

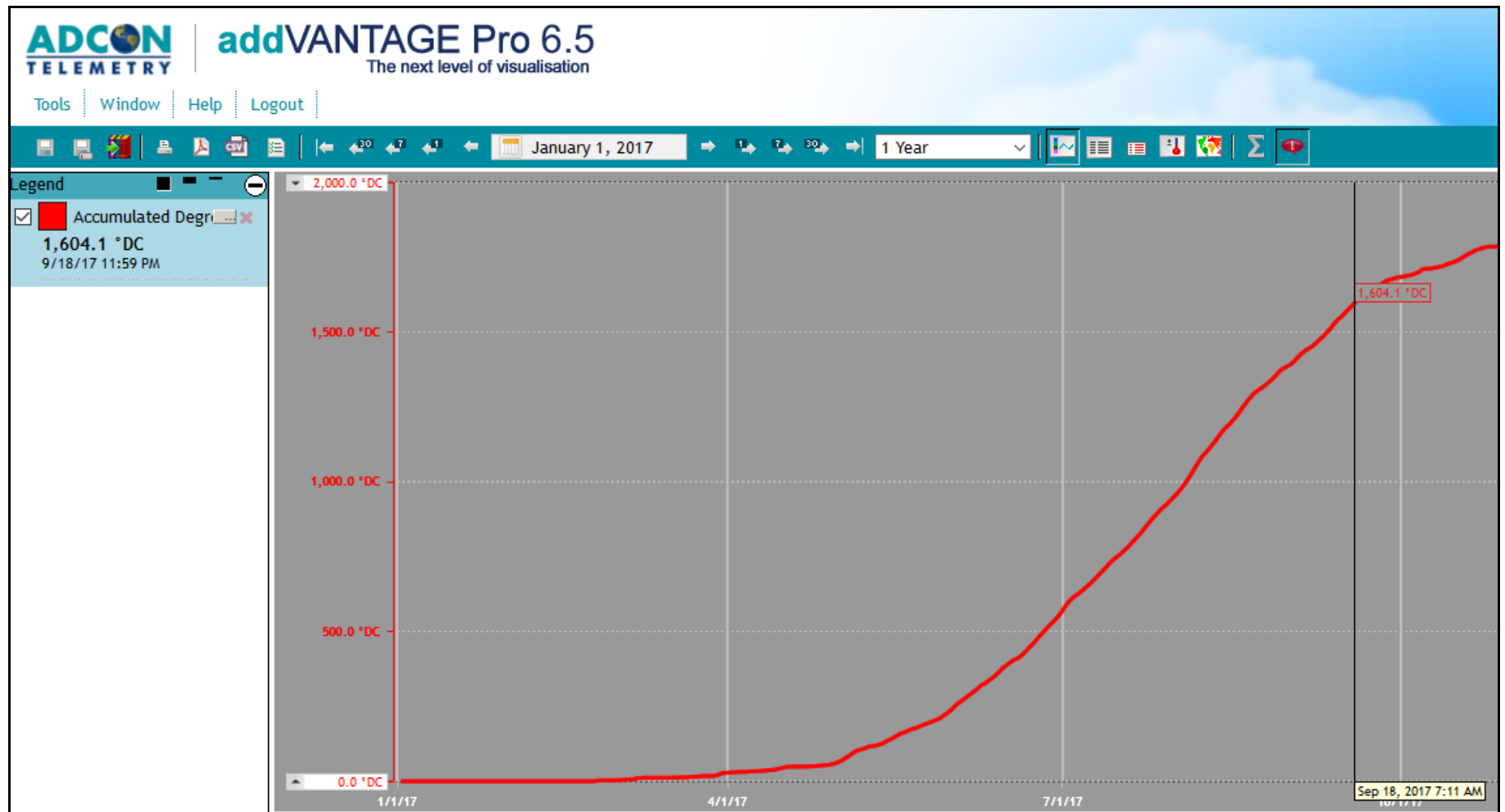
**WINEGROWING SEASON 2017,
as it was "seen" by the
BEIA-ADCON AGRO MONITORING
SYSTEM**

The Beia–Adcon agro monitoring station can be seen in the photo here-right. On the mast, from top to down: Remote telemetry unit (RTU) A753 GPRS, rain gauge, wind speed sensor, the solar panel powering both the RTU and all sensors, total solar radiation sensor (pyranometer), combined air relative humidity and air temperature sensor, leaf wetness sensor.

