Hop report - Saaz fine aroma hops

Crop 2016 – January / April (Saaz region)

WEATHER CONDITION – JANUARY / MARCH

Average temperature (°C)	2016	2015	30 years average	Diff. 16-15
January	-0,2	2,6	-2,0	-2,8
February	3,8	0,8	-0,2	3,0
March	4,5	5,2	3,6	-0,7
Summary 1st Trimester	8,1	8,6	1,4	-0,5

Total precipitation (mm)	2016	2015	30 years average	Diff. 16-15
January	23,8	13,6	20,0	10,2
February	23,4	2,4	19,0	21,0
March	23,8	32,2	23,0	-8,4
Summary 1st Trimester	71,0	48,2	62,0	+22,8

The weather during the first trimester of 2016 was more changeable in comparison to the same period of previous year. The average temperatures of individual months differed substantially from each other: cold January, abnormally warm February, when the average month temperature exceeded the long-term average by 4°C, and undistinguished March.

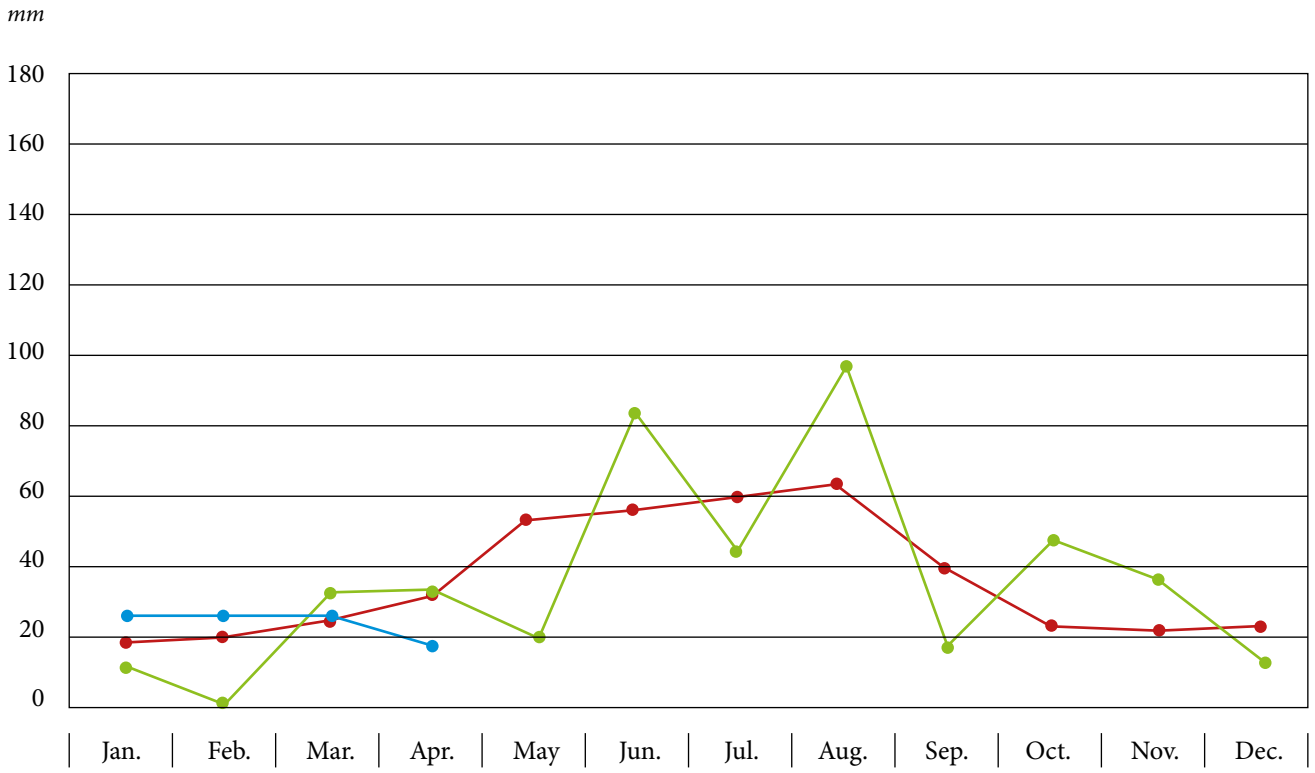
The distribution of precipitations in the first quarter of 2016 was well balanced. Although the sum of the precipitations in the first trimester exceeded the figures of previous year as well as the long-term average, the level of precipitations proves to be insufficient. Similarly to previous year, the lowlands were practically without snow during the whole winter.

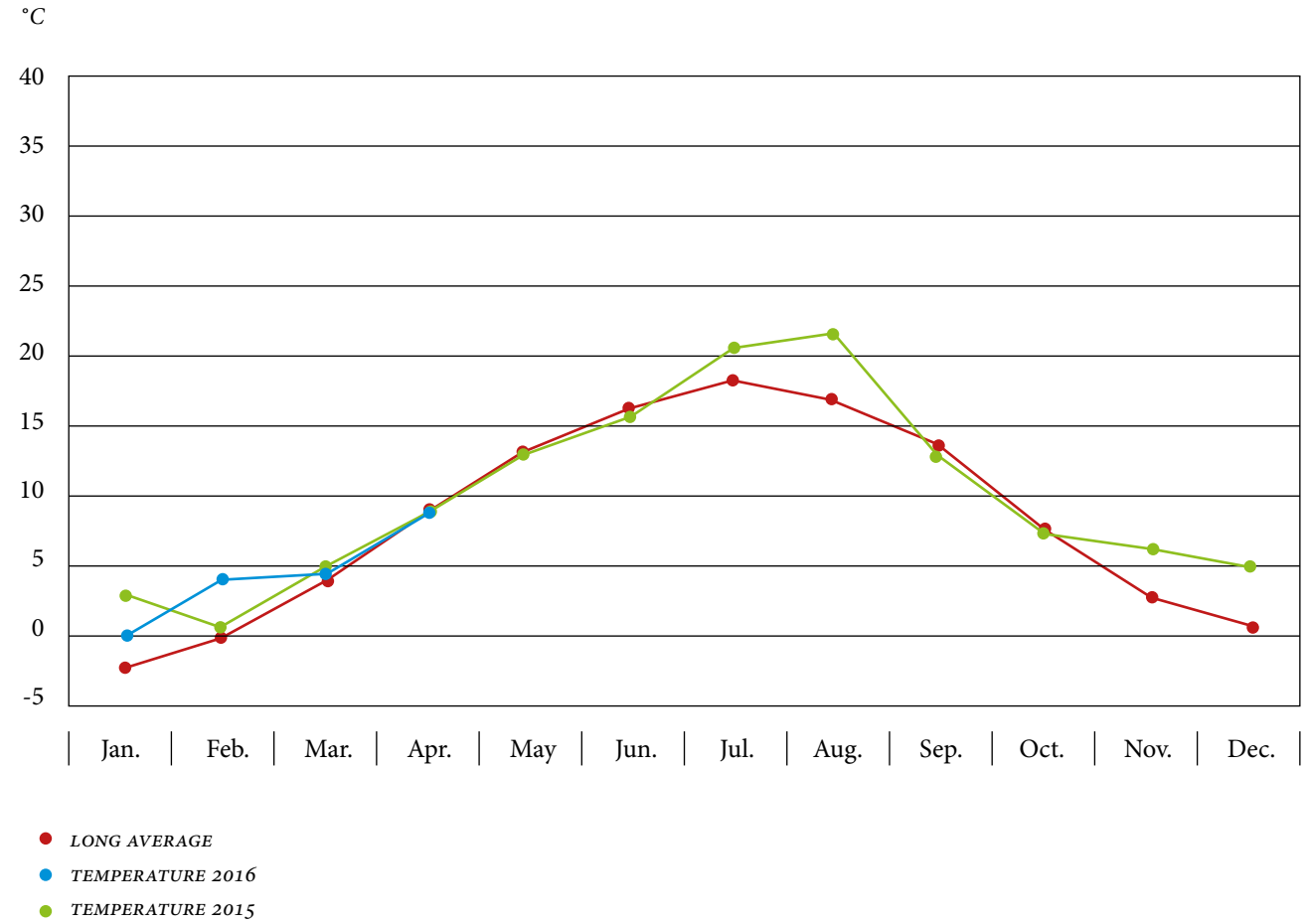
The weather conditions enabled normal beginning of field works. The spring activities in hop gardens started already in the last decade of March. By the end of the same month the growers commenced with the cut of hops, primarily the Sládek variety.

