Hop report

January–April 2018 (Saaz region)

1. Weather condition in 1th trimester 2018

Long term average of the air temperatures and precipitation amount in the period of 1981 – 2010 as measured on the meteorological station Žatec

Temperature (°C)	**2018**	**2017**	**30 years average**	**Diff. 17-18**
January	3,4	-4,7	-0,7	8,1
February	-2,2	1,6	0,4	-3,8
March	1,5	7,0	4,3	-5,5
Summary 1st trimester	**2,1**	**3,9**	**4,0**	**-1,2**

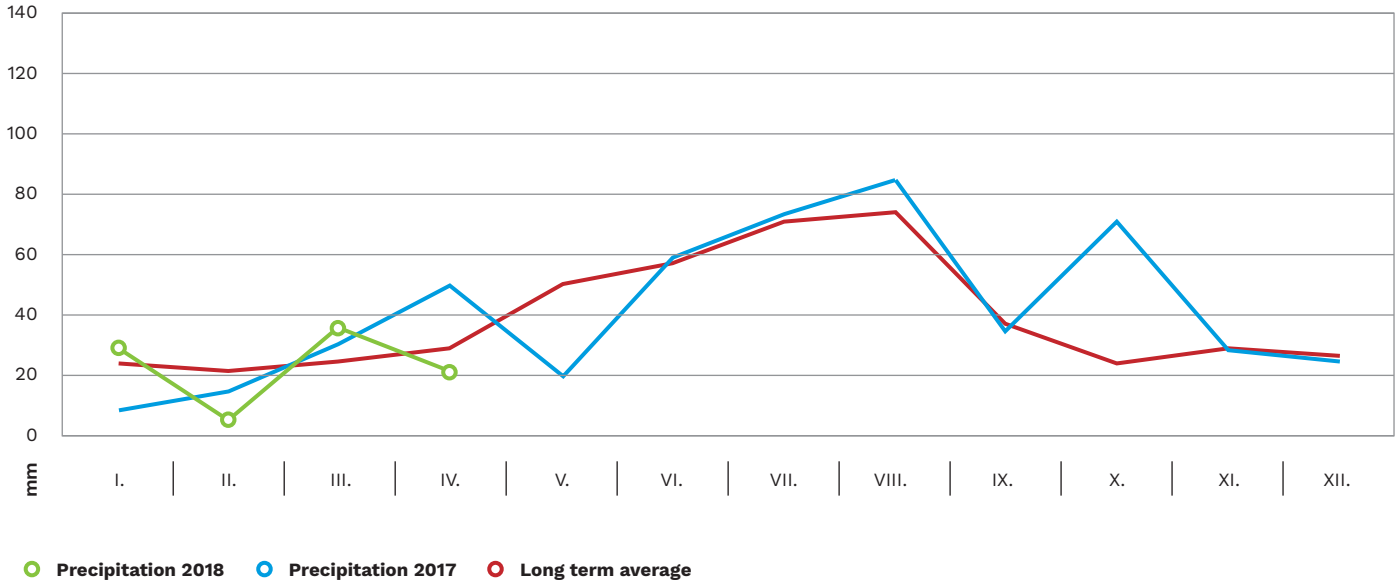
Celkové srážky (mm)	**2018**	**2017**	**30 years average**	**Diff. 17-18**
Leden	28,2	8,0	21,5	20,2
Únor	4,0	15,2	20,0	-11,2
Březen	35,6	29,2	25,9	6,4
Summary 1st trimester	**67,8**	**52,4**	**67,4**	**15,4**

