Hop report - Saaz fine aroma hops

Crop 2013 – January / April (Saaz region)

WEATHER CONDITION – JANUARY / MARCH

Average temperature (°C)	2013	2012	30 years average	Diff. 13-12
January	0,1	2,0	-2,0	-1,9
February	0,0	-3,4	-0,2	+3,4
March	0,0	6,2	3,6	-6,2
Summary 1st Trimester	0,1	4,8	1,4	-4,7

Total precipitation (mm)	2013	2012	30 years average	Diff. 13-12
January	16,0	32,2	20,0	-16,2
February	31,4	3,6	19,0	+27,8
March	19,8	9,0	23,0	+10,8
Summary 1st Trimester	67,2	44,8	62,0	+22,4

The weather during the first trimester of 2013 was completely out of character from the point of view of temperature. The average temperature in each of these three months was the same, that is 0°C. This situation has appeared for the first time in the last 20 years. If we compare this situation to the long term average in the individual months then we can declare the flollowing: January - hotter, February – as usual, March – very cold.

This situation is confirmed by the number of the days in which temperature dropped below 0°C - January 17 days, February 13 days, March 16 days (nearly the same number as in January).

As a matter of interest we can also mention the highest and the lowest temperatures in the individual months of the first trimester.

Month	Min. temp.	Max. temp.
January	-15,7 (26. 01.)	12,9 (30. 01.)
February	-7,8 (11. 02.)	8,4 (05. 02.)
March	-13,1 (14. 03.)	12,9 (10. 03.)

If we take into consideration the figures in the table, the minimum temperatures were not as low as last year (above all in February). Moreover, they lasted no more than one to three days and appeared on the days with snow cover.

The precipitation of the first trimester 2013 was higher by 22,4 mm (i.e.150 %) compared to 2012. The long term average has been slightly exceeded as well (at 5,2 mm) this year. The higher total of precipitation was caused above all by high precipitation in February. This month the precipitation reached 65 % more than the long term average.

The hop cultivation and the beginning of spring work will be negatively affected by this character of the weather – low temperatures in later March and at the beginning of April together with frequent snow showers.

WEATHER CONDITION – APRIL

Temperature & precipitation in April	2013	2012	30 years average
Average temperature (°C)	8,9	8,7	8,5
Precipitation (mm)	21,6	45,8	32,0
Total precipitation (mm) January-April	64,8	88,8	94,0
Max. temperature (°C)	26,8 (18.4.)	28,9 (28.4.)	
Min. temperature (°C)	-7,7 (8.4.)	-7,9 (9.4.)	
Max. precipitation (mm)	5,8 (18.4.)	18,8 (24.4.)	
Number of dry days	15	18	

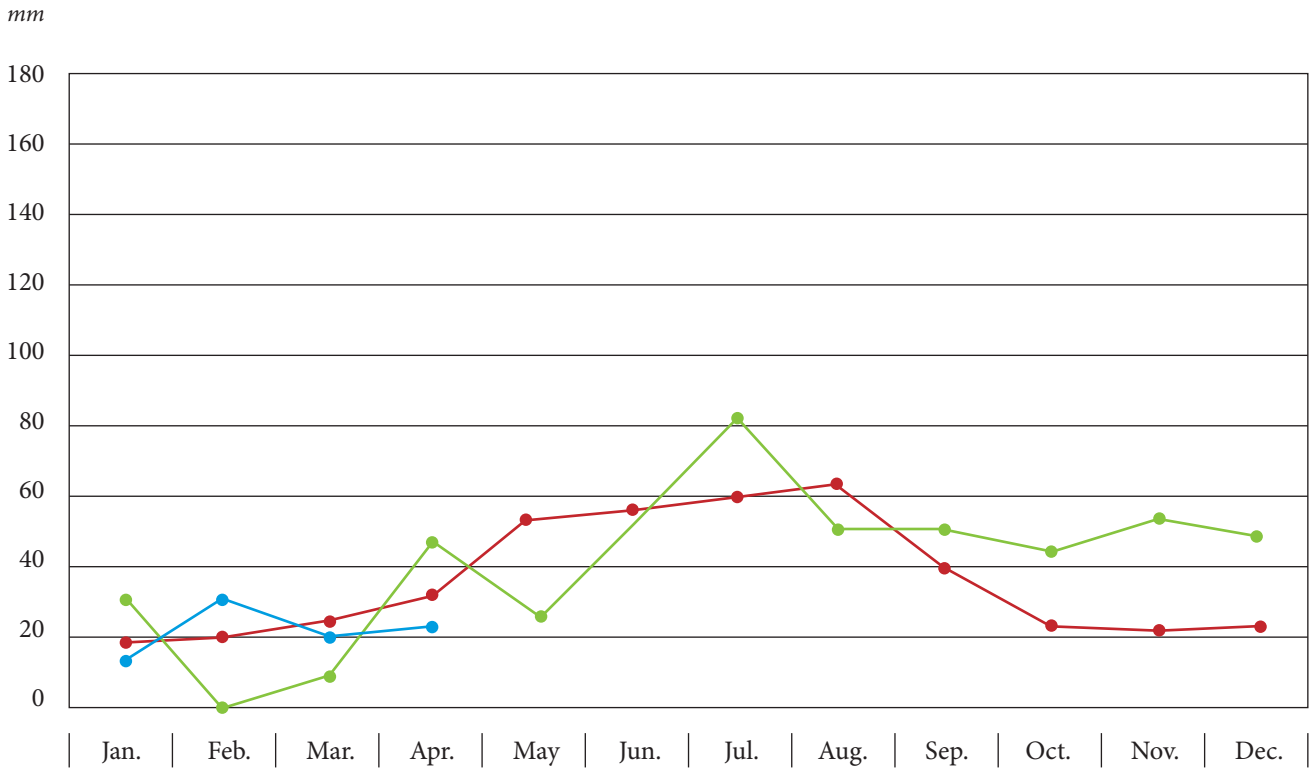
The beginning of April i.e. the first ten days showed very low minimum temperatures which mostly dropped below freezing point. As well the maximum temperatures were relatively low in this period, they reached no more than 10°C. It grew warmer just in the remaining twenty days of the month. The warmest temperatures peaked in the last ten days, when the maximum temperatures reached summer figures. The sudden drop from the maximum day temperatures in the very end of the month is worth mentioning. The temperature of 25°C, that was shown on one day, plummeted to 11,5°C the day after.