WEATHER CONDITION – APRIL

Temperature & precipitation in April	2016	2015	30 years average
Average temperature (°C)	8,4	8,7	8,5
Precipitation (mm)	14,8	34,0	32,0
Total precipitation (mm) since 1st January	85,8	82,2	94,0
Max. temperature (°C)	24,2 (5. 4.)	24,1 (15. 4.)	
Min. temperature (°C)	-3,7 (2. 4.)	-3,9 (7 .4.)	
Max. precipitation (mm)	5,8 (28. 4.)	12,8 (28. 4.)	
Number of dry days	23	18	

The weather in April was relatively favourable for spring works in hop gardens. The temperatures varied around long-term average, although during the second half of month they decreased, what caused the delay of the spring works, especially the stringing of the hop wires. Some problems were caused also by windy weather, when the manipulation with the wires was more difficult. The lack of precipitations showed to be a serious negative aspect – it reached just 43, 5% of the level of previous year. Heavier rainfalls were in the Terschitz Region, where they caused the interruption of works in hop gardens for 4 to 5 days. Above all, the lack of precipitation provoked the problems with sticking of the hop wires into the earth, as the soil was too firm.





SPRING WORKS AND GROWTH REPORT

As stated above, the spring works in hop gardens started in time. The development of the vegetation corresponded to the course of the weather. View to considerable drop of temperature during the second half of April, which culminated in the last week of the month, the growth of hops was insignificant. That is why we expect that the hop training will start around 10th May, 2016.

Monitoring of spring plant pests proved just sporadic occurrence of alfalfa snout weevil (*Otiorrhynchus sulcatus* F.) as well as flea beetle (*Psylliodes attenauta* K.).

It has been emphasized already for several years, that timely elimination of primarily infection is an indispensable condition for successful protection of hops against downy mildew of hops (*Pseudoperonospora humuli* Miy et Takah.). In the hop gardens, where the problems with downy mildew of hops repeat every year, also the use of alternative ways of protection is supposed. It consists in employing of PK fertilizer Farm-Fos 44 (monobasic potassium phosphate with the content of 32% P2O5 and 29 % K2O), the use of which contributes to the increase of natural resistance of the plants against fungal pathogens.

THE INCREASE OF AREAS OF HOP GARDENS (TO BE HARVESTED)

From the Register of Hop gardens, as stated up to April 30, 2016, it was ascertained that the year-on-year growth of the areas of hops was 161 hectares. The ÚKZÚZ (Central Institute for Supervising and Testing in Agriculture) registered the area of 4783 hectares of hop gardens up to the end of April of the current year (compared to 4622 hectares in 2015). In particular, thanks to the growing interest in our main export variety, Saaz semi-early red-bine hops, the harvesting area has been enlarged in all three hop growing regions of the Czech Republic. In the Saaz region the area increased by 120 hectares in total, to current 3696 hectares. In the Terschitz region it increased by 25 hectares to present 574 hectares, whereas in the Auscha region the area of hop gardens increased just by 16 hectares to the final area of 513 hectares. During already several consecutive years there have been positive developments in growth of hop gardens area. If this trend continues, we could live to see the exceeding of the limit of 5000 hectares in a short time.

Harvesting area of Hops in the Czech Republic - According to Varieties (in hectares)

Variety	Saaz region	Newly planted	Auscha region	Newly planted	Tirsitz region	Newly planted	Czech republic	Newly planted
Saaz var.	3 305	236	445	31	444	33	4 194	300
Agnus	36	3	3	0	0	0	39	3
Bohemie	1	0	0	0	1	0	2	0
Bor	0	0	0	0	0	0	0	0
Cascade	1	0	0	0	0	0	1	0
Hallertau	1	0	0	0	0	0	1	0
Harmonie	5	0	0	0	0	0	5	0
Kazbek	14	2	2	0	5	0	21	2
Others	9	0	0	0	0	0	9	0
Perle	1	0	0	0	0	0	1	0
Premiant	100	2	36	0	43	0	179	2
Rubin	1	0	0	0	0	0	1	0
Saaz Late	39	7	0	0	2	0	41	7
Saaz Special	20	0	0	0	0	0	20	0
Sládek	161	20	27	6	79	7	267	33
Vital	2	0	0	0	0	0	2	0
Total	**3 696**	**270**	**513**	**37**	**574**	**40**	**4 783**	**347**

Data concerning variety composition of the Czech hops growing areas were kindly ceded by Mr. Vladimír Barborka, ÚKZÚZ Žatec

PHOTO REPORT

Hop plant - 30. 4. 2016

Hop garden view - 30. 4. 2016

Hop plants row - 30. 4. 2016

Saaz, May 2, 2016
Jaroslav Hájek

Chmelařstvi Cooperative Žatec

Hop report - Saaz fine aroma hops

Crop 2016 – May (Saaz region)

WEATHER CONDITION – MAY

Temperature & precipitation in May	2016	2015	30 years average
Average temperature (°C)	14,3	13,3	13,4
Precipitation (mm)	20,6	18,8	54,0
Total precipitation (mm) since 1st January	106,4	118,2	148,0
Max. temperature (°C)	29,2 (22. 5.)	23,3 (4. 5.)	
Min. temperature (°C)	0,8 (2. 5. , 3. 5.)	1,8 (15. 5.)	
Max. precipitation (mm)	4,8 (24. 5. , 31. 5.)	5,4 (12. 5.)	
Number of dry days	23	17	

This year´s May was an above-average one as far as the temperature is concerned. The difference was 0,9 °C compared to the long-term average. This state was caused by the high temperatures recorded over the last decade of the month, even though very low temperatures occurred in the beginning and within the third week (14.5. – 19.5. 2016) of May. The increase in temperatures resulted on 23rd May 2016 in local torrential rains accompanied by hails. The hop plants were damaged mainly in cadastral areas Páleč and Zlonice concerning Saaz region, and Radovesice, Lounky, Polepy and Lukov concerning Auscha region. Roughly 130 ha of hop yards are suffering 65 -100 % damage from these hailstorms.