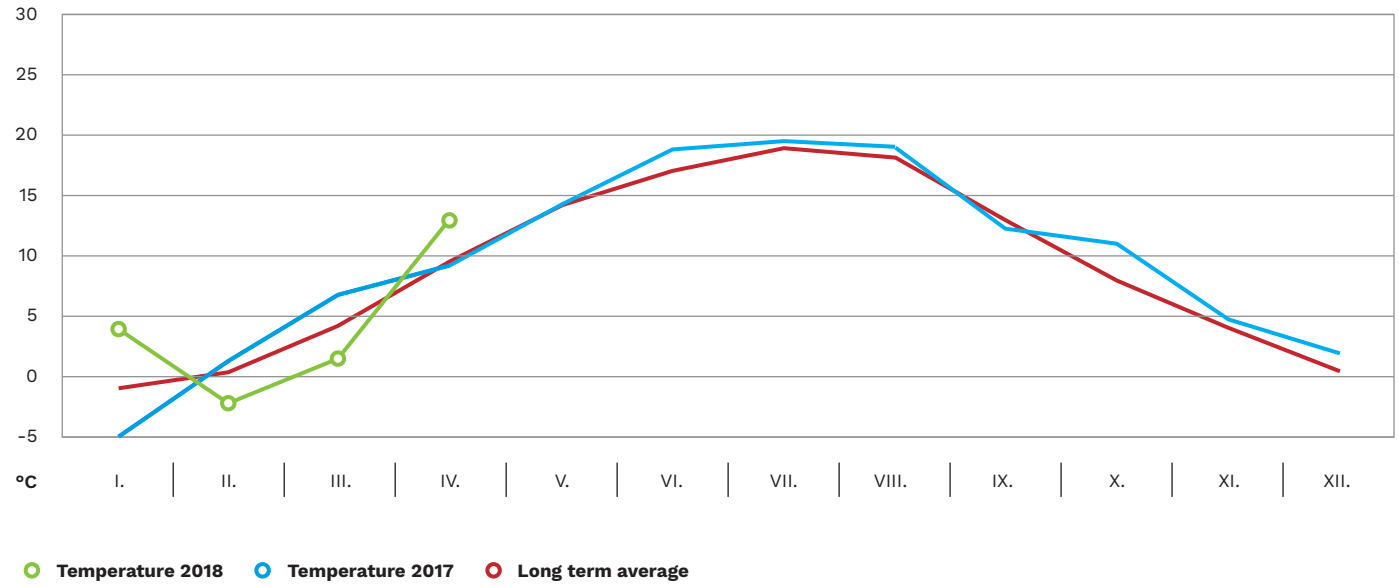
Similarly to the first trimester of previous year the weather during January to March 2018 was characterized by enormous differences between the average temperatures of individual months both in comparison to 2017 as well as to the long term average. Substantial differences were recorded in January 2018, when the average month temperature was by 8, 1°C higher than in previous year and by 2, 7°C higher than the long term average. This year´s January was the warmest in the last decades. On the other side, the weather in February was very cold and dry. Low average of temperatures was influenced by frosts towards the end of the month. These low temperatures continued also in the first week of March and together with the decrease of the temperature within 17th to 21st March they influenced also the overall average of the whole month.

Total precipitations during the first trimester of 2017 were then on the level of long term average, nevertheless very low precipitations were recorded in February, when they reached only 4 mm. This year´s winter, as it is already becoming tradition, was practically without snow cover. The weather conditions (especially low temperatures in March and precipitations above the average) influenced negatively only the beginning of the field works. Above all, it caused the delay in sowing of spring crops - cereals, poppy, legumes and the planting of potatoes. However, the adverse weather conditions did not have any effect on the beginning of the spring works in hop gardens. The spring work in hop gardens started already in the last decade of March with discing of the hop gardens. By the end of March the growers also started the pruning of hops of hybrid varieties.

2. Weather condition in April

Temperature & precipitation in April	**2018**	**2017**	**30 years average**
Average temperature (°C)	12,5	8,4	9,1
Precipitation (mm)	21,6	46,4	30,7
Total precipitation (mm) since 1st January	89,4	98,8	98,1
Max. temperature (°C)	27,1 (21. 4.)	23,6 (10. 4.)	
Min. temperature (°C)	-4,4 (7. 4.)	-3,5 (21 .4.)	
Max. precipitation (mm)	14,0 (16. 4.)	12,8 (4. 4.)	
Number of dry days	21	14	





The temperatures in April 2018 were considerably above average. Especially by the end of the second decade the temperatures reached the summer level. Only the first decade was colder, nevertheless also during that time the average temperatures varied around long term average. Precipitations of this April were below average. The only rain, important for the growth, came on 16th April, 2018, when the precipitations reached 14, 0 mm.