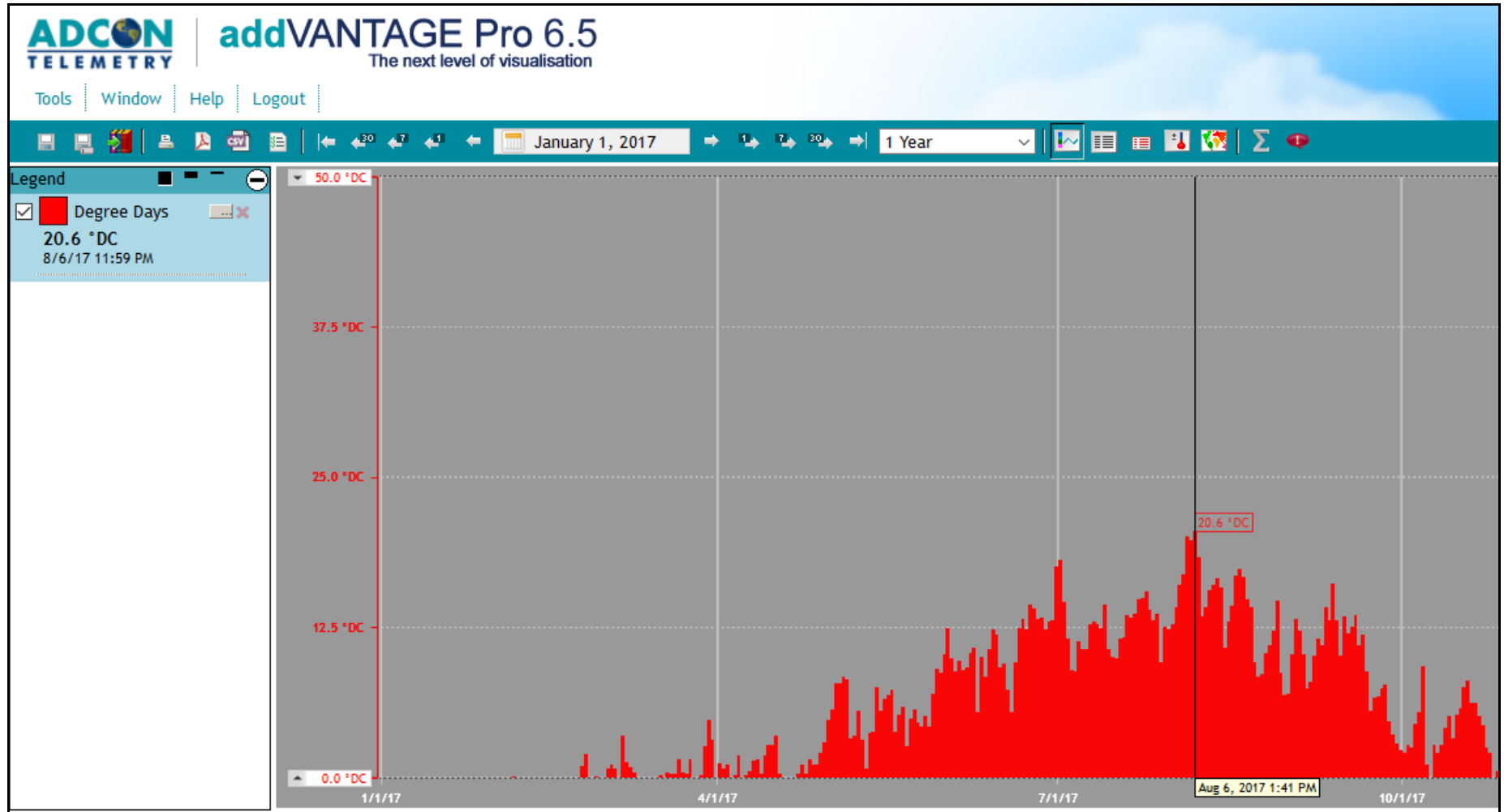


What follows is a survey of the winegrowing season 2017, as it was "seen" by the Adcon addVANTAGE Pro 6.5 server, based on the data received from an Adcon Telemetry station similar to the one featured above. Station has functioned in the middle of the irrigated Cabernet Sauvignon vine belonging to **Crama Histria**, the winegrower and winemaker at Cogealac – Romania (Constantza county). Station installation, data transmission to the server, 24/24 server functioning and permanent technical assistance were provided by **Beia Consult International Bucharest**, the authorized distributor in Romania for all **Adcon Telemetry** hard- and software products.