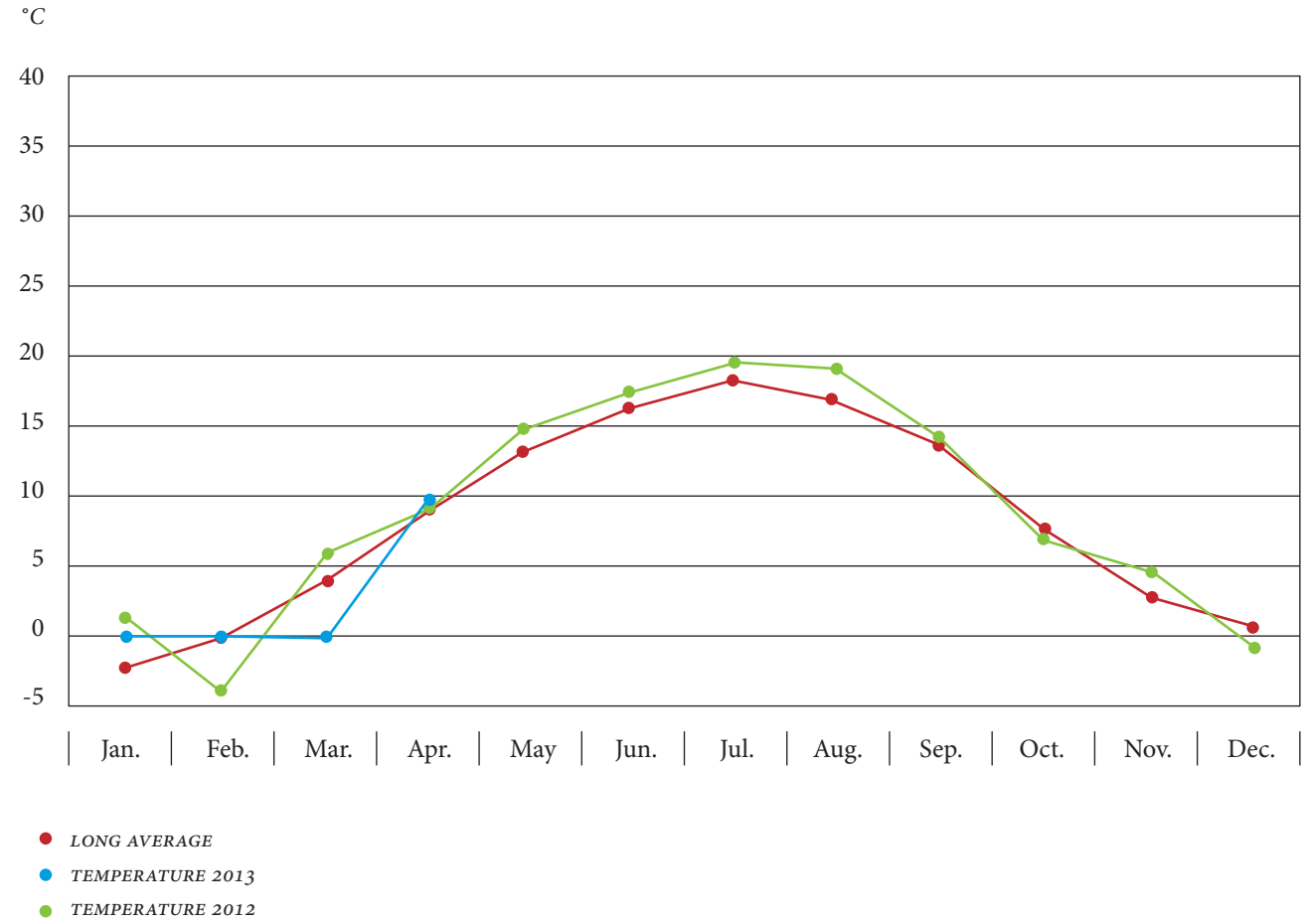
As far as precipitation is concerned, April was below the long term average. The precipitation went down to 67,5 % of the long term average and as well just only to 47,2 % of the precipitation in April 2012. The situation was caused by the number of dry days and by the weak precipitation on the rainy days. In a period of 15 rainy days just 2 mm of precipitation fell down.

OTHER INFORMATION

The UKZUZ (Central Institute of Supervising and Testing in Agriculture) published on 30th April 2013 new figures of hop acreage in the Czech Republic. The final figures of all hop growing regions show a reduction of the acreage by 27 ha compared with harvest 2012. The total acreage of hops in the Czech Republic is currently 4.339 ha. The total acreage of SAAZ variety is 3.804 ha. 3016 ha of SAAZ variety are planted in Saaz region, 391 ha in Auscha region and 397 ha in Tirschitz region. The PREMIANT variety fell by 27 ha. The total acreage of PREMIANT variety is 202 ha. 118 ha of PREMIANT variety are planted in SAAZ region, 44 ha in Auscha region and 40 ha in Tirschitz region. SLADEK variety fell by 8 ha and is planted on 234 ha. 161 ha of SLADEK variety are planted in Saaz region, 18 ha in Auscha region and 55 ha in Tirschitz region. The new hops were planted on 196 ha. The SAAZ variety was newly planted on 134 ha in Saaz region, 24 ha in Auscha region and 22 ha in Tirschitz region.

Variety	Saaz region	Newly planted	Auscha region	Newly planted	Tirsitz region	Newly planted	Czech republic	Newly planted
Saaz var.	3 016	134	391	24	397	22	3 804	180
Agnus	48	0	3	0	0	0	51	0
Bohemie	1	0	0	0	1	0	2	0
Bor	3	0	2	0	0	0	5	0
Perle	1	0	0	0	0	0	1	0
Hallertau Traditon	1	0	0	0	0	0	1	0
Harmonie	5	3	0	0	0	0	5	3
Kazbek	3	2	0	0	0	0	3	2
Premiant	118	1	44	0	40	0	202	1
Rubin	1	0	0	0	0	0	1	0
Saaz Late	7	1	0	0	2	0	9	1
Saaz Special	6	4	0	0	0	0	6	4
Sládek	161	5	18	0	55	0	234	5
Vital	2	0	0	0	0	0	2	0
Others	13	0	0	0	0	0	13	0
Total	**3 386**	**150**	**458**	**24**	**495**	**22**	**4339**	**196**





SPRING WORKS AND GROWTH REPORT

The unfavourable weather conditions at the beginning of April have affected the beginning and the course of spring work. The character of the weather caused a one week delay. This situation was seen at the cutting of hop roots of the Sládek and Premiant variety. These varieties are usually cut at the end of March but this year it was in the first part of April. Despite these problems the hop growers have made the cutting work as well as the stretching and the fastening of hop-leading wires within the deadline. The beginning of the training of hops is expected to be launched in early May.

The beginning of the spread of alfalfa snout beetle (*Otiorhynchus ligustici L.*) as well as of hemp flea beetle (*Psylliodes attenuata Koch.*) has been recorded. Owing to the registration of the insecticide Actara 25 WG, there are no problems to reduce these insectes. Against hemp flea beetle the insecticide Karate Zeon 5 CS is also being used. There was nearly no necessity to treat the hops against the primary infection of downy mildew of hops (*Pseudoperonospora humuli Myi et Takah.*) owing to the low growth of hop vines. Aliette 80 WG has been applied and in some localities used together with the fertilizer Farm-Fos 44.