3. Spring works and growth report

The weather conditions enabled the growers to carry out the spring works in hop gardens as usual. The pruning of hops took place in habitual time, however further working operations were influenced by very warm weather during the second and the third decade of the month, when the hops started to grow very fast by the first cuts and it was necessary to carry out the training of the hops in some hop gardens already by the end of April – not only the hybrid varieties, but also the Saaz semi-early red-bine hops.
In this year it came therefore to certain anomaly – the cut of hops, stringing and embedding of training wires and in some gardens also the training of hops took place in the same time. It required more efforts of the growers concerning organisation of the works, when the workers had to be deployed flexibly according to the importance of the performed operations. In view of the state of vegetation the training of our principal variety – Saaz semi-early red-bine hops – started already by the end of April, while in previous year it was only after the 10th May.

3. Spring works and growth report

- Downy mildew of hops (Pseudoperonospora humuli Miy et Takah.) – in order to eliminate the primary infection in time the growers used the preparation Aliette 80 WG, above all by younger virus free growths. In case of stronger infection pressure it was recommended to repeat the intervention after 14 to 21 days.
- Alfalfa snout weevil (Otiorrhynchus ligustrici L.) – it was possible to observe the adult specimens – view to warm weather - already before the time of pruning. The treatment was carried out when the occurrence of beetles reached five individuals on 100 plants. The preparation Actara 25 WG was applied
- Flea beetle (Psylliodes attenauta Koch) – the harmfulness threshold of flea beetle is considered when 5–10% of the leaf blade is damaged. The preparation Actara 25 WG was used as well.

4. Photodocumentation

Right side with hop training, left side without hop training

Hop plant before training

Hop training

Hop plant after training

Saaz, April 30, 2018, Ing. Jaroslav Hájek

Hop report

May 2018 (Saaz region)

1. Weather condition in May

Temperature & precipitation in April	2018	2017	30 years average
Average temperature (°C)	16,5	14,4	14,2
Precipitation (mm)	60,8	21,0	52,0
Total precipitation (mm) since 1st January	150,2	119,8	150,1
Max. temperature (°C)	28,9 (29. 5.)	32,3 (29. 5.)	
Min. temperature (°C)	1,6 (6. 5.)	-2,1 (10 .5.)	
Max. precipitation (mm)	31,4 (24. 5.)	5,8 (13. 5.)	
Number of dry days	24	23	

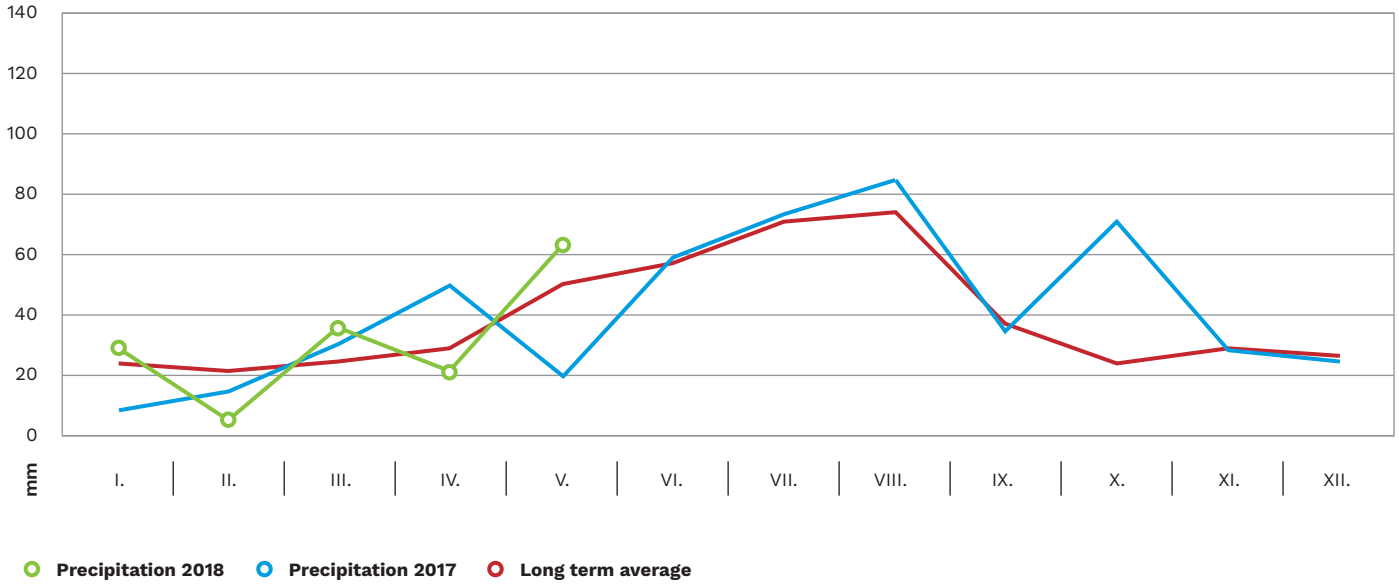
The trend of warm weather continued also in May. If the average temperature in April 2018 exceeded the long-term average by 3,5°C, than the month average in May was 2,3°C higher than the long-term average. This level of temperatures was influenced by high daily temperatures as monitored practically during the whole month and eventually by high night temperatures during the last decade of May. Although the situation seems to be rather good as per the recorded precipitation, we can see that according to the number of dry days (24 days) the rainfalls were concentrated just in few days. The rains were of stormy character and very different. The precipitation in Saaz region exceeded in some localities the level 100 mm, in other places then reached only 40 mm. In Auscha and Terschitz regions the May precipitations were minimal. On May 22, 2018 the areas of municipalities Páleč and Dobroměřice in Saaz region were affected by hail-storms, what damaged the hops (broken hop heads) on the area of 43 ha and on May 29, 2018 the hail-storm has damaged 20 ha of hop garden in Sedčice, also in Saaz region.