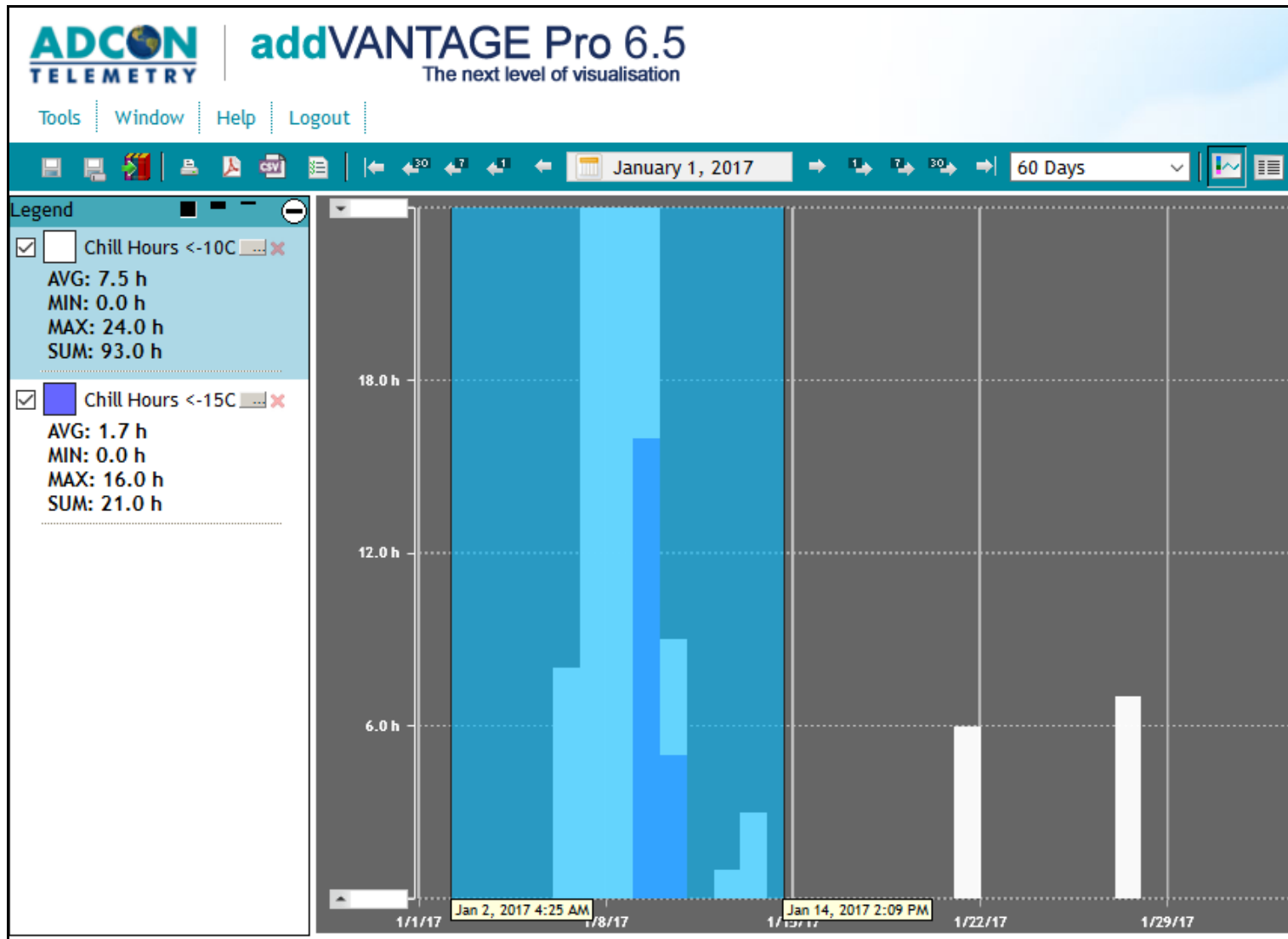
Learn more about Beia-Adcon telemetry applications at www.beia-telemetrie.ro, more about Adcon Telemetry products at www.adcon.com and more about Crama Histria at www.cramahistria.ro.



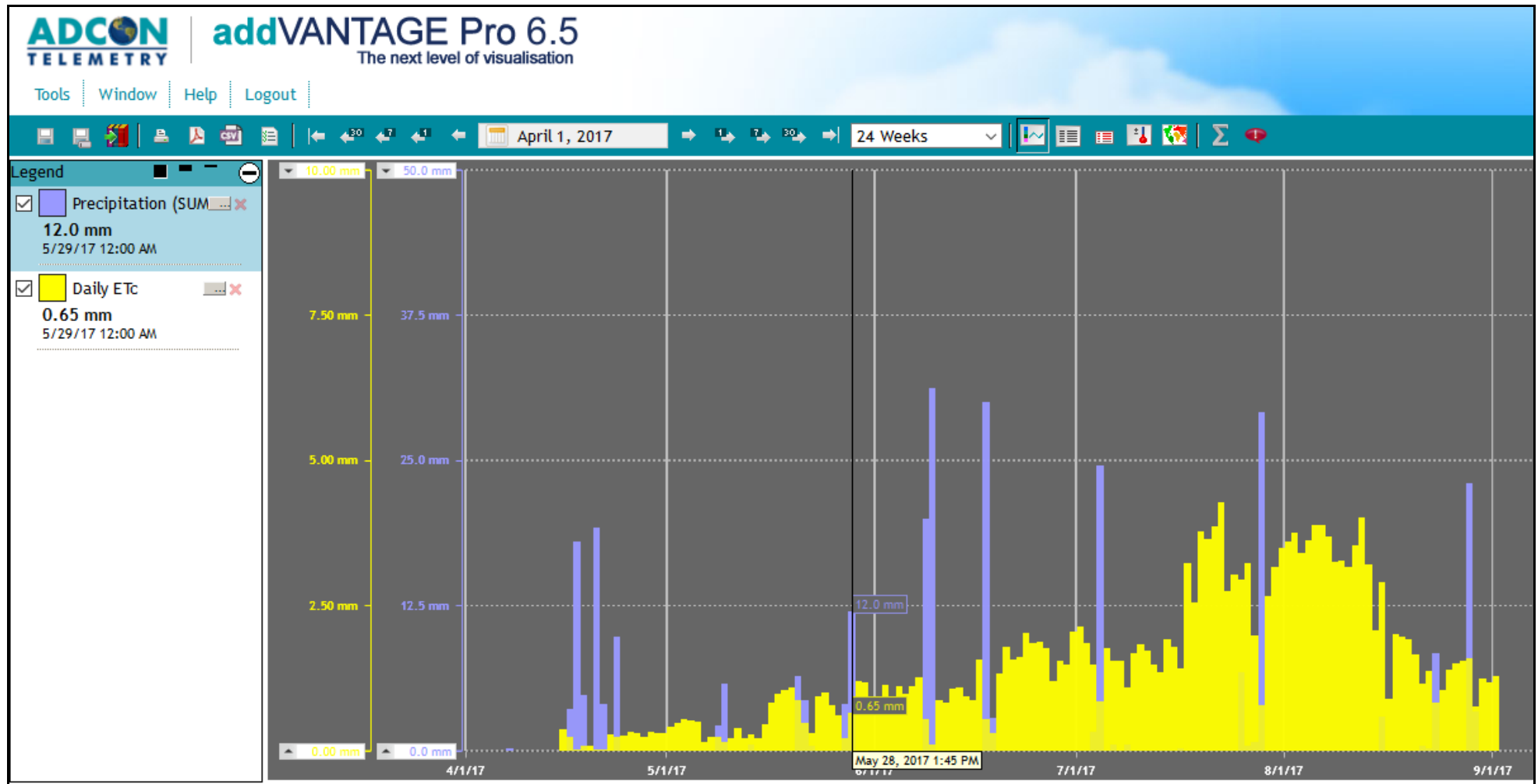
The **accumulated quantity of heat** received by the culture was measured by the system in accumulated degree-days Celsius (DC), taking into calculation what has exceeded + 10° C and a value of + 35° C only for temperatures exceeding this upper limit. Accumulated 1,600 