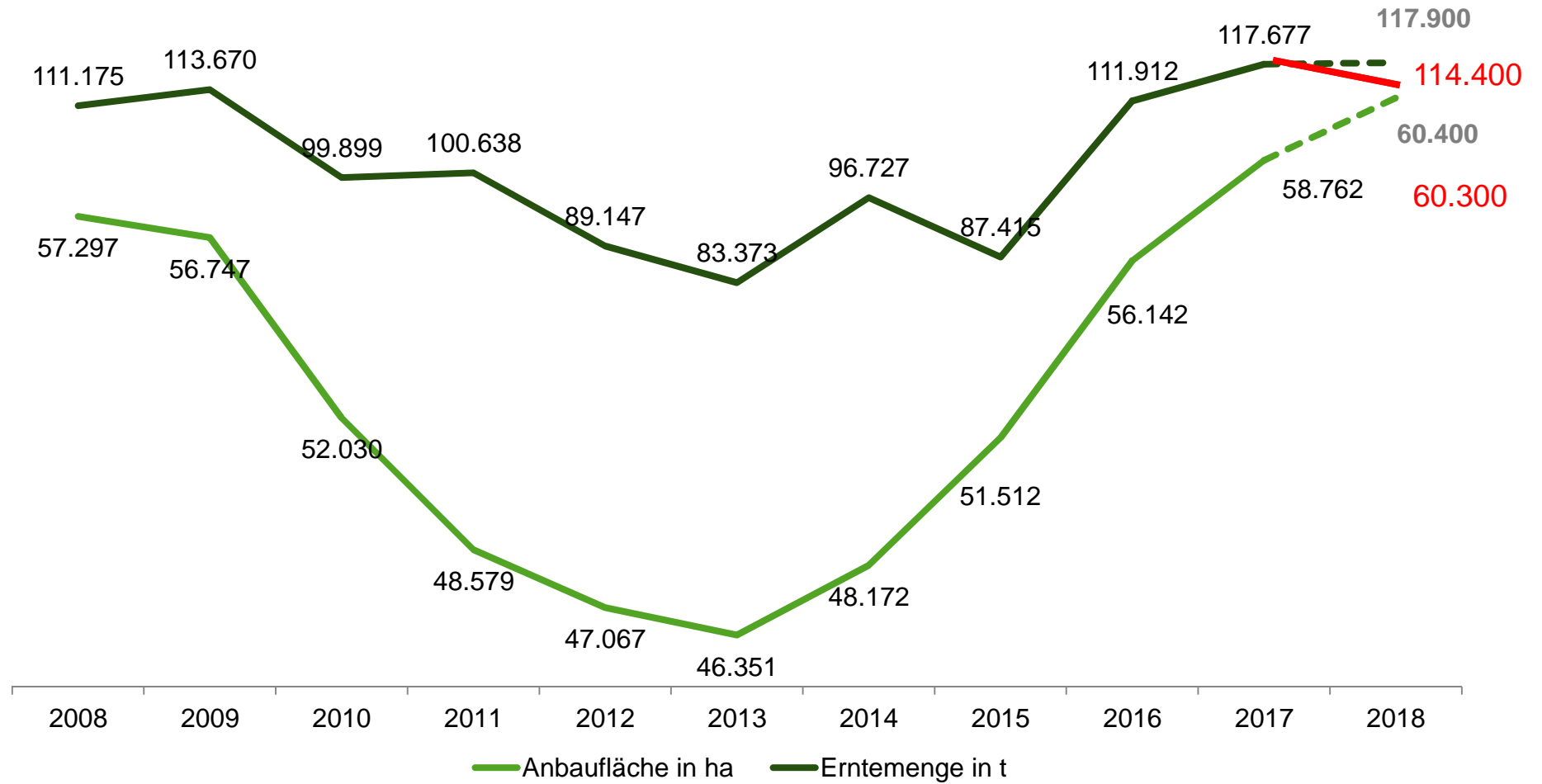


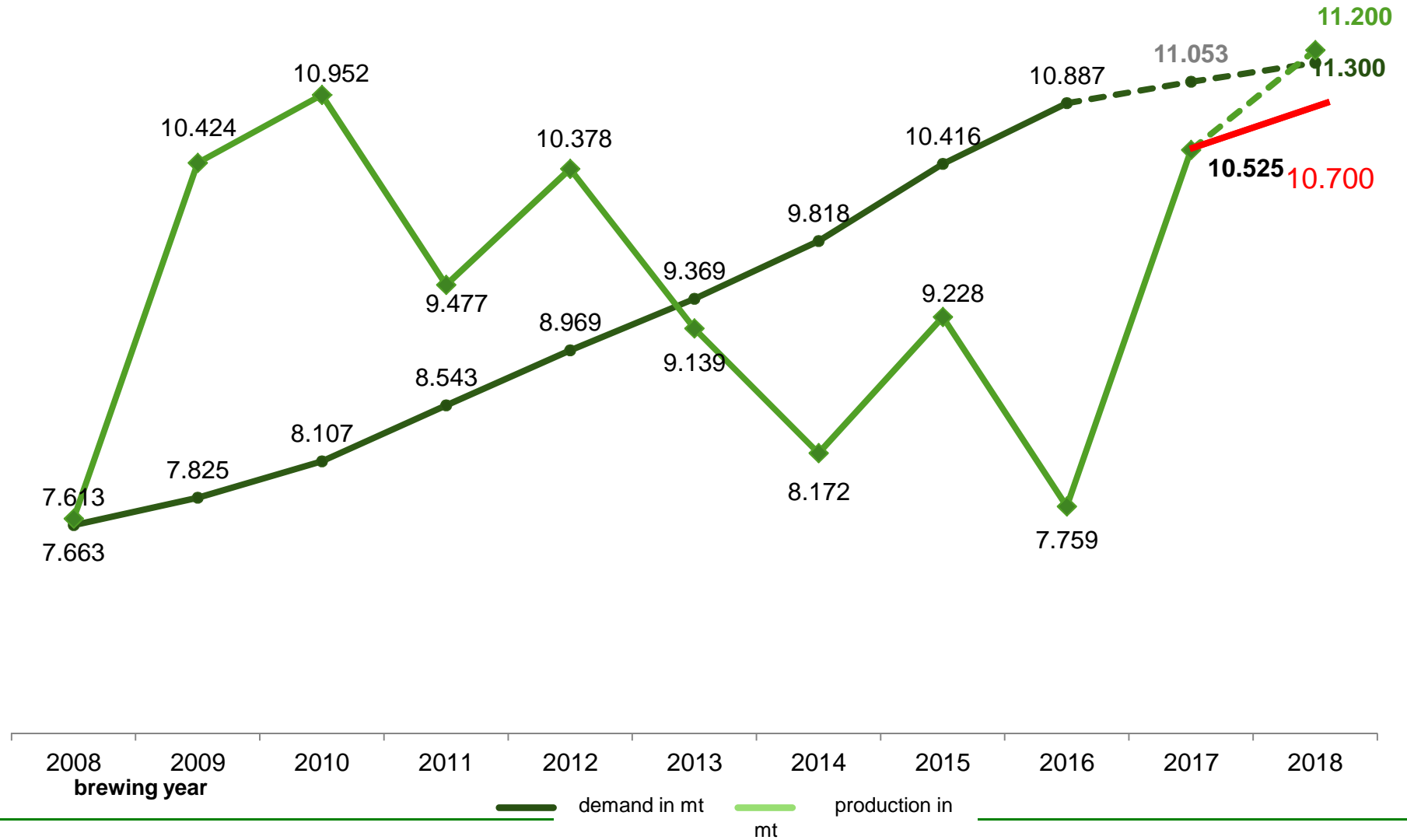
BIERAUSSTOSS IN MIO. HL



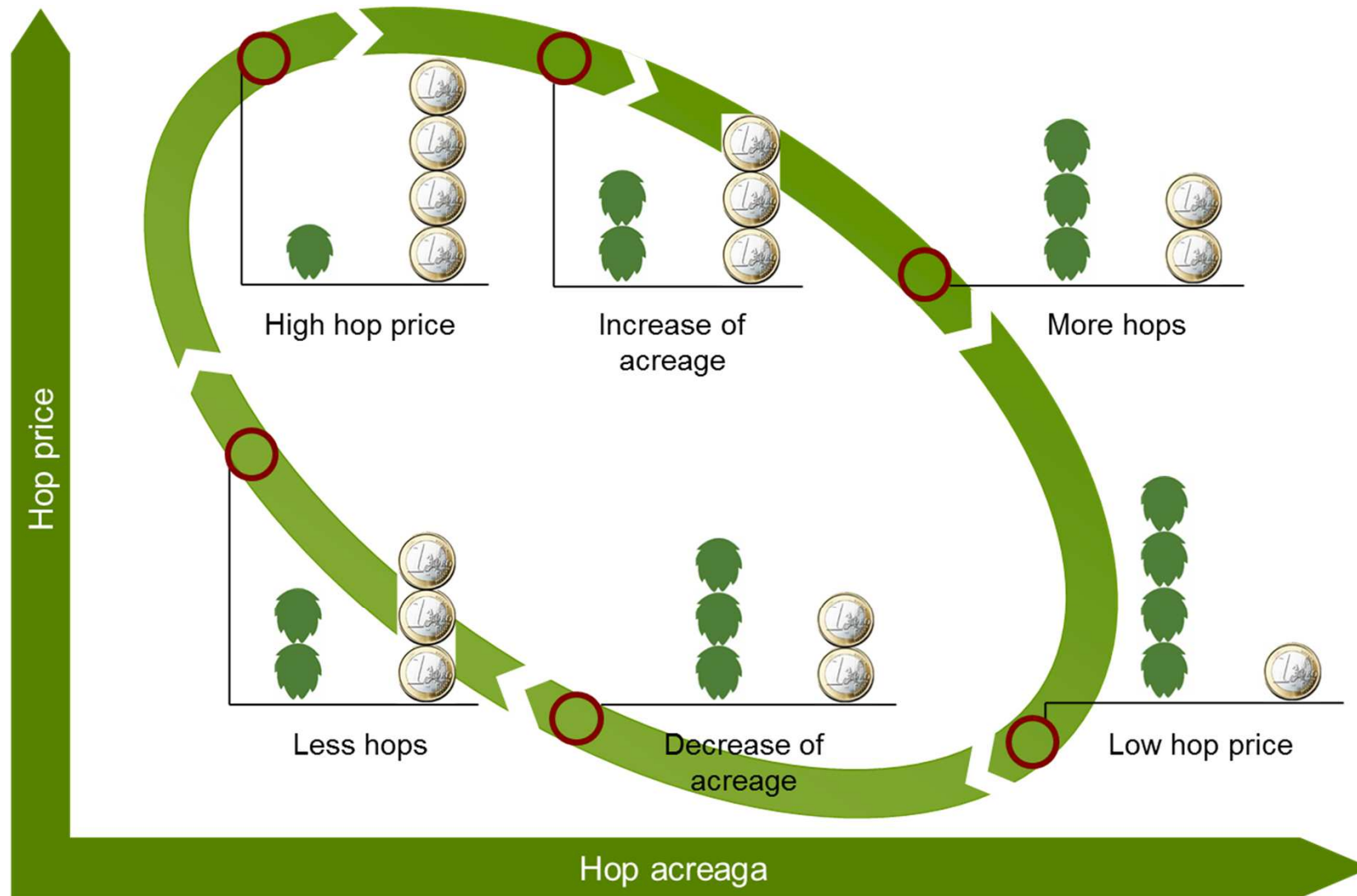
Source: Barth-Report 2017/2018

Acreage & Hops worldwide

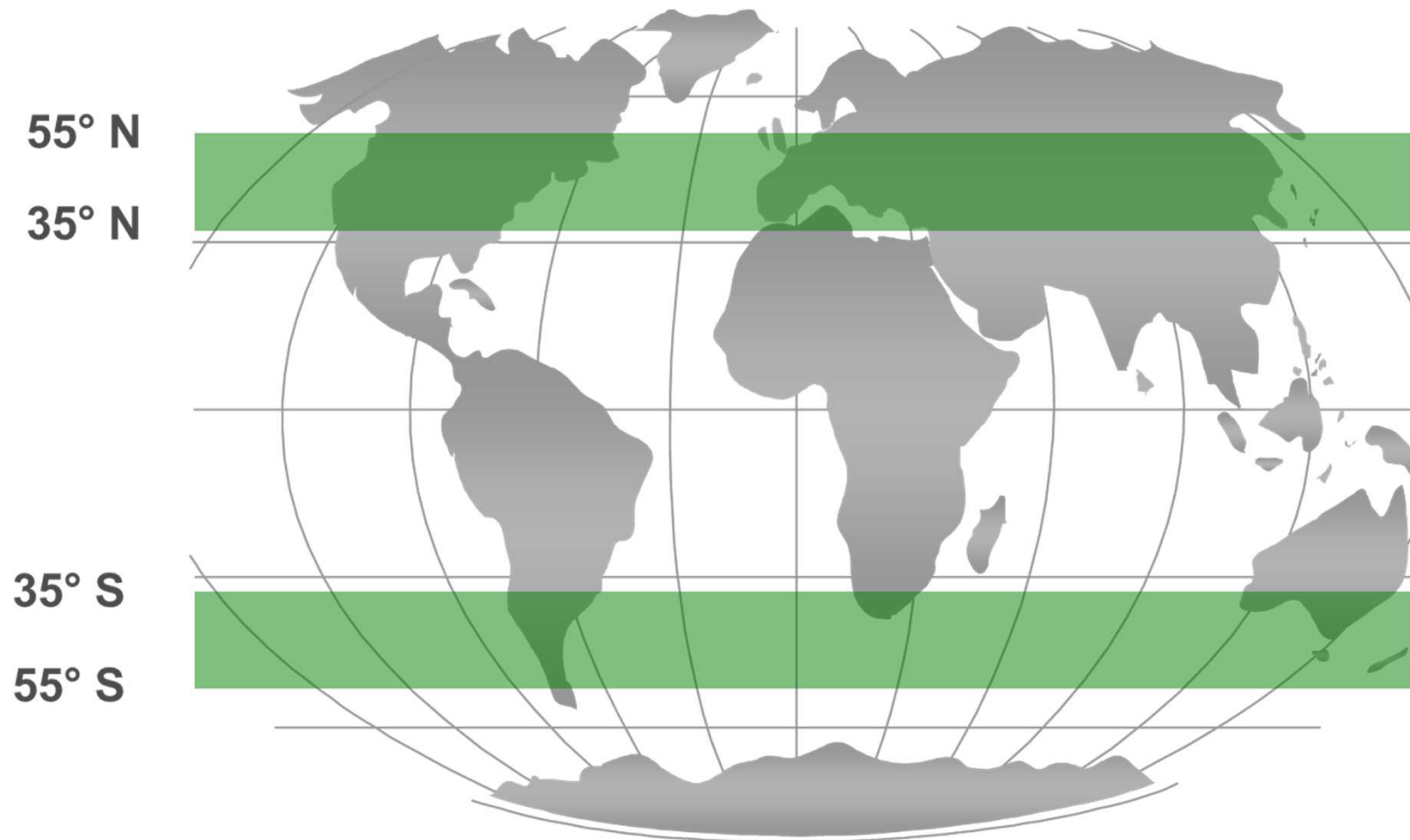




Hop Basics - Ups and Downs of a hop cycle



Hop cultivation



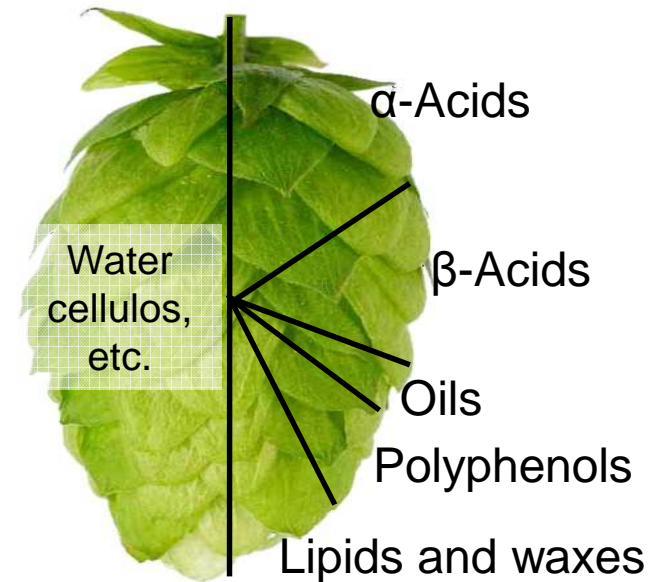
- Botanical systematisation
 - order: nettle plant (lat. Urticaceae)