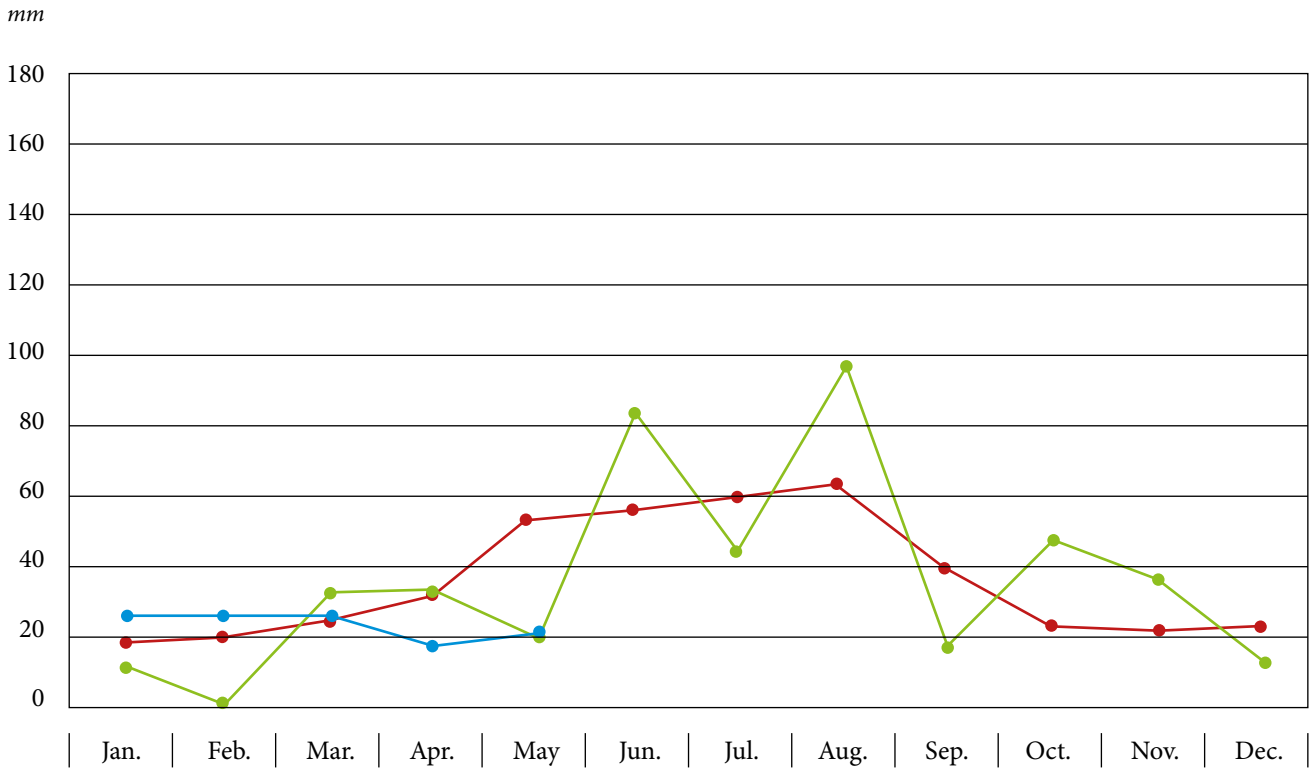
We consider this May as well below-average concerning precipitation. Compared to May 2015, precipitations were lower by 11,8 mm. Compared to the long-term average, the precipitations were lower by 41,6 mm. The lack of precipitations resulted in a critical situation for field crops in some regions. For the time being, the hop plants are not suffering from the lack of precipitation to a large extent due to the deep roots. However, provided there is not a higher amount of precipitations over the first decade of June the critical situation in the hop yards may appear as well.

GROWTH REPORT

Despite the lack of precipitation, the weather development was relatively normal for the development of hops so far. Due to a cold weather in the end of April and in the beginning of May, the hop training was a little bit delayed. The growth of hops was not very fast and did not cause any problems with training as a consequence of overgrown sprouts. On that account, hop training was carried out in time and completed until the end of May. Within this period, growers applied fertilizers and subsequently carried out the hilling. The state of hop plants can be considered as good.

HEALTH STATE OF HOPS

Based on a current weather forecast, propagation of downy mildew is expected. Thus, the second treatment carried out by Aliette 80 WG is indispensable. We recommend to applicate Curzate K on the hop yards where the spikelet sprouts have appeared. This year, there is no regulation for using cupric fungicides. The first winged individuals of aphis appeared in the second decade of May, but their occurrence was weak. Currently, the overflight of third generation of migtrantes alatae is underway. The dry and hot weather initiates red spider mite to procreate. Therefore, we advise our growers to inspect their hop yards and to treat hop yards by Nissorun 10WP or Ortus 5 SC where an occurrence of red spider mite has been recorded.