PHOTO REPORT

Young hop plant

Hop plants after training

Saaz, May 9, 2013
Jaroslav Hájek

Chmelařství družstvo Žatec

Chmelařstvi Cooperative Žatec

Hop report - Saaz fine aroma hops

Crop 2013 – May (Saaz region)

WEATHER CONDITION – MAY

Temperature & precipitation in May	2013	2012	30 years average
Average temperature (°C)	12,7	14,8	13,4
Precipitation (mm)	124,8	25,6	54,0
Total precipitation (mm) January-May	213,6	116,2	148,0
Max. temperature (°C)	24,9 (17.5.)	31,1 (11.5.)	
Min. temperature (°C)	3,2 (24.5.)	1,7 (18.5.)	
Max. precipitation (mm)	27,0 (30.5.)	7,8 (6.5.)	
Number of dry days	14	18	

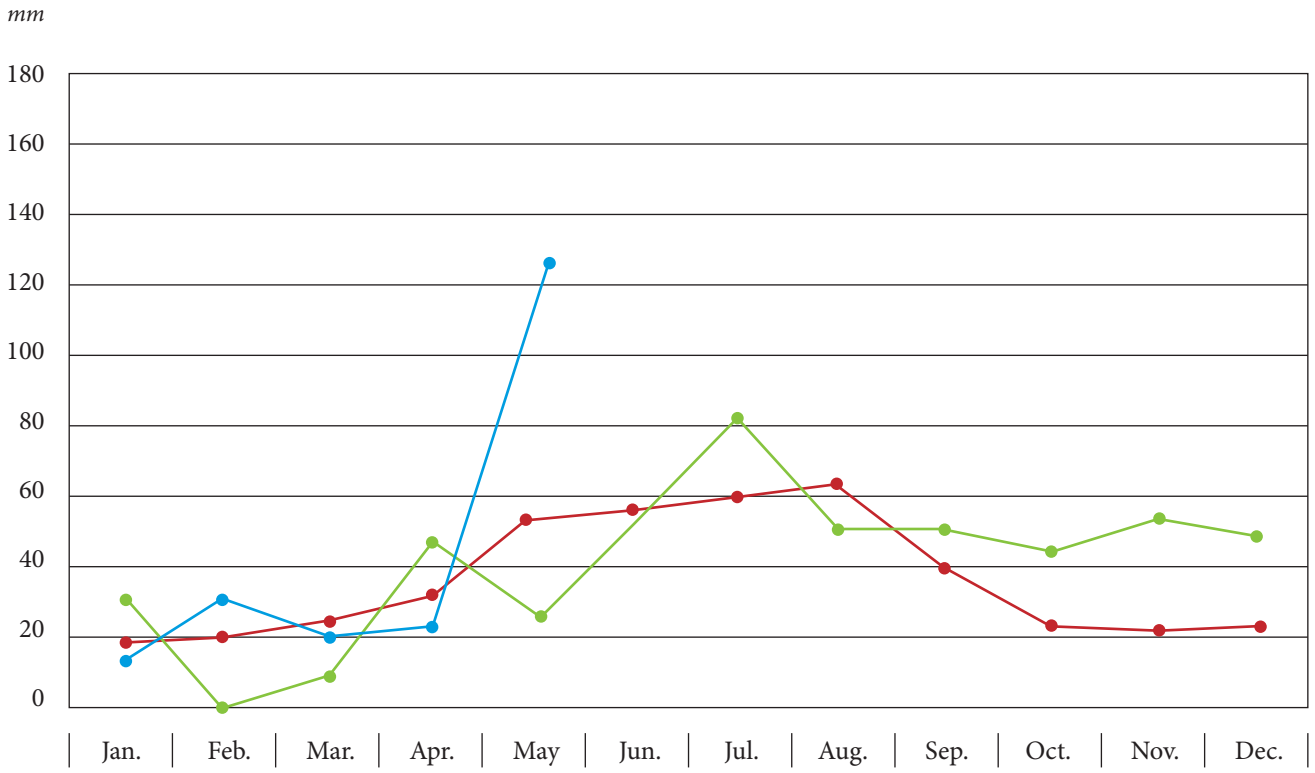
Regarding climatic data, this year's May is considered below-average concerning temperatures and record above-average in precipitation level, with 124, 8 mm of rainfall (231, 1% of long-term average). Majority of precipitation occurred during the last week of the month. The rains in May 2013 exceeded even the records of May 2010 with 102 mm. In terms of temperature, May 2013 remained below normal. Due to relatively low day temperatures, the difference between day and night temperatures was not as pronounced as in previous year. The night temperature never fell below freezing point during this May. A windy weather prevailed practically the whole month.

GROWTH REPORT

The weather conditions were not helpful to the development of hops. Low temperatures have caused unbalanced and weak growth of hops. This phenomenon was demonstrated primarily in case of hop gardens which were cut behind schedule and also in case of gardens located in higher altitudes. The hop gardens where the cut was done timely are basically in normal condition. Above mentioned situation was the reason for problems in hop training. Individual gardens could not be trained at once, in majority of cases, and they had to be passed through and trained up to three times. The end of training operation was negatively influenced by rain, as some of the gardens were accessible with difficulty due to high degree of wetness. Windy weather caused diversion of the vegetation tops (heads) of hop bines; it was therefore necessary to train them again. The hop plants do not reach usual average height corresponding to the end of May. At the moment the development of hops is seven to ten days delayed compared to normal. Certain positive is the state of hop gardens, which were damaged by frost in the previous year and consequently also by the fungal diseases. In majority of cases, the condition of hops in places which lay fallow and where the planting was completed in autumn is better than in 2012.

HEALTH STATE OF HOPS

Regarding the health treatment of hops, the priority was given to the prevention of downy mildew of hops (*Pseudoperonospora humuli* Myi et Takah.). The reasons for this measure are the extremely high precipitations and high relative humidity, when, especially during short temporary warming, the downy mildew of hops became recognizable by high occurrence of ear-shape sprouts. Besides the usual protection of hops by the product Aliette 80 WG, it was recommended to carry out the treatment by the curative fungicide Curzate K at all sites where the ear-shape sprouts appeared, even before the first treatment against secondary infection. The treatment against insect pests (aphis - *Phorodon humuli* Schrank and red spider mite - *Tetranychus urticae* Koch) was not necessary due to climatic conditions.