2. Assessment of the state of vegetation

Persisting record breaking hot weather has accelerated the vegetative development of hops. The training of hops was finished until May 20, 2018, in majority of hop gardens. By the end of month the hop plants already reached the height of trellis and somewhere there appeared the first signs of beginning of blossoming. Such a fast development of hops was never recorded and compared to other years the hops has at least 15 days advance in its growth.

3. Assessment of the health state of hops

Beginning of May was not favourable to the dissemination of downy mildew of hops (Pseudoperonospora humuli Miy et Takah.), what became evident also by lower occurrence of spike shoots. The rains of the end of May nevertheless created prerequisites for the development of this pest. It was recommended to carry out the second treatment of hops by the preparation Aliette 80 WG and alternatively by the preparations Curzate or Revus. Concerning hop aphid (Phorodon humuli Schrank), whose occurrence was detected on hops around turn of the first and the second decade of May, the growers were recommended to carry out the treatment by the preparation Tepeki. Very warm and dry weather and very strong incidence of red spider mite (Tetranychus urticae Koch) during the harvest of last year were the reasons why the typical symptoms of the occurrence of this pest were observed already in May. The growers were then recommended to carry out thorough monitoring of occurrence of red spider mite and - if necessary - to treat the gardens by acaricide Nissorun 10 WP or Ortus 5 SC or alternatively by Vertimec 1, 8 EC.



Precipitation 2018 Precipitation 2017 Long term average

Temperature 2018 Temperature 2017 Long term average

4. Other information

The ÚKZÚZ – Central Institute for Supervising and Testing in Agriculture in Saaz specified the hop gardens acreage to be harvested in 2018.

The area of hop gardens in the Czech republic, up to 30th April

Variety	Saaz region	Newly planted	Auscha region	Newly planted	Tirsitz region	Newly planted	Czech republic	Newly planted
Saaz hops	3 401	149	457	8	494	76	4 352	233
Agnus	37	2	3	0	2	2	42	4
Bohemie	1	0	0	0	1	0	2	0
Cascade	1	0	0	0	0	0	1	0
Hallertau	1	0	0	0	0	0	1	0
Harmonie	7	2	0	0	0	0	7	2
Kazbek	25	0	5	0	4	2	34	2
Perle	1	0	0	0	0	0	1	0
Premiant	99	3	32	0	39	4	170	7
Rubin	2	1	0	0	0	0	2	1
Saaz Late	44	2	0	0	2	0	46	2
Saaz Special	34	2	0	0	0	0	34	2
Sládek	199	28	36	6	87	4	322	38
Vital	3	0	1	1	0	0	4	1
Others	8	0	0	0	0	0	8	0
Total	**3 863**	**189**	**534**	**15**	**629**	**88**	**5 026**	**292**