DC, considered as necessary for Cabernet Sauvignon full maturation, were reached at 18.09.2017. This is 11 days later than during the previous season 2016, mainly due to a very cold April.



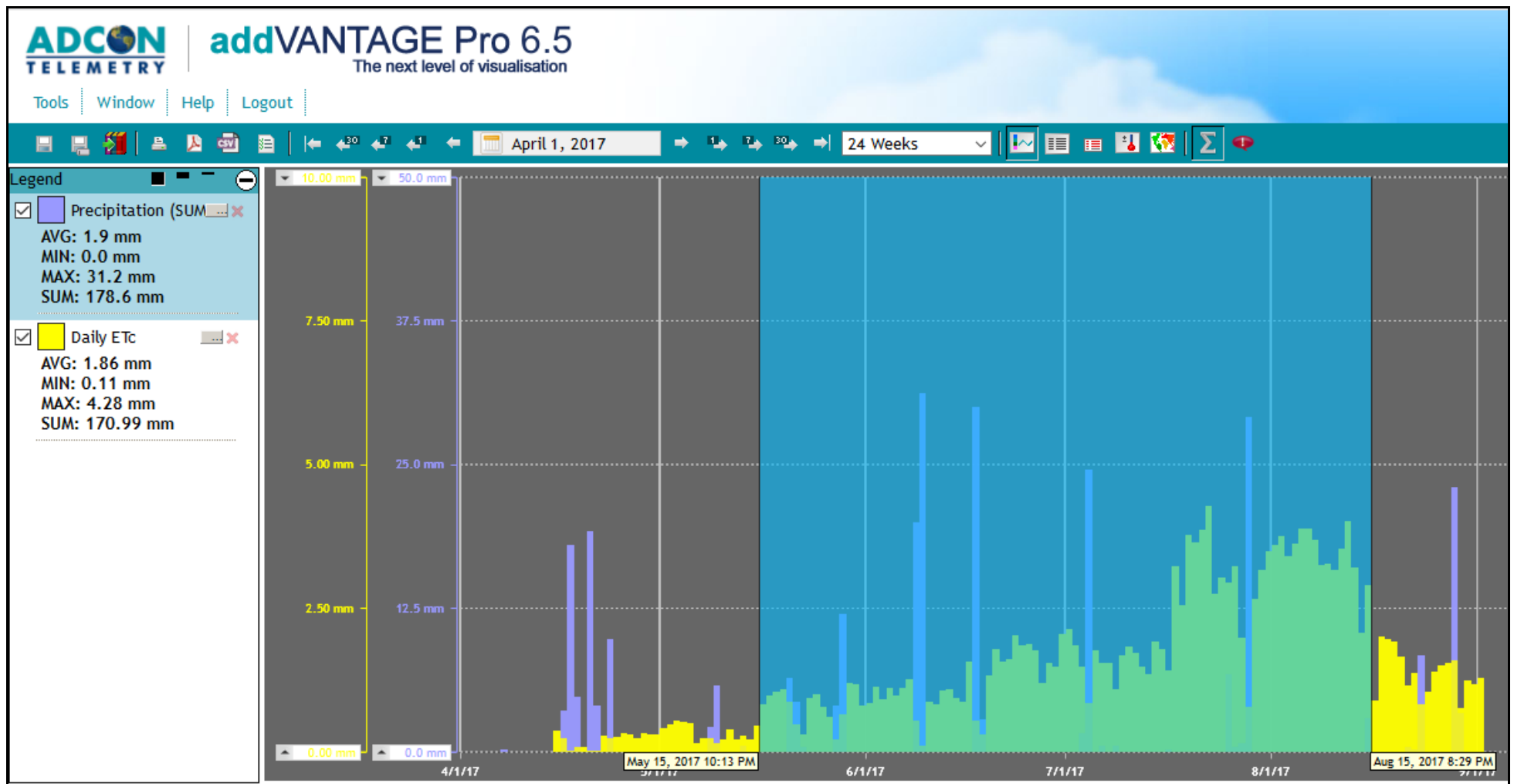
The **quantity of heat received daily by the culture** was also permanently registered. The hottest day was 06.08.2017, when 20.6 DC were registered. This trend also shows that weather during the first 2 decades of April was unusually cold.