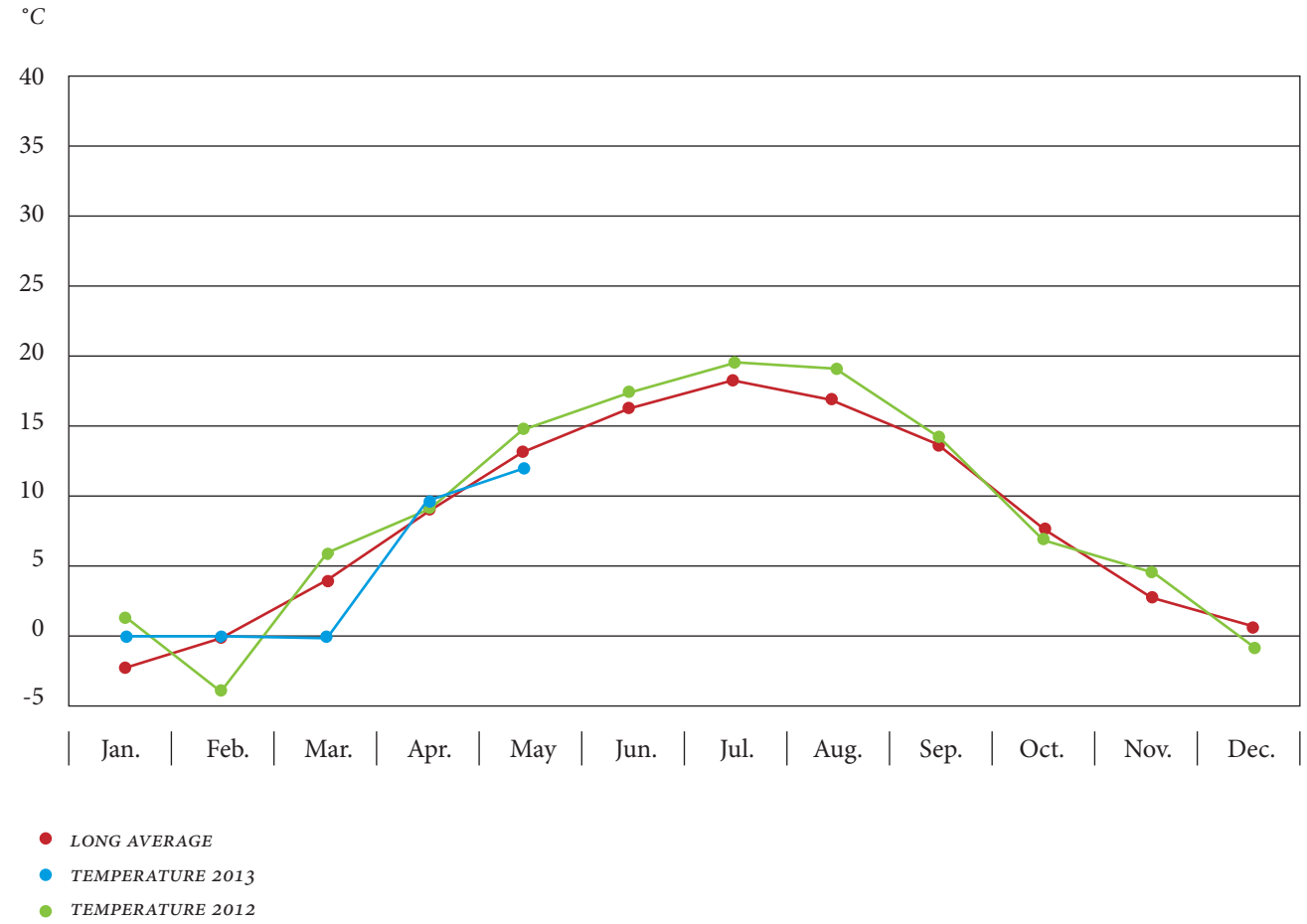


PHOTO REPORT

Hop fields at the end of May - late pruning

Hop fields at the end of May - early pruning

Hop field flooded with river Labe - Ustek area

Puddles in the field after the rain

Saaz, June 3, 2013
Jaroslav Hájek

Chmelařství družstvo Žatec

Chmelařstvi Cooperative Žatec

Hop report - Saaz fine aroma hops

Crop 2013 – June (Saaz region)

WEATHER CONDITION – JUNE

Temperature & precipitation in June	2013	2012	30 years average
Average temperature (°C)	16,5	17,2	16,7
Precipitation (mm)	128,6	51,4	54,0
Total precipitation (mm) January-May	342,2	167,6	204,0
Max. temperature (°C)	33,4 (18.6.)	32,4 (18.6.)	
Min. temperature (°C)	5,3 (5.6.)	-0,1 (6.6.)	
Max. precipitation (mm)	47,2 (9.6.)	16,0 (20.6.)	
Number of dry days	14	11	

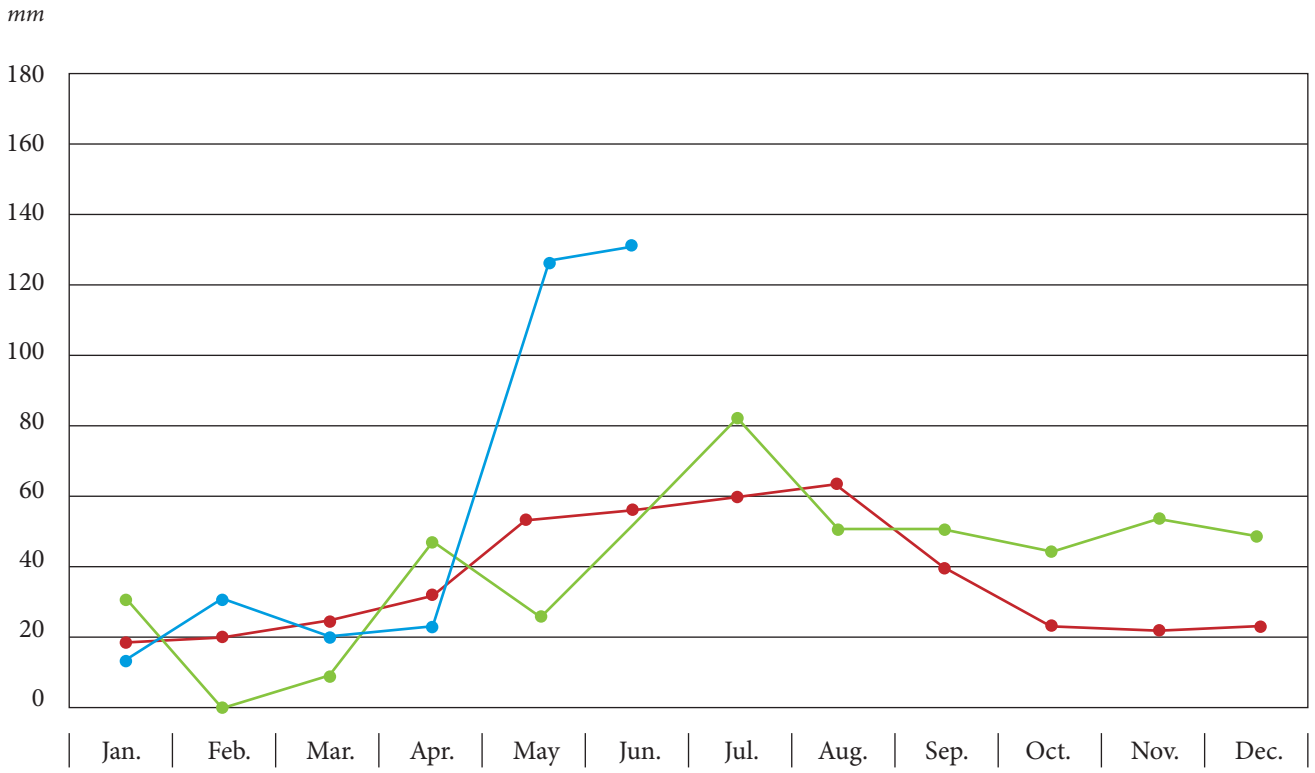
Not even June 2013 can be considered as a favourable month for hop development concerning climatic condition. Steady rains, with precipitation of 151,6 mm in a period of 26th May - 10th June 2013, caused Czech rivers to overflow, including rivers in Saaz and Auscha hop growing regions. Vltava and Labe (Elbe) rivers harmed hop gardens in Auscha region as well as Ohře (Eger) in Saaz region. Regarding gathered data from Czech growers, we can count with about 389 ha of hop gardens that were flooded (204 ha in Auscha region and 189 ha in Saaz region). The total loss has been estimated to 80-90 million CZK. We are collecting data about the health state of harmed hop plants. The first estimation is that about 50% of harmed plants will not be able to be considered to be harvested because of fatal damage. Steady rains and puddles made hop gardens wet and incurred putrefying hop roots. Total precipitation in June is about 230 % of long-term average and the total precipitation from January to June is 168% of long-term average. June can be considered average concerning temperatures.