4. Photodocumentation

Hop garden view 31 .5. 2018

Hop plant detail

Hop row detail

Hop plants

Saaz, June 1, 2018, Ing. Jaroslav Hájek

Hop report

June 2018 (Saaz region)

1. Weather condition in June

Temperature & precipitation	2018	2017	30 years average
Average temperature (°C)	18,4	18,9	17,0
Precipitation (mm)	52,8	59,4	59,1
Total precipitation (mm) since 1st January	203,0	179,2	209,2
Max. temperature (°C)	30,1 (21. 6.)	34,4 (22. 6.)	
Min. temperature (°C)	7,0 (22. 6.)	7,0 (2. 6.)	
Max. precipitation (mm)	20,0 (1. 6.)	27,6 (29. 6.)	
Number of dry days	19	21	

June 2018 was warmer 1,4°C in comparison to the long-term average. Especially the first half of the month was warm – the average temperature reached 19°C. This fact was influenced above all by the night temperatures, which during that period did not decrease below 10°C. The precipitation of June corresponded to the average of previous five years. The most important rainfalls for the cultivation came on 1st of June and 12th of June and then only on 28th June, 2018. However, the rains were of stormy character and they differ from each other by the intensity according to the region, but also inside the regions there were big differences. For example in Rakovník district of the Saaz region in some localities the precipitations reached over 200 mm. On the other side in Terschitz region it fell only 38,8 mm. On 8th June the area of Chrášťany municipality in Rakovník district was affected by hail storm, which damaged approx. 80 ha of hop gardens. The extent of damage varied between 20 and 98 % of the growth; mostly it concerned the broken hop heads.

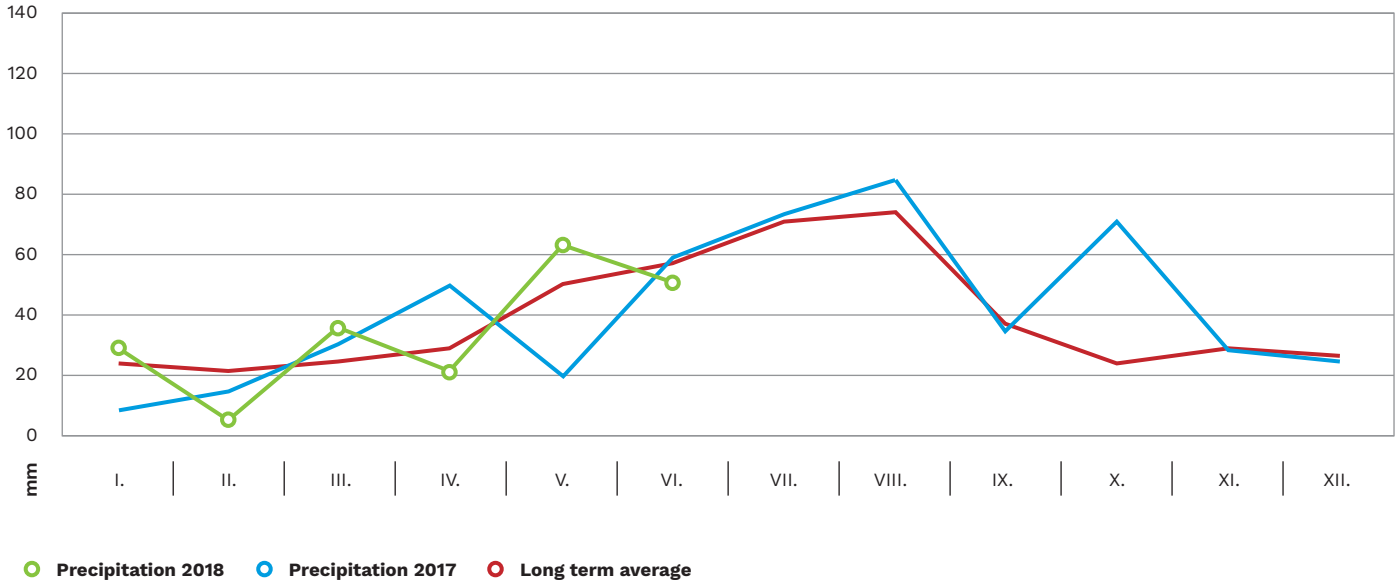
2. Assessment of the state of vegetation