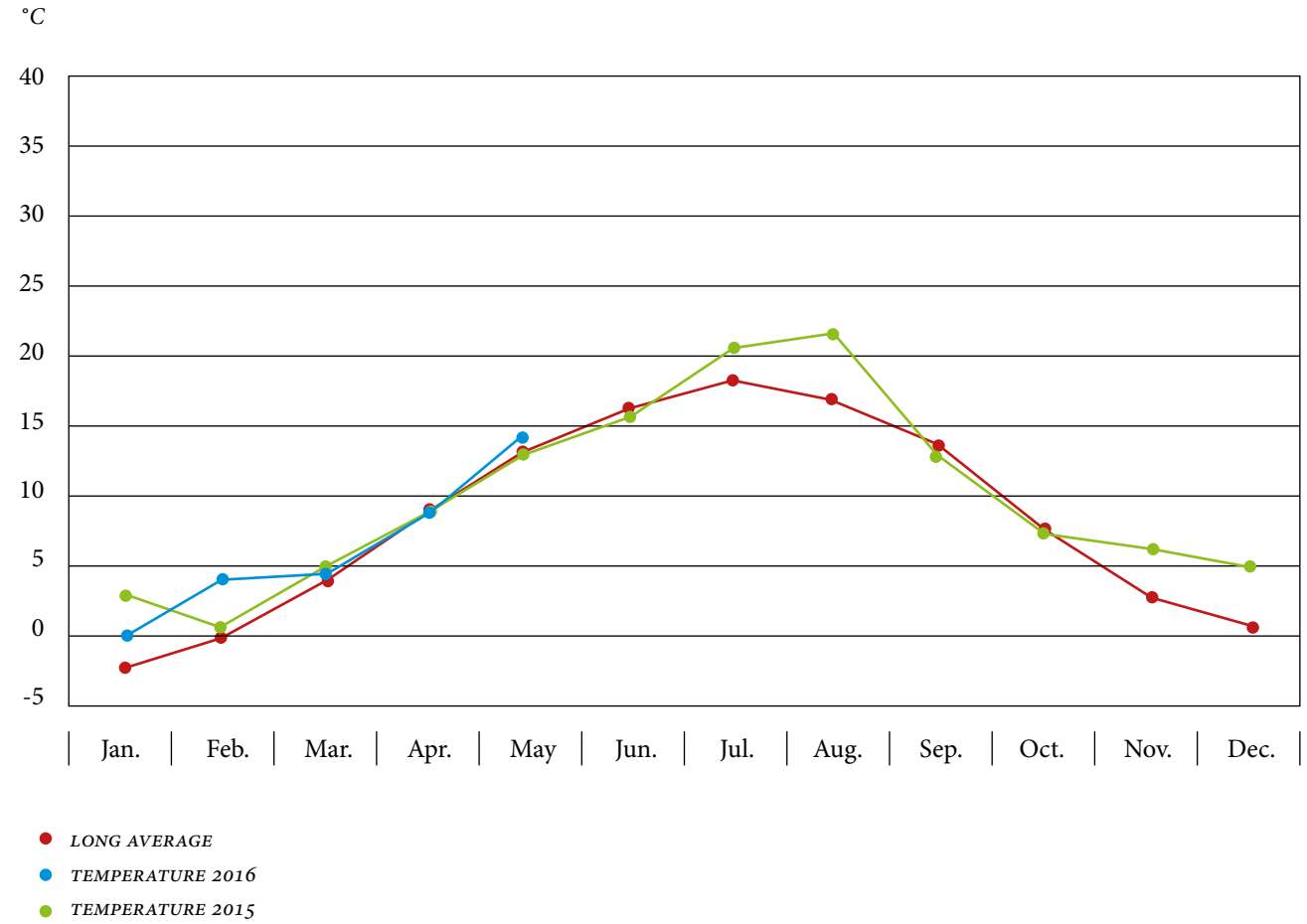


PHOTO REPORT

Hop field demaged by hailstorm - Zlonice

Common state of hop field at the end of May

Hop plant at the end of May

Hop rows at the end of May

Saaz, June 1, 2016
Jaroslav Hájek

Chmelařstvi Cooperative Žatec

Hop report - Saaz fine aroma hops

Crop 2016 – June (Saaz region)

WEATHER CONDITION – JUNE

Temperature & precipitation in June	2016	2015	30 years average
Average temperature (°C)	18,1	16,1	16,7
Precipitation (mm)	91,0	85,4	56,0
Total precipitation (mm) since 1st January	197,4	203,6	204,0
Max. temperature (°C)	32,4 (24. 6.)	32,1 (6. 6.)	
Min. temperature (°C)	8,1 (7. 6.)	5,7 (25. 6.)	
Max. precipitation (mm)	20,2 (25. 6.)	23,6 (14. 6.)	
Number of dry days	13	16	

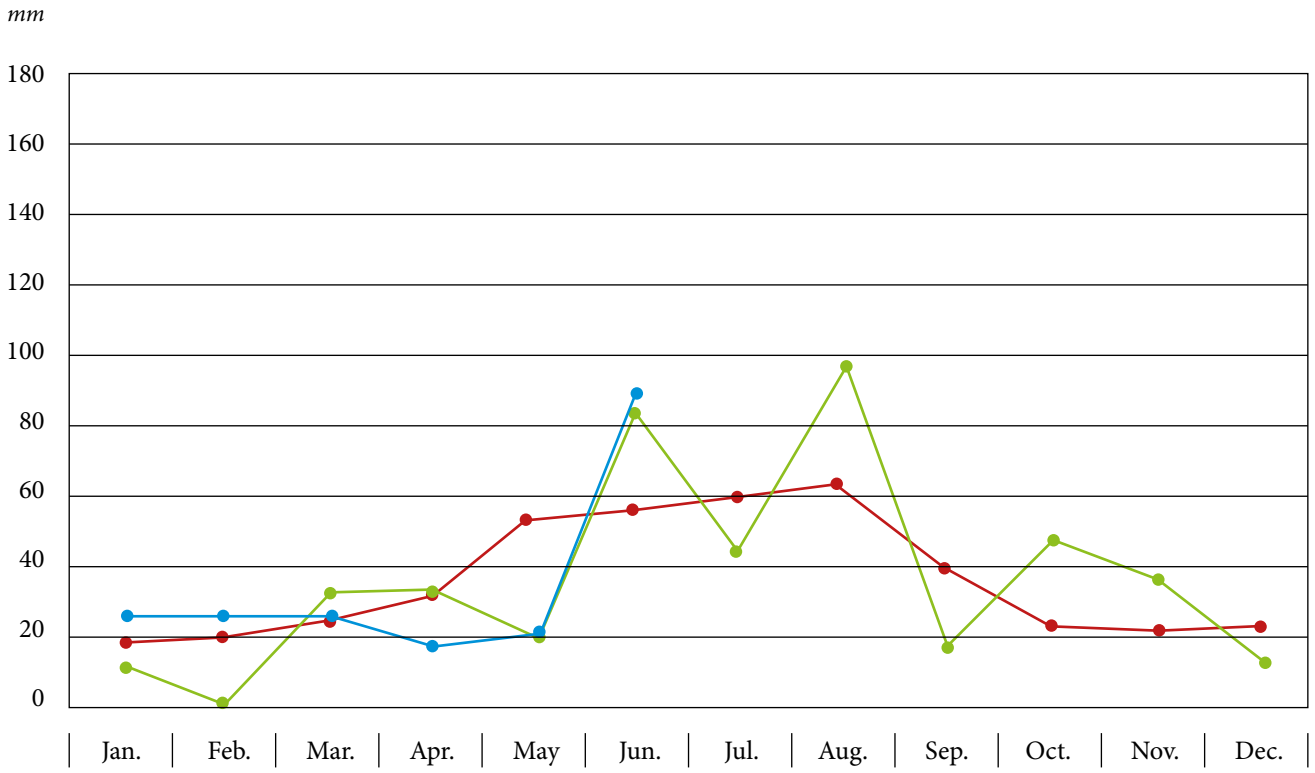
Temperatures were substantially higher in June 2016 in comparison to the long-term average (+1,4°C) and the precipitations also recorded above-average levels (160% of the normal). The temperatures were balanced, without considerable fluctuation, with an exception of the period between 23rd to 25th June, when the maximum temperatures reached the levels over 30°C. This period finished with strong rains, when the rainfalls reached 30 mm in 24 hours. The distribution of the precipitations was very important for further development of hops: within the first decade the rainfalls reached 19,2 mm, during the second decade then 37,2 mm and during the third decade of June they reached 34,6 mm.

GROWTH REPORT

Quite favourable climatic conditions in June kept the state of hop gardens on good level. Majority of hop gardens or hop vines, respectively, reached the height of the trellis until the end of the month and in some localities, especially those consisted of young plants, the hops exceeded expressively the height of the constructions. From this point of view the situation in 2016 is similar to previous year. Let´s hope that further development of the weather will be more favourable than in 2015. The stretching growth in majority of hop gardens is still continuing. Basically, the blossoming of hops has not been noticed up to now.