GROWTH REPORT

Evaluating the hop growth, unbalanced and weak growth of plants, mainly where the pruning was not done in time, still persist due to low temperatures in the beginning of June. Intensive lengthened growth of hop plants was recorded in period of 19th to 25th June 2013. Approximately one third of hop plants reached the top of hop trellis up to the end of June. Other plants were about 1,5 m below the top of trellis on the average. But the intensive lengthened growth of hop plants is under way and should be maintained till the end of the first decade of July. At the moment the development of hops is eight to ten days delayed compared to normal. Blooming of hops has not been practically recorded.

HEALTH STATE OF HOPS

Character of the weather in June encouraged propagating downy mildew of hops (*Pseudoperanospora humuli* Myi et Takah.) due to abnormal precipitation and high relative humidity. Moreover, wet ground and puddles complicated a chemical protection of hop gardens. The priority was given to the prevention of downy mildew. It was recommended to carry out the treatment by the Ortiva, Ridomil Gold plus 42,5 WP or Aliette Bordeaux. Curzate K was recommended as a suitable preparation for hop gardens where the significant occurrence of downy mildew had been recorded. Although only weak flyover of hop aphids was recorded it was recommended to do preventive treatment against this beetle before the end of lengthened growth of hop plants. The monitoring of the development of red spider mite (*Tetranichus urticea Koch*) occurrence was also recommended. The health state of hop plants is good.



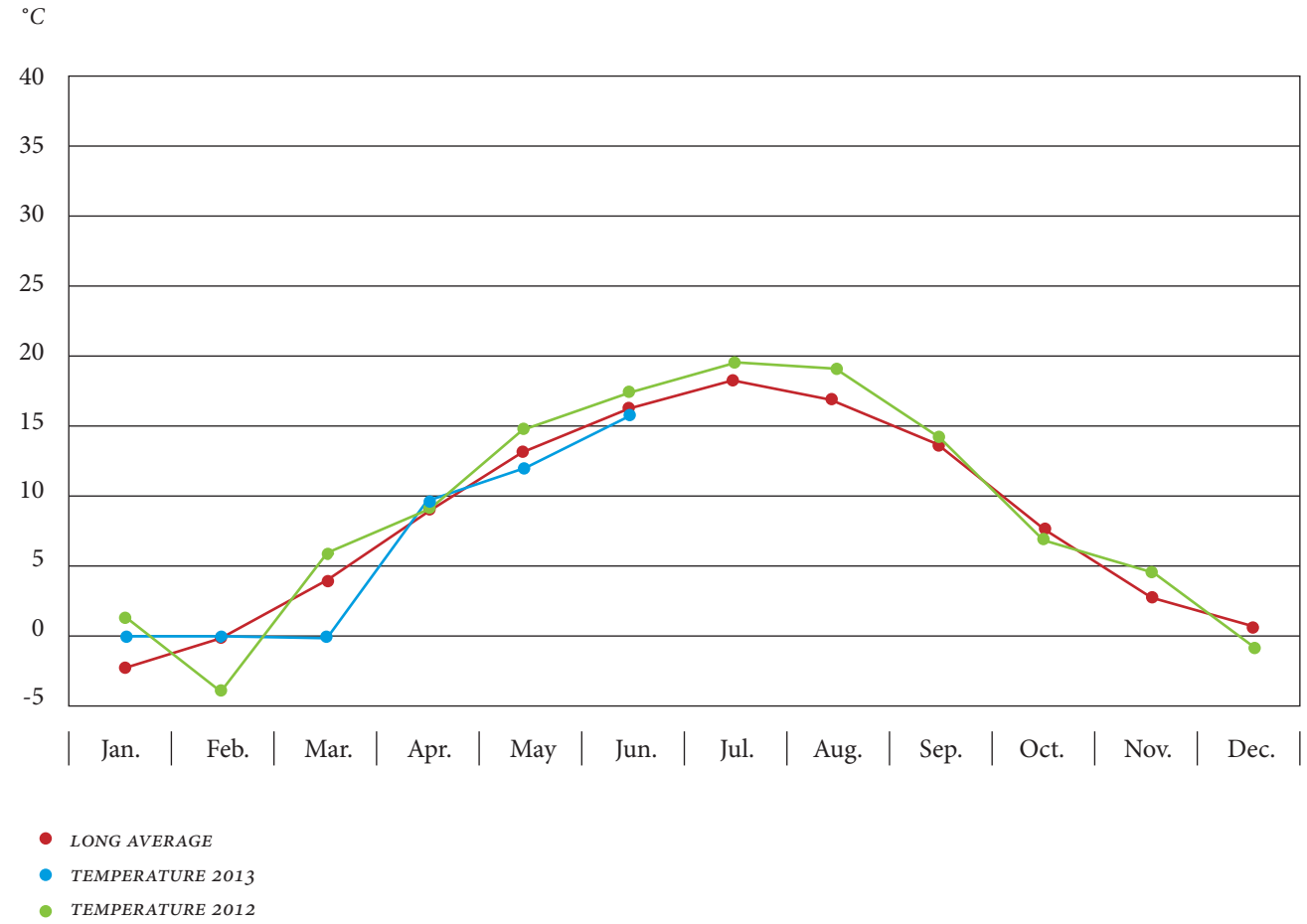


PHOTO REPORT

Record of floods in hop fields - 3. 6. 2013

Record of floods in hop fields - 7. 6. 2013

Record of floods in hop fields - 25. 6. 2013

Hop field unharmed by floods

Saaz, July 1, 2013

Jaroslav Hájek
Chmelařstvi Cooperative Žatec

Hop report - Saaz fine aroma hops

Crop 2013 – July (Saaz region)