Frost danger was mainly present during the first half of January. The culture was then uninterruptedly exposed for 93 hours to temperatures under -10°C and 21 hours to temperatures under -15°C .



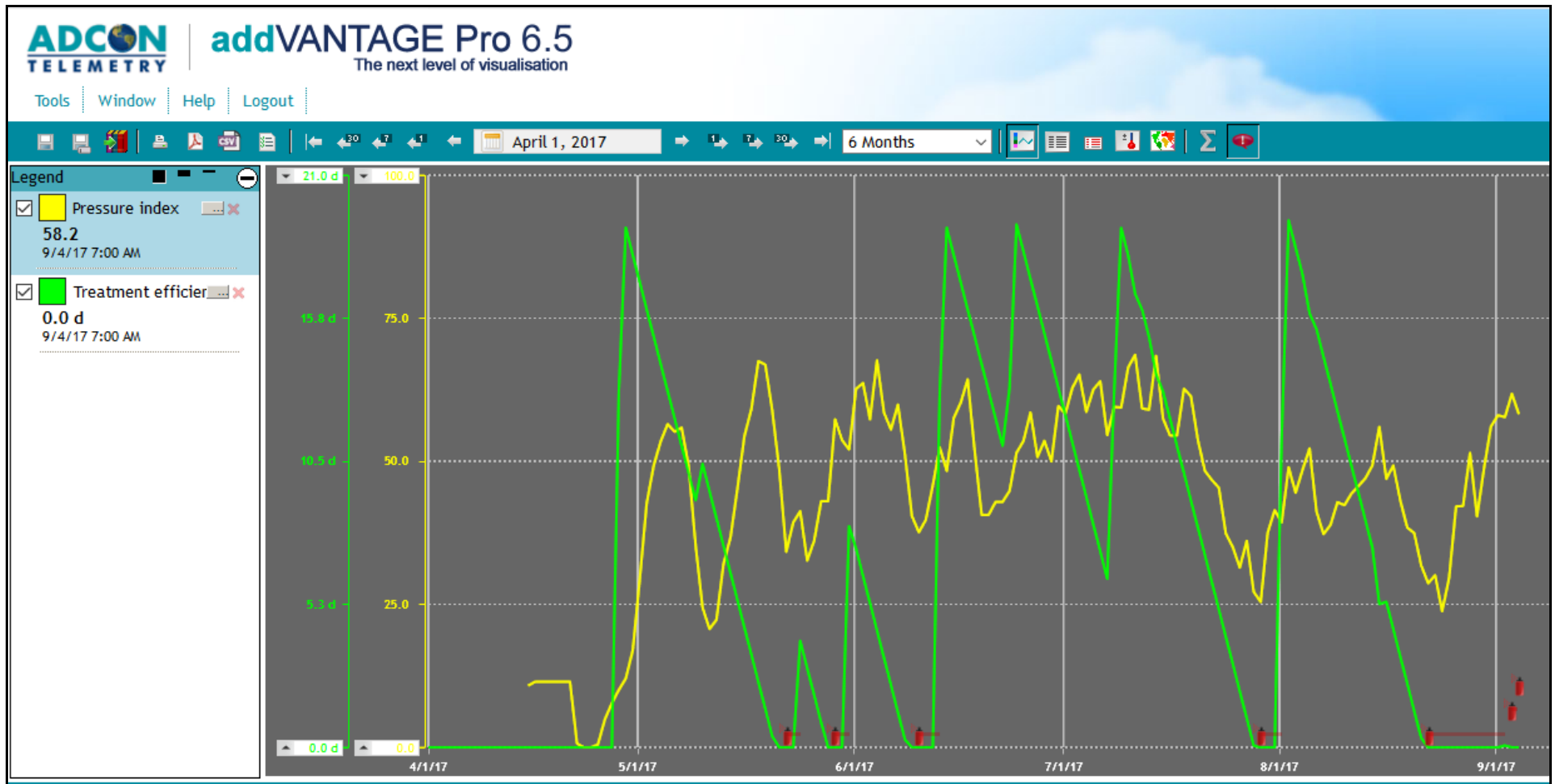
The quantity of precipitations fallen each day is represented in the above diagram by a blue vertical bar, while the culture's daily water need (Specific Evapotranspiration ETc) is represented by an yellow bar. During the whole 28.05.2017 day, for instance, total precipitations have amounted to 12.0 mm, while the culture's water need was of 0.65 mm only.