Although very warm weather in the first half of June led to gradual stopping of the stretching growth, the hop plants are in their growing still advanced at least 15 days. In many hop gardens the first blossoming has started and the first hop cones have appeared in many places. Despite the stop of the stretching growth majority of hop plants reached the height of trellis. In this year the difference in habitus was observed again between younger and older hop gardens, being the aspect of new hop plantations better. For final results of the hops production in this year the most important will be the first decade of July. In that period the hops should elongate the lateral shoots in upper parts of the vines and start the second blossoming.

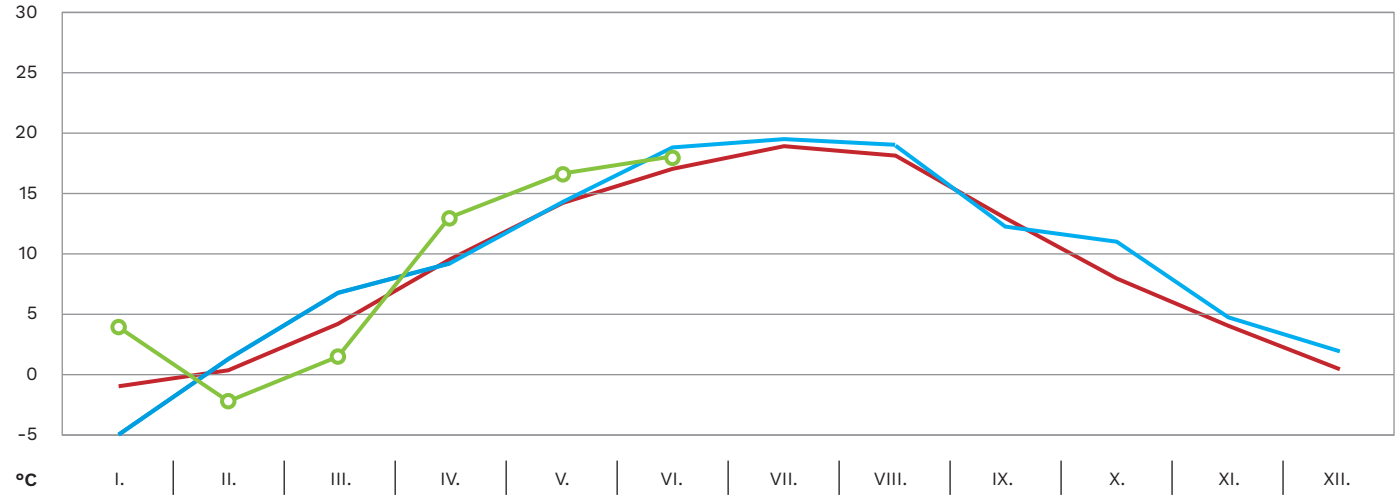
3. Assessment of the health state of hops

Thanks to precipitation in the beginning of the second decade the downy mildew of hops (Pseudoperonospora humuli Miy et Takah.) got appropriate conditions for its dissemination. Therefore the conditions for the second spraying against the secondary infection of this disease were met. For the treatment of the hop garden following preparations were recommended: Ortivy, Bellis or Revus and in case of incidence of spike sprouts also the preparation Curzate K. View to the development of hops (stopping of the stretching growth) it was recommended to use the preparation Movento 150 OD against hop aphid (Phorodon humuli Schrank) already in the last week of June. The existing character of the weather is optimal for the development of red spider mite (Tetranychus urticae Koch), which has appeared very soon in this year. We have already informed about the preparation Movento 152 OD in connection to the liquidation of hop aphid, but this preparation has also good acaricide effect. In the hop gardens where already came up to the overpopulation of red spider mite the treatment by Acramite 480 SC was recommended.