WEATHER CONDITION – JULY

Temperature & precipitation in July	2013	2012	30 years average
Average temperature (°C)	20,3	18,8	18,0
Precipitation (mm)	37,6	80,8	59,0
Total precipitation (mm) January-May	379,3	248,4	263,0
Max. temperature (°C)	37,1 (28. 7.)	33,4 (27. 7.)	
Min. temperature (°C)	7,7 (13. 7.)	5,8 (23 .7.)	
Max. precipitation (mm)	18,7 (29. 7.)	20,6 (2. 7.)	
Number of dry days	25	13	

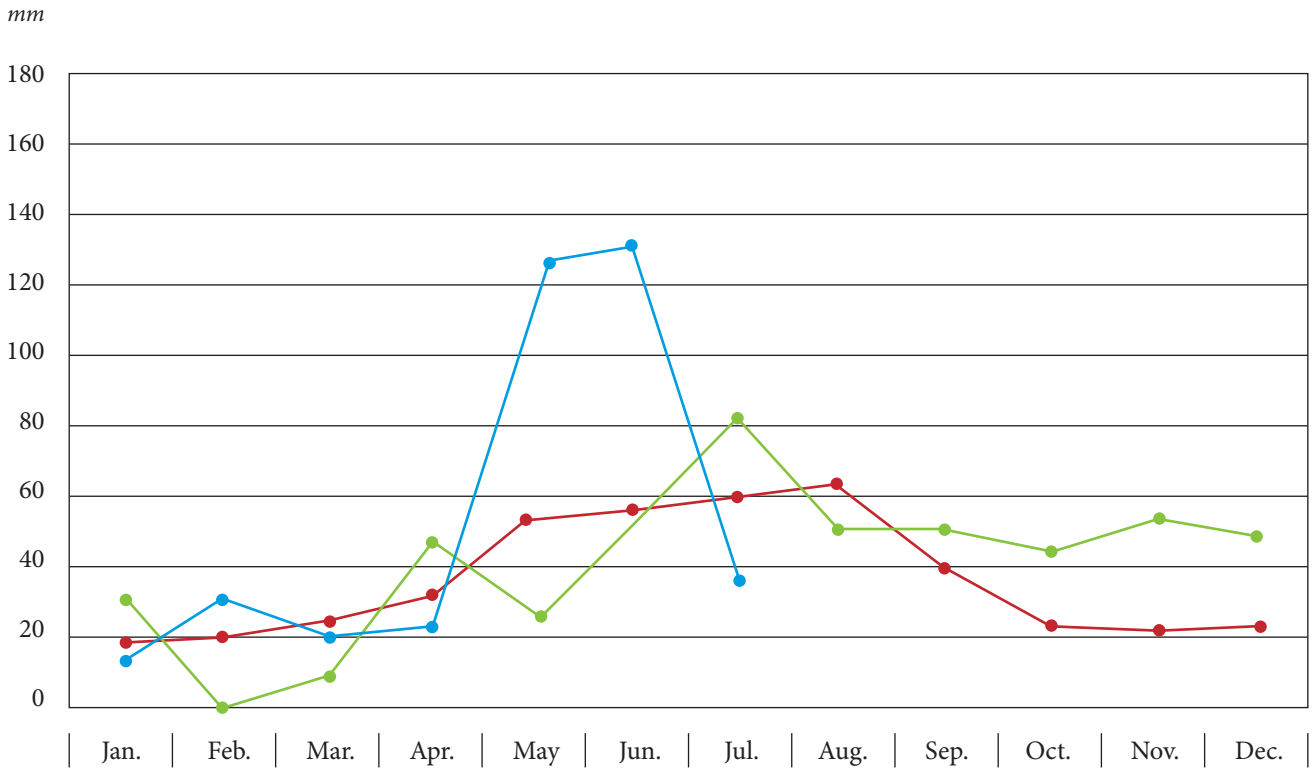
The situation in July 2013 was completely different then situation in June and May. July was characterized by abnormal high temperatures and lack of precipitations. The July average temperature was 2,3 °C above long term average and 1,5 °C above average temperature in July 2012. The period of 22nd – 28th July 2013, when the average day temperature did not drop below 30 °C, had an influence on that situation. July 2013 can be considered as a critical month concerning precipitations. The significant rainfalls (27,8 mm) that covered 75% of total precipitations in July 2013 were recorded only at the end of July (28th – 30th July). Broadly speaking, we did not record any rainfalls during this month. 25 of dry days were not also favourable for this situation.

GROWTH REPORT

Evaluating a hop growth, the development of hops is eight to ten days delayed compared to normal. The intensive lengthened growth of hops was almost under way up to the middle of July. That time, the first blooming of hops was recorded. Therefor the beginning of harvest is estimated to be delayed and should not start before 20th August. From the point of view of hop growth, the high temperatures in July were unfavourable for hop development. The high level of ground water eliminated the lack of precipitations. Drop irrigation systems were used also. The hop plants from hop gardens that were not harmed by flood and wet weather in May and June almost grew over trellises. The botanical habitus is very good and the first blooming can be considered as good.

HEALTH STATE OF HOPS

Character of the weather in July did not encourage propagating downy mildew of hops (*Pseudoperanospora humuli* Myi et Takah.) due to very hot and dry days. Thus, it was not necessary to carry out the fourth treatment against the secondary infection on the hop garden where irrigation systems are not used. An occurrence of hop aphids was very weak and it was enough to carry out the treatment at the end of June. On the other hand, the climatic conditions were very favourable for the development of red spider mite. The occurrence of this beetle was recorded on majority of hop gardens. The treatment in July was carried out by preparations Ortus 5SC, Vertimec 1,8EC and Kanemite 15 S. The health state of hop plants is good.