HEALTH STATE OF HOPS

The weather development in June (higher amount as well as the frequency of precipitations) propitiously influenced the advancement of downy mildew of hops (*Pseudoperonospora humuli* Miy et Takah.). The growers were therefore recommended to keep the sequence of the spraying consisting of the preparations Ortiva, Bellis or Revus. In case of the confirmed incidence of downy mildew of hops in the hop garden it was recommended to apply the preparation Curzate K. The incidence of hop aphid (*Phorodon humuli* Schrank) depended on the fly-over of the aphid of sixth generation. In places, where the critical quantity of wingless nymphs on one leaf reached or even exceeded the number 50, the growers were advised to treat the hops with spraying by the preparations Teppeki, Confidor 200 OD or eventually Plenum. The occurrence of red spider mite (*Tetranychus urticae* Koch) was relatively strong in this year, and therefore the application of the preparations Nissorun 10 WP, Ortus 5 SC or Vertimec 1,8 EC was necessary.



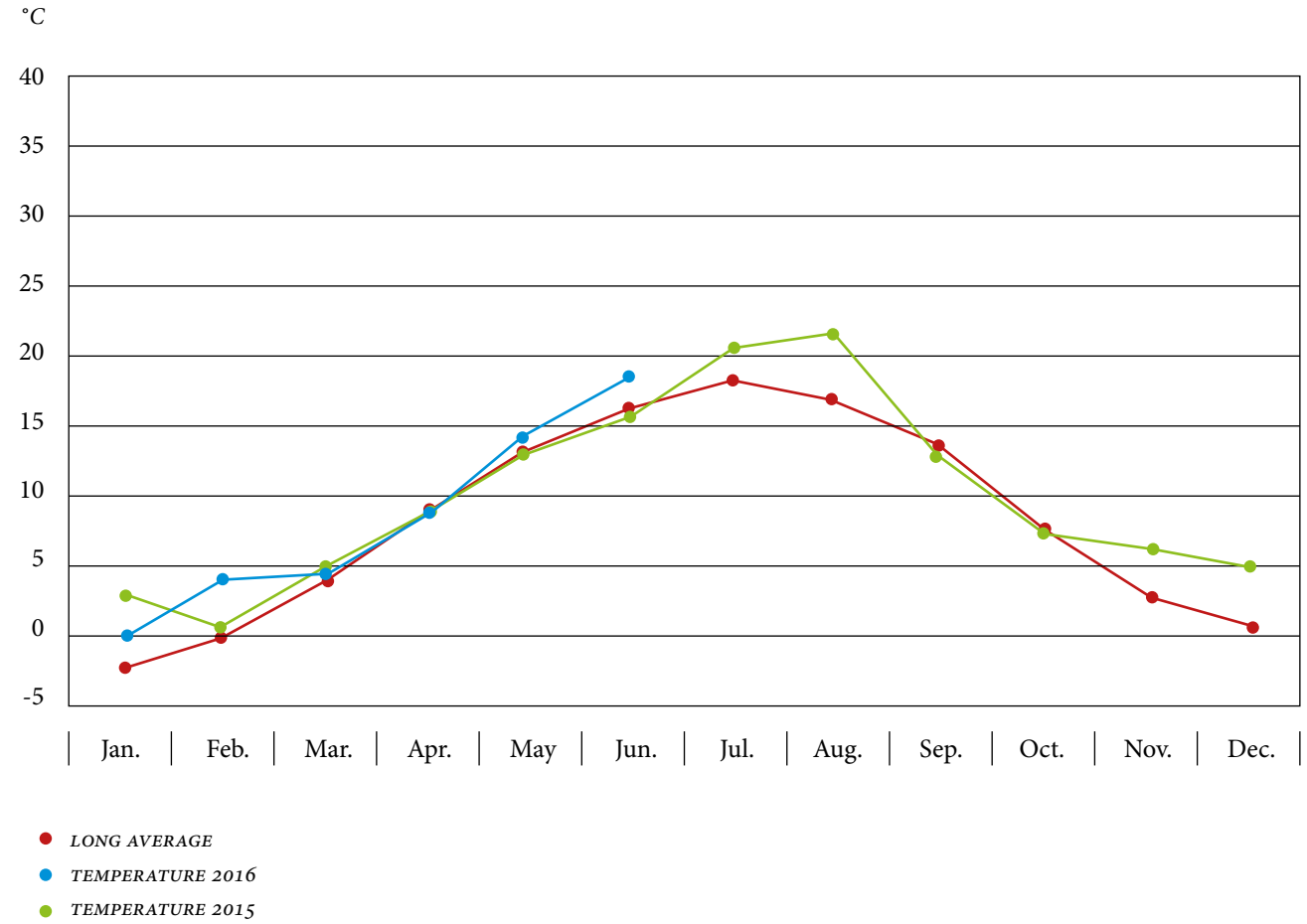
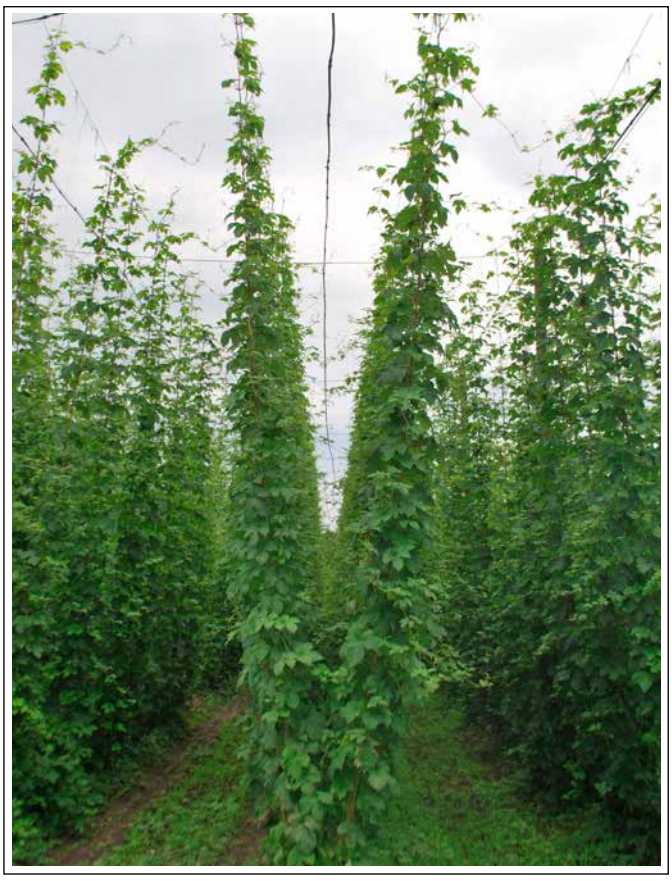


PHOTO REPORT

The first blooming

Hop field at the end of June



Plants at the end of June

Plants overlapping the construction

Saaz, July 1, 2016
Jaroslav Hájek

Chmelařstvi Cooperative Žatec

Hop report - Saaz fine aroma hops

Crop 2016 – July (Saaz region)

WEATHER CONDITION – JUNE

Temperature & precipitation in July	2016	2015	30 years average
Average temperature (°C)	20,7	20,5	18,0
Precipitation (mm)	66,4	47,2	59,0
Total precipitation (mm) since 1st January	263,8	250,8	263,0
Max. temperature (°C)	33,1 (11. 7.)	36,4 (22. 7.)	
Min. temperature (°C)	7,7 (4. 7.)	5,8 (11. 7.)	
Max. precipitation (mm)	14,4 (27. 7.)	16,4 (5. 7.)	
Number of dry days	11	17	

July 2016 was rather favourable for hops development as far as the climatic conditions are concerned. The average temperatures were 2,7 °C higher than the long-term average. The maximum daily temperature exceeded the level of 30 °C just three times and so the adverse situation of previous year did not repeat. The precipitations reached the level of long-term average. Majority of rains were of stormy character and this is the reason why individual localities recorded different amount of rainfalls.