Ing. Jaroslav Hájek © 2018 / Chmelařství, cooperative Žatec



Precipitation 2018 **Precipitation 2017** **Long term average**



Temperature 2018 **Temperature 2017** **Long term average**

4. Photodocumentation

Hop garden view 30 .6. 2018

Hop row

Hop blossom detail

Hop cones

Saaz, June 30, 2018, Ing. Jaroslav Hájek

Hop report

July 2018 (Saaz region)

1. Weather condition in July

Temperature & precipitation	2018	2017	30 years average
Average temperature (°C)	21,0	19,7	19,0
Precipitation (mm)	17,4	72,0*	69,4
Total precipitation (mm) since 1st January	217,7	251,2	278,6
Max. temperature (°C)	35,8 (31. 7.)	33,7 (30. 7.)	
Min. temperature (°C)	4,2 (2. 7.)	7,9 (14. 7.)	
Max. precipitation (mm)	3,8 (11. 7.)	24,4 (24. 7.)	
Number of dry days	23	15	

* Staňkovice meteorological station – Žatec station in defect

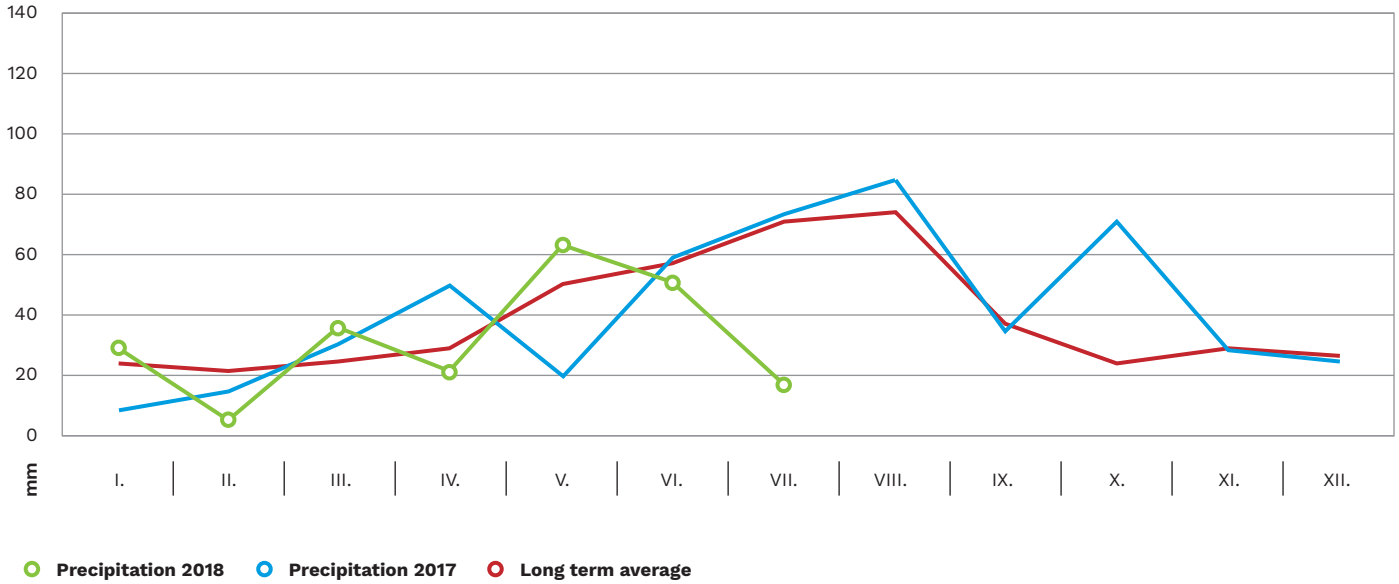
The trend of adverse weather for the development of hops continued also in July and it can be stated, that in a certain way it culminated. High temperatures which have increased all the time in July, were joined by absolute lack of precipitation. The average temperature in July was 2, 0°C above the long-term average. In fourteen days the maximum daily temperature exceeded 30°C. Precipitation in July can be characterized as catastrophic. According to the weather report of the Czech Hydrometeorological Institute the drought has affected the Louny district the most seriously among the regions of the country. In some localities within Louny district the soil contains less than 10% of the utilizable water capacity.