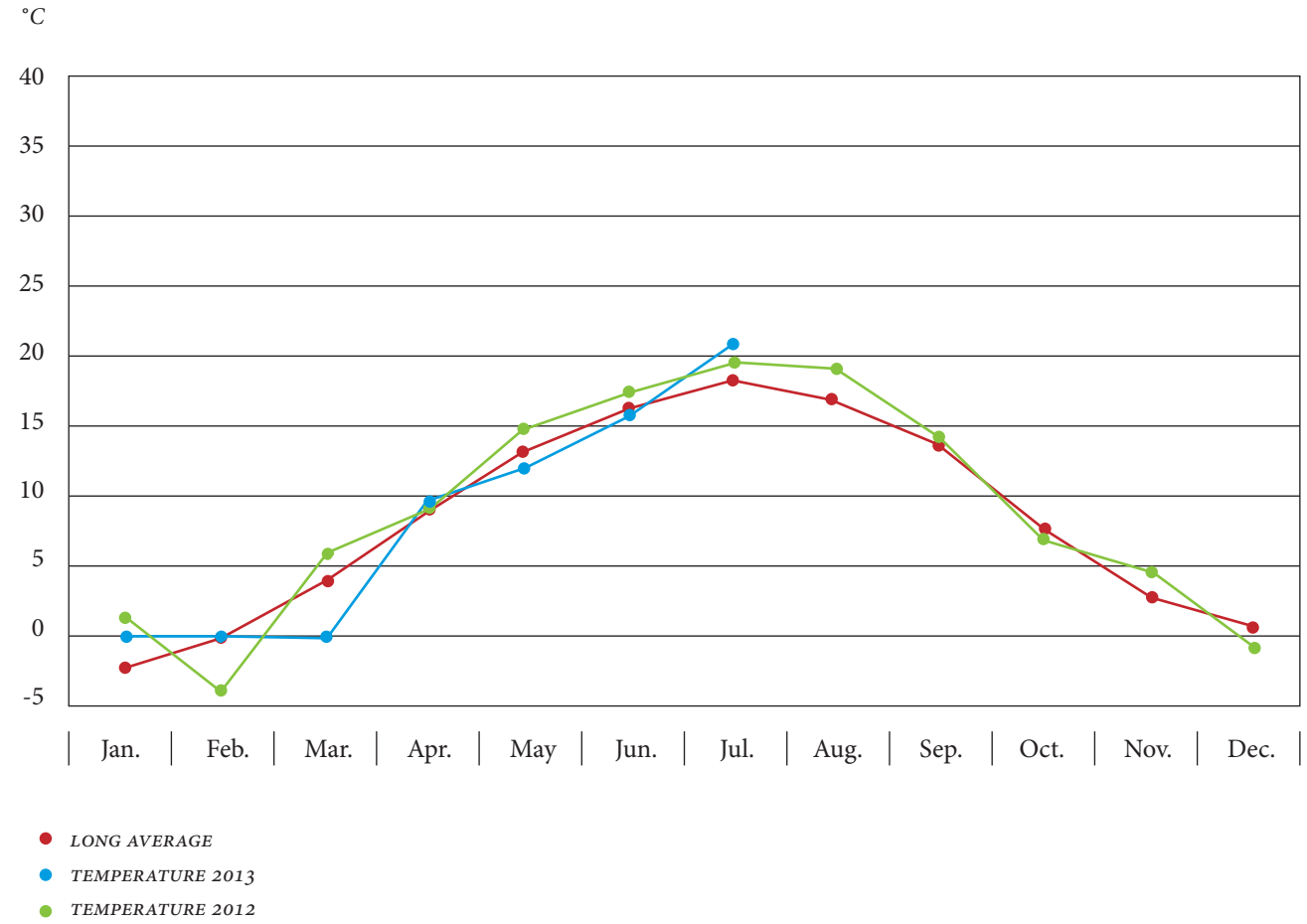


PHOTO REPORT

Healthy unharmed hop field at the end of July

Hop fields after the floods - Loužek Obora 25.7.2013

Saaz, August 5, 2013

Jaroslav Hájek
Chmelařstvi Cooperative Žatec

Hop report - Saaz fine aroma hops

Crop 2013 – August (Saaz region)

WEATHER CONDITION – AUGUST

Temperature & precipitation in August	2013	2012	30 years average
Average temperature (°C)	17,9	19,0	17,4
Precipitation (mm)	94,8	48,2	62,0
Total precipitation (mm) January-August	343,2	296,6	325,0
Max. temperature (°C)	36,6 (3. 8.)	39,6 (20. 8.)	
Min. temperature (°C)	5,3 (15. 8.)	4,7 (14 .8.)	
Max. precipitation (mm)	22,6 (4. 8.)	15,0 (31. 8.)	
Number of dry days	18	18	

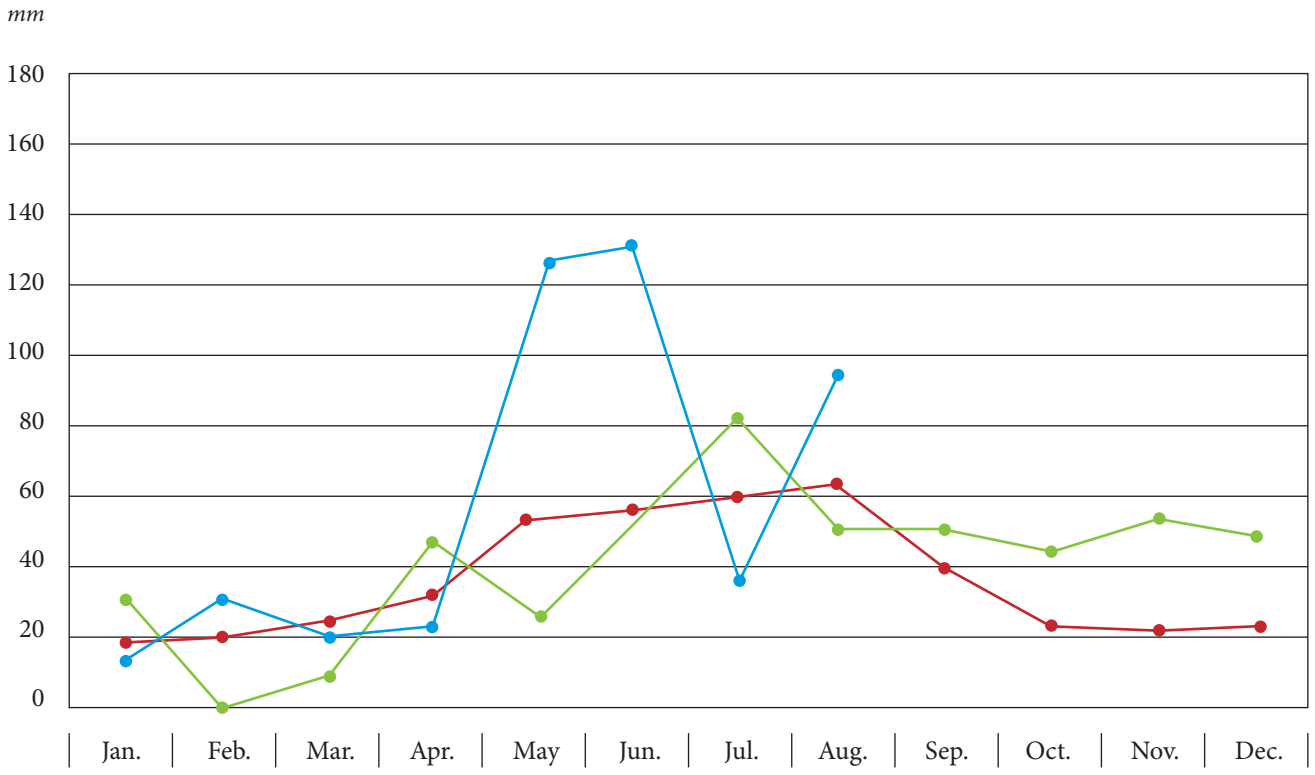
August 2013 was characterized by abnormal precipitation (153 % of long term average) and by normal temperatures concerning the long term average. The significant rainfalls (58,6 mm) covering 62 % of total month precipitations were recorded in the first decade of August.