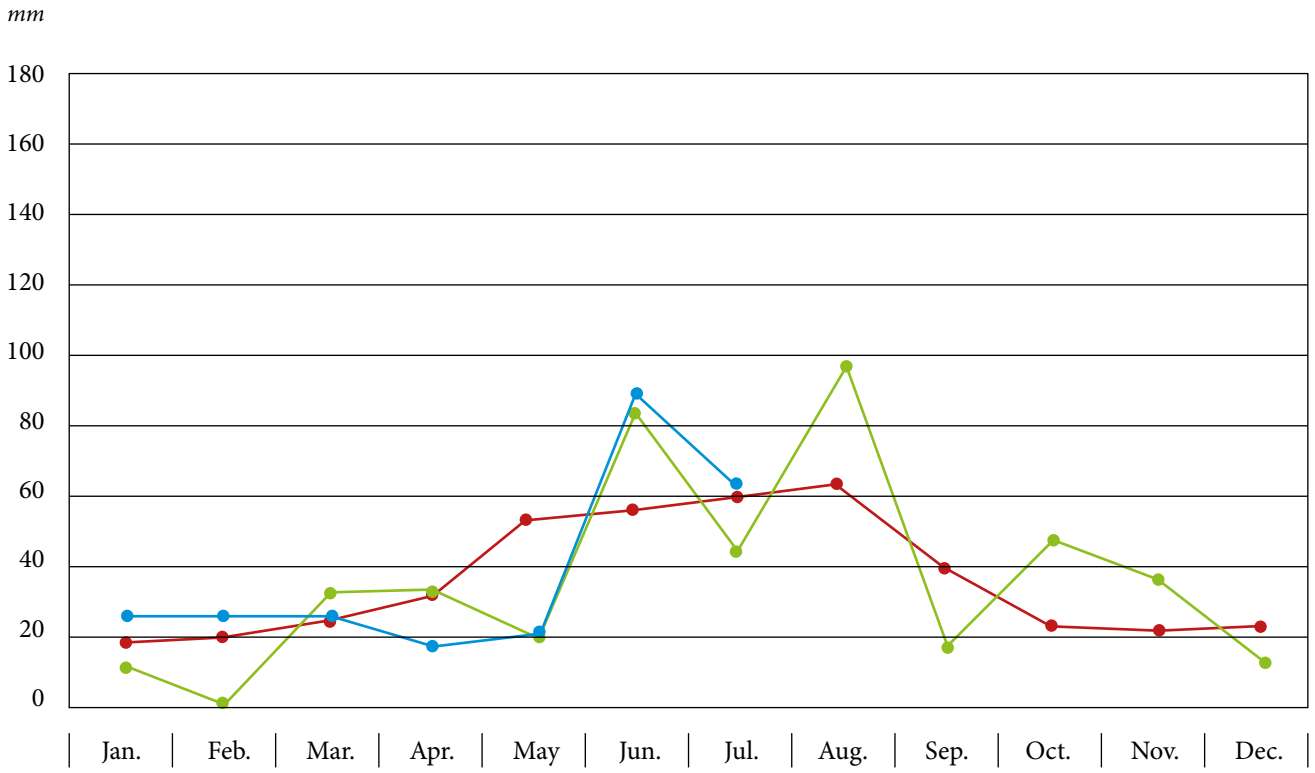
GROWTH REPORT

By the end of June we assessed the state of hops as very good as far as the general appearance (the habit of plants) is concerned. This trend continued also in July. The hop vines reached practically the height of the trellis. The elongation growth of plants went on until the middle of July, when the hops started to blossom. During the third decade, probably due to sufficient rainfalls, the hops started to develop the cones. In general we evaluate the state of hops as good.

HEALTH STATE OF HOPS

Short-term prognosis of downy mildew of hops (*Pseudoperonospora humuli* Miy et Takah.) gave reasons for treatment by fungicides. The preparations for the fourth and eventually further spraying were recommended according to the Methodology of the Hops Protection for 2016 and on the hop gardens, where the incidence of downy mildew of hops was stronger, also the application of fungicide Curzate K was then advised.

The flyover of hop aphid (*Phorodon humuli* Schrank) from winter host plants to hops finished within the period between June 24 and July 3, 2016. This pest has been eliminated by using of preparation Movento 150 OD. Although the weather was not convenient for the development of red spider mite (*Tetranychus urticae* Koch), we recommend its careful monitoring and where the preparation Movento 150 OD was not applied, then it would be useful to have the preparations Ortus 5SC, Vertimec 1, 8 EC or Kanemite 15 SC ready for use. The preparation Acramite 480 SC is recommendable for use not before the first decade of August, if necessary.