2. Assessment of the state of vegetation

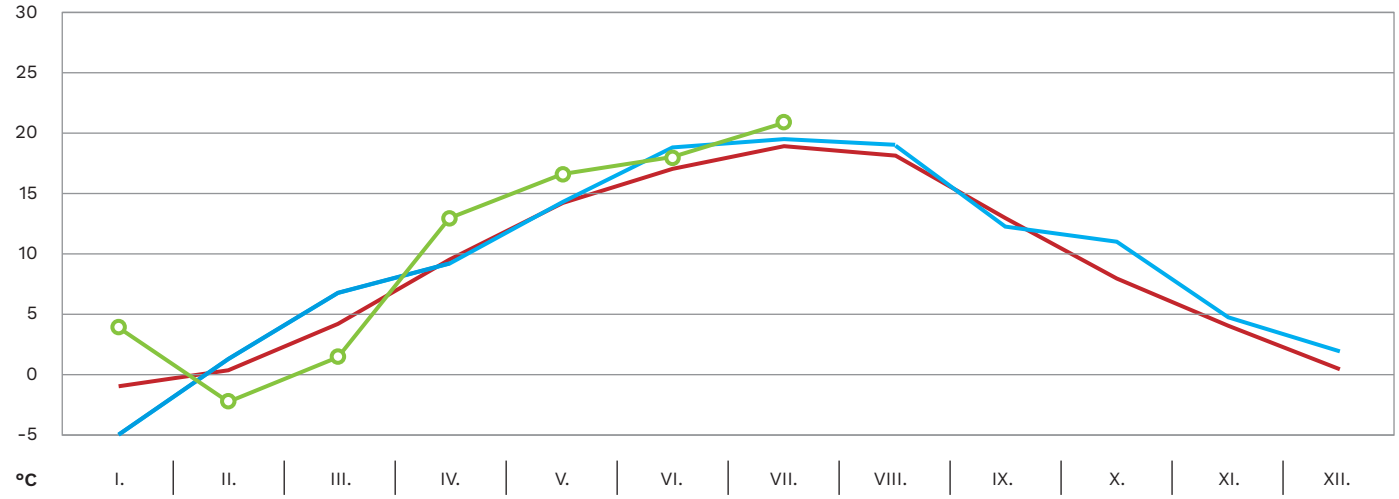
Up to the end of June, 2018, the general appearance (the habit of plants) was not classified as very good. This trend escalated in July. As a result of extremely bad climatic conditions the state of hops even worsened in July. The condition of hops in its development is very unequal. The oldest hop gardens (over 10 – 12 years of the age) have already created the cones and basically they are ready for the harvest in a short time. On the other side, the young hop gardens under 5 years of the age are in hop burr stage, they start to create the cones or possibly they are still flowering. Given the weather forecast for further period without the rain and with high temperatures, there are worries of withering and underdevelopment of these flowers, and possibly also the withering of the burrs. Under these circumstances it is very difficult to make the crop forecasts. Although, in case of the variety of Saaz semi-early red-bine hops it is possible to presume below-average crop. The hybrid varieties will show probably an average crop. It will be also difficult for the producers to decide the start of the harvest so that the beginning was optimal for current state of the hop gardens. Definitely, the start of the harvest will by approximately 10 days earlier than usually.

3. Assessment of the health state of hops

According to short-term prognosis of downy mildew of hops (Pseudoperonospora humuli Miy et Takah.) the conditions for the fourth fungicide spraying were not fulfilled. Nevertheless, it was recommended to follow the prognosis of the development of this disease and after exceeding of the index of downy mildew weather to carry out the treatment of the hop gardens by the preparations Bellis, Ortiva, Revus, or Orvego. The occurrence of hop aphid (Phorodon humuli Schrank) was practically eliminated by the use of the preparation Movento 150 OD, however, due to faster development of hops and stop of the elongation, the effectiveness of this preparation against red spider mite (Tetranychus urticae Koch) was not on the level to which we were accustomed during previous years. Because of good conditions for the development of red spider mite it was than necessary to treat larger areas against this pest. The preparations Ortus 5 SC a Acramite 480 SC were applied. In spite of these interventions some of the areas were damaged by red spider mite.



Precipitation 2018 **Precipitation 2017** **Long term average**



Temperature 2018 **Temperature 2017** **Long term average**

4. Photodocumentation

Hop field view 31. 7. 2018

Hop plants row

Hop cones at the top part of the plant

Hop cones (detail)

Saaz, August 1st, Ing. Jaroslav Hájek