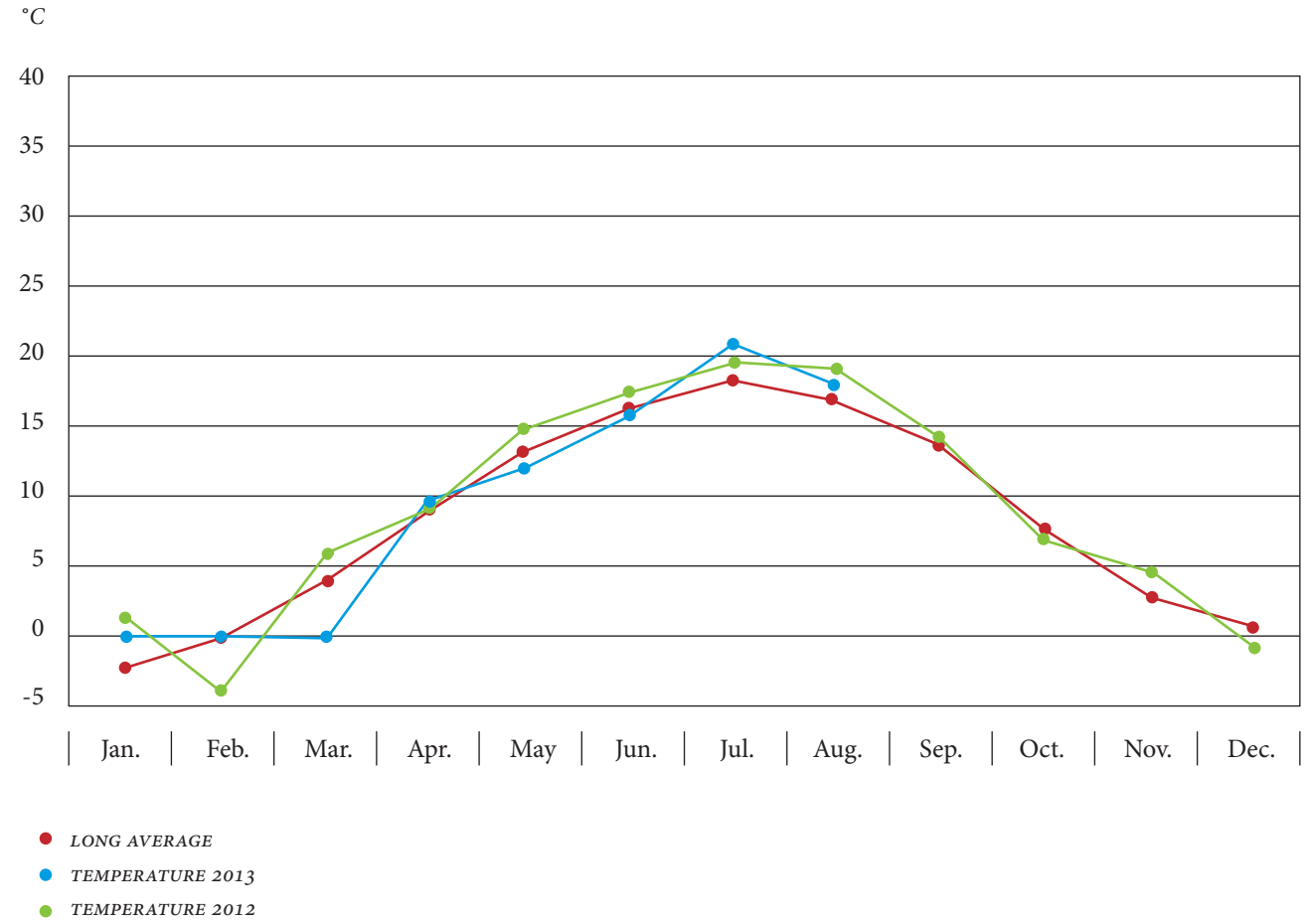
GROWTH REPORT

Climatic conditions can be considered as favourable for hop development. Only strong winds in the middle of the month caused damage of some hop gardens. 17 ha of hop trellises fell down. The first estimations of the yield had been very positive due to enough rainfalls and lower temperature. After well-done blooming and enough rainfalls in the beginning of August, hop cones started appearing. Nevertheless, the development of hops was terminated at the end of the first August decade. Hop cones lost their development and creation of alpha acids. At the end of month, even decreasing of alpha acid contents was recorded. Current estimations are average concerning yield and slightly below long term average concerning the alpha acids content. The harvest started later in comparison with previous years due to delayed hop development. Most growers started their harvest during the period of 23rd - 25th August 2013. Climatic conditions for harvesting hops were unfavourable due to rainfalls recorded on 19th and 25th August 2013 that made field works more difficult. The hop cones have not developed sufficiently. The cones are small and were not closed.

HEALTH STATE OF HOPS

Czech growers succeeded in keeping hops in very good health state.





OTHER INFORMATION - THE HOP GARDEN ACREAGE IN THE CZECH REPUBLIC IN 2013

Variety	Saaz Region (ha)	Auscha Region (ha)	Trschitz Region (ha)	Czech Republic (ha)
Saaz semi-early red-bine hops	2 997	392	397	3 786
Sládek	160	16	64	240
Premiant	117	44	40	201
Agnus	41	3	0	44
Bor	2	2	0	4
Bohemie	1	0	1	2
Saaz Late	7	0	2	9
Harmonie	5	0	0	5
Rubín	1	0	0	1
Vital	3	0	0	3
Others	24	0	0	24
Total	**3 358**	**457**	**504**	**4319**

Source: Central Institute for Supervising and Testing in Agriculture has particularized hop growing acreage in the Czech Republic for harvest 2013

PHOTO REPORT

Hop field ready for harvest

Saaz, September 2, 2013

Jaroslav Hájek
Chmelařstvi Cooperative Žatec