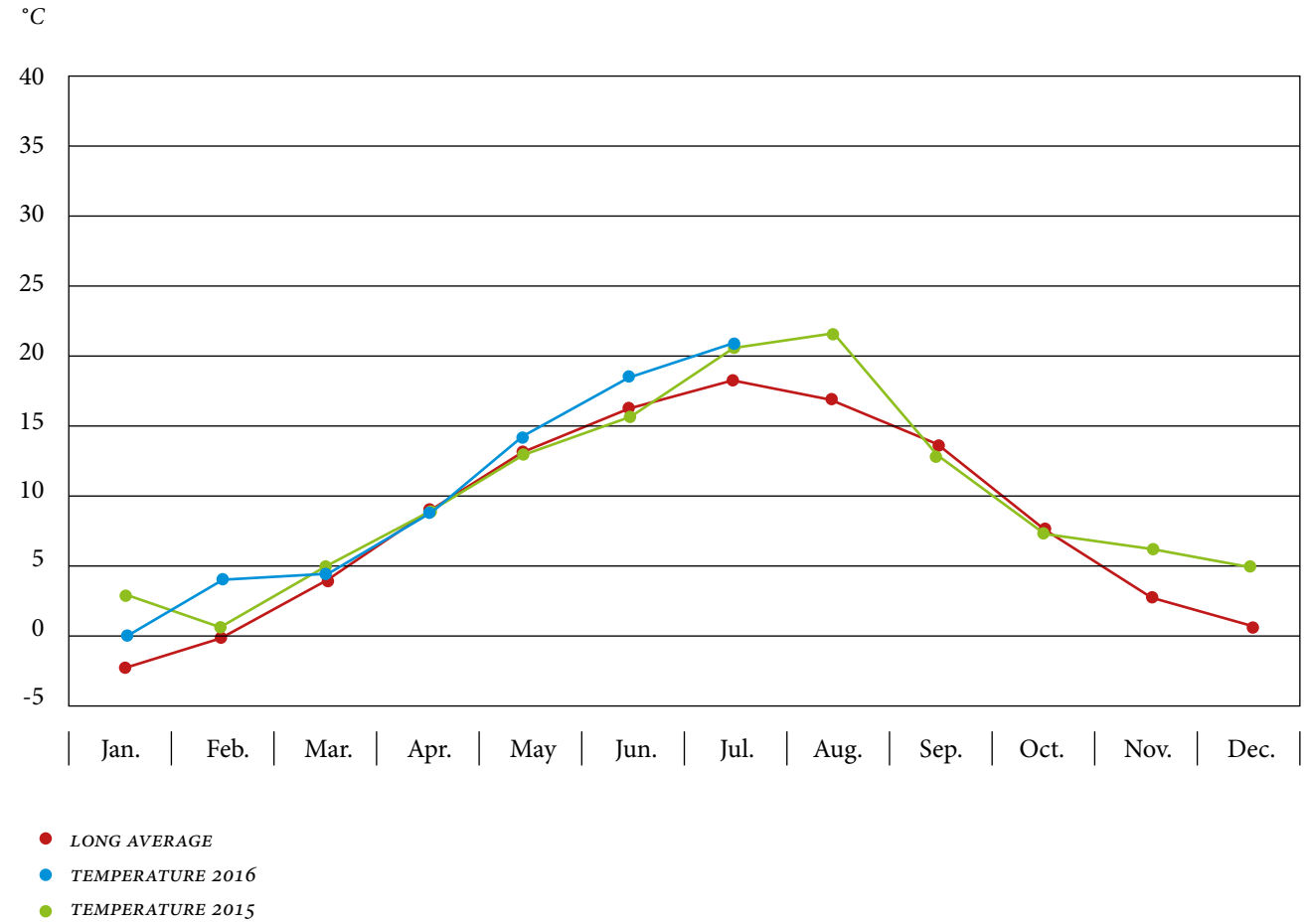
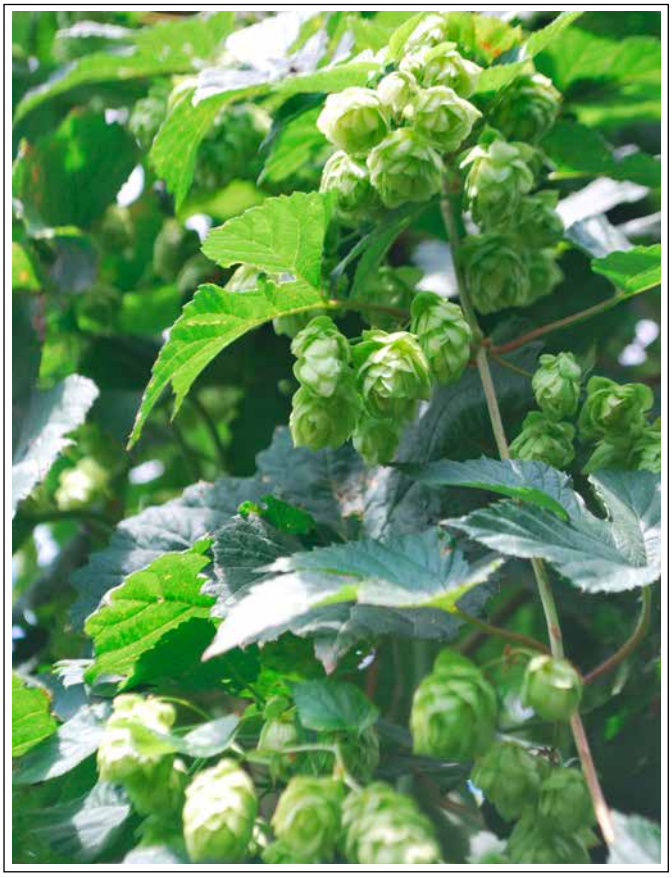


PHOTO REPORT

Hop field at the end of July

Hop plant at the end of July



Cones growth at the end of July

Saaz, August 1, 2016
Jaroslav Hájek

Chmelařstvi Cooperative Žatec

Hop report - Saaz fine aroma hops

Crop 2016 – August (Saaz region)

WEATHER CONDITION – AUGUST

Temperature & precipitation in August	2016	2015	30 years average
Average temperature (°C)	18,0	21,4	17,4
Precipitation (mm)	36,6	96,0	62,0
Total precipitation (mm) since 1st January	300,4	246,8	325,0
Max. temperature (°C)	33,6 (28. 8.)	37,4 (7. 8.)	
Min. temperature (°C)	5,2 (11. 8.)	7,8 (23. 8.)	
Max. precipitation (mm)	18,8 (5. 8.)	33,0 (17. 8.)	
Number of dry days	22	23	

Most August rains came during the first decade of the month. However, these rainfalls caused more headache than joy to the farmers. As far as the temperatures are concerned, they were more expressive during the second half of August. Overall, the average temperature was on the level of long-term average and considerably lower than in August of previous year (by 3, 4°C).

GROWTH REPORT

Climatic conditions in August, namely the rainfalls during the first decade of the month, have caused serious worries to the farmers. Their efforts to keep good health conditions of hops against downy mildew of hops (Pseudoperonospora humuli Miy et Takah.) were thus made more difficult. The most serious problems arose in high-grown hop gardens with a big habit of plants. It concerned especially young hop gardens of less than five years of the age. Thanks to sufficient reserves of water and favourable temperatures the hops developed the cones very well and the creation of alpha-bitter substances was on satisfactory level. It can be stated that this year crop will be above the long-term average as far as the yields per hectare and the content of alpha-bitter substances are concerned.

HOP PHYTOSANITARY INFORMATION

The farmers in some localities did not manage to keep the health state of hops until the end of the harvest on a level which we are accustomed to in the long term, due to infestation by downy mildew of hops.