 - family: hemp family (lat. Cannabaceae)
 - species: *Humulus lupulus* L.
- Dioecious plant
 - there are female and male plants
 - only female plants form cones
 - male plants to be eradicated in commercial applications to avoid pollination
- Perennial plant
 - commercial life: 12 – 20 years
 - can get up to 100 years old!!!
 - hop bine (aerial, clockwise climbing & training bine)
grows every year anew

- Hemp family (Cannabaceae)
- Perennial
- Only female plants form cones, male plants to be eradicated (exception: UK)
- Commercial life: 12 - 20 years (can get up to 100 years old!!!)
- Hop bine (aerial, clockwise climbing & training bine)
- Cones → lupulin glands
 - Resins: α -acids (bitterness)
 - Essential oils (aroma)



Raw Hop Composition

	% w/w
α -Acids	2 – 18
β -Acids	1 – 10
Oils	0.5 – 3.0
Polyphenols (Tanins)	2 – 5
Waxes and steroids	tr – 25
Proteins	15
Cellulose	40 – 50
Water	6 – 10
Monosaccharides	2
Pectin	2
Minerals	10



Zur Person

Stefan Stanglmair

- 44 Jahre alt (Jahrgang: 1974)
- verheiratet, 3 Kinder

Ausbildung:

- Fachoberschule Schönbrunn, Agrarwirtschaft 1991-93
- University of Applied Sciences Weihenstephan (FH Weihenstephan, Land- und Ernährungswirtschaft 1994-98, Dipl.-Ing. agr. (FH))
- Praktikum 5 Monate in Kent, GB, (Hayle Farm)

Laufbahn:

- aufgewachsen auf einem Hopfenbaubetrieb in der südlichen Hallertau (~20 ha Hopfen, ~14 ha Marktfrucht, ~15 ha Wald)
- seit 1998 bei Joh. Barth & Sohn (Hopfeneinkauf & Beratung, südliche Hallertau & Slowenien)
- Betreiber einer eigenen Hopfenproduktion im Süden der Hallertau auf 20 ha: (Sorten: Hallertau Mittelfrueh, Mandarin Bavaria, Hallertau Blanc, Huell Melon, Ariana, Polaris, Herkules)



Thank you for your attention

www.HopsAcademy.com
www.BarthHaasGroup.com