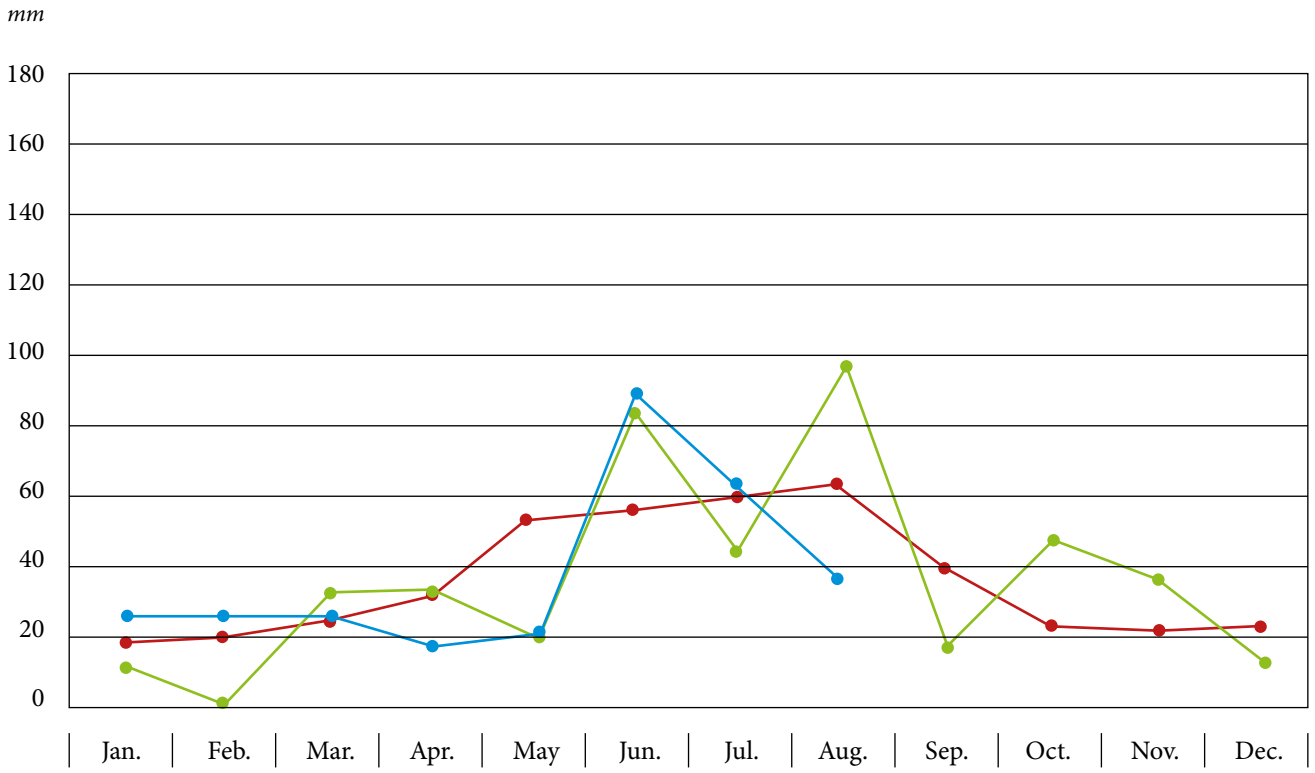
OTHER INFORMATION

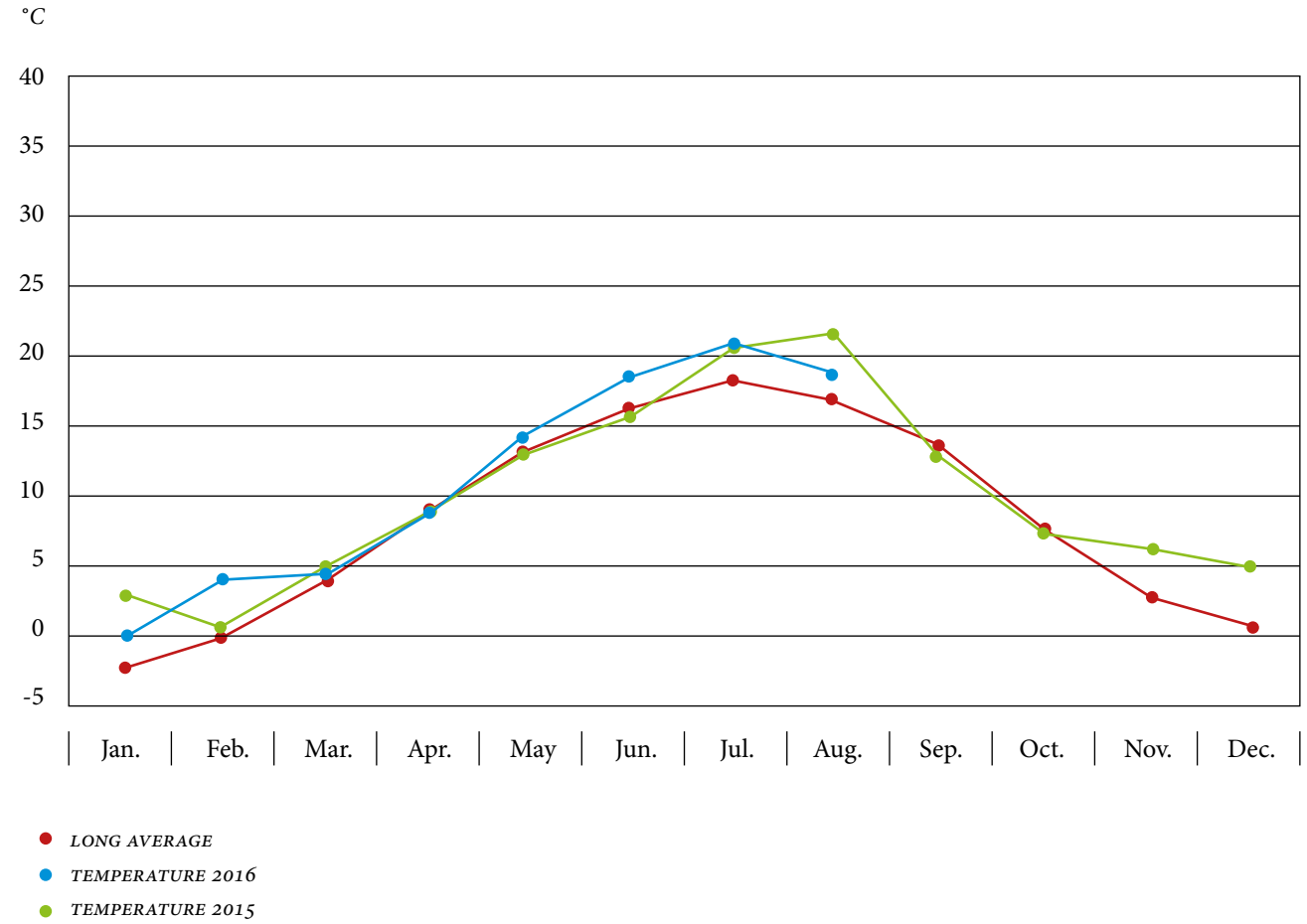
The ÚKZÚZ – Central Institute for Supervising and Testing in Agriculture in Saaz specified the hop gardens acreage to be harvested in 2016. The area of hop gardens have increased from 4622 hectares in 2015 by 153 hectares to the current 4775 hectares (increase by 3,33 %). See more details in the annexed Table.

The acreage of hop gardens in the Czech republic in 2016, up to 20th August

Variety	Saaz region	Newly planted	Auscha region	Newly planted	Tirsitz region	Newly planted	Czech republic	Newly planted
Saaz var.	3 301	237	445	31	444	33	4 190	301
Agnus	36	3	3	0	0	0	39	3
Bohemie	1	0	0	0	1	0	2	0
Bor	0	0	0	0	0	0	0	0
Cascade	1	0	0	0	0	0	1	0
Hallertau	1	0	0	0	0	0	1	0
Harmonie	5	0	0	0	0	0	5	0
Kazbek	14	2	2	0	5	0	21	2
Perle	1	0	0	0	0	0	1	0
Premiant	100	2	36	0	39	0	175	2
Rubin	1	0	0	0	0	0	1	0
Saaz Late	39	7	0	0	2	0	41	7
Saaz Special	20	0	0	0	0	0	20	0
Sládek	161	20	27	6	79	7	267	33
Vital	2	0	0	0	0	0	2	0
Other	9	0	0	0	0	0	9	0
Total	**3 692**	**271**	**513**	**37**	**570**	**40**	**4 775**	**348**

ÚKZÚZ Žatec (Central Institute for Supervising and Testing in Agriculture)





Hop field at the end of August

Saaz, September 4, 2016
Jaroslav Hájek

Chmelařstvi Cooperative Žatec