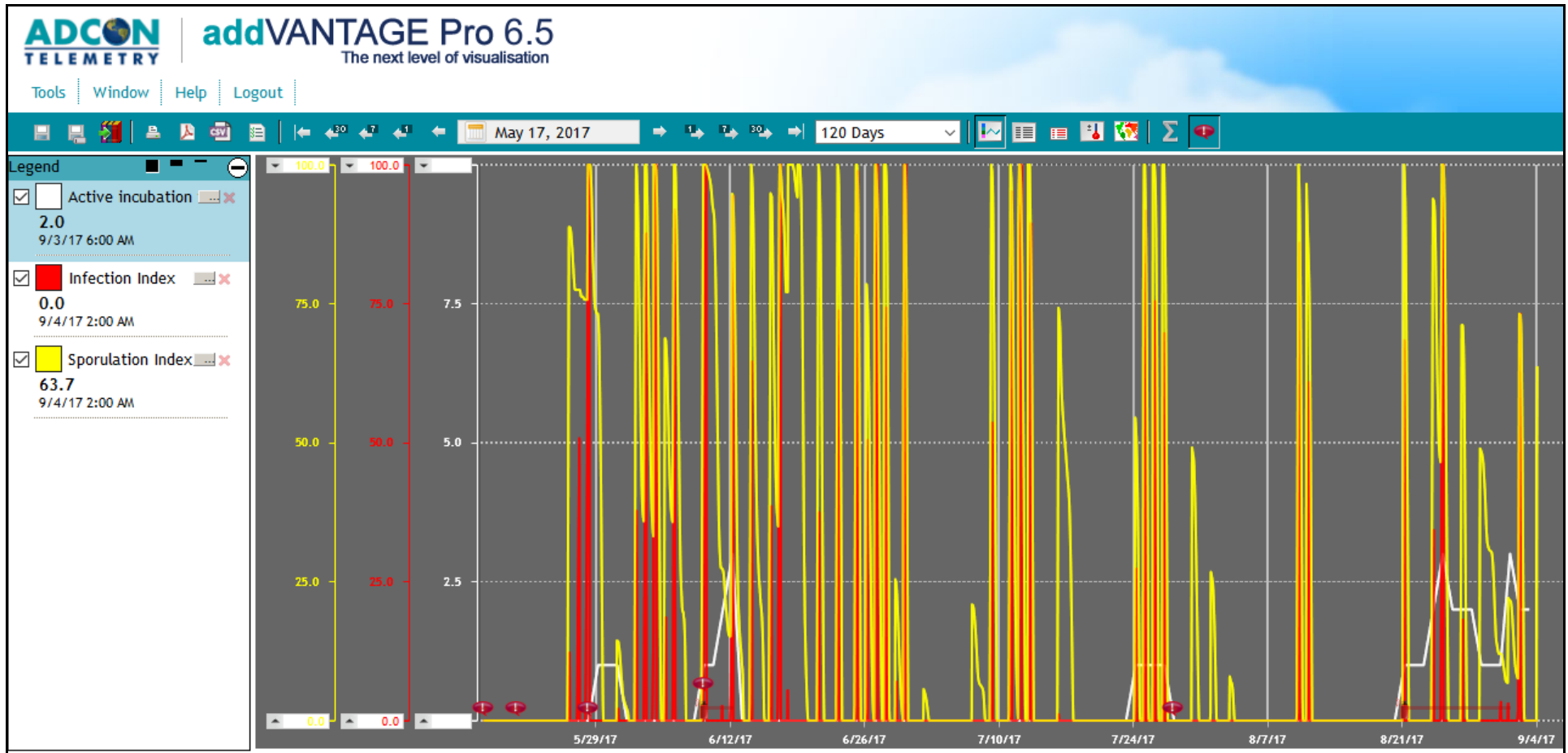
Total precipitations during 3 very important months for crop development (15.05 – 15.08.2017) have amounted to 178.6 mm, while the **total water need** during same time was of 170.99 mm. This has obviously represented a very good balance, allowing important savings in irrigation water.

General	Crop	Treatments	Irrigation	Action	Security
BBCH	Name	Date			
00	Winter Dormancy	Jan 1, 2017			
07	Bud Burst	Apr 14, 2017			
13	3 Leaves Unfolded	Apr 29, 2017			
55	Inflorescence Swelling	May 26, 2017			
65	Full Flowering	Jun 15, 2017			
69	End of Flowering	Jun 26, 2017			
81	Beginning of Ripening	Aug 4, 2017			
89	Berries Ripe for Harvest	Sep 15, 2017			

Based on data gathered during previous years, a preliminary estimation of the time of occurrence of various culture development phases was made. Actual weather evolution during 2017 has however led to some adjustments, so that the final **culture development calendar** that the system has worked with was the one featured in the table above.



Just as during previous seasons, **Powdery Mildew** has represented during 2017 the most serious threat to the crop health (see above, colored in yellow, the evolution of the pressure index of this disease). The grower has answered to this threat with treatments that were recommended by the Beia-Adcon system (indicated on the green diagram above by the vertical fronts preceded by small red pumps), but also with treatments appreciated as necessary by himself). He has this way reduced to a minimum the losses that Powdery Mildew has produced in his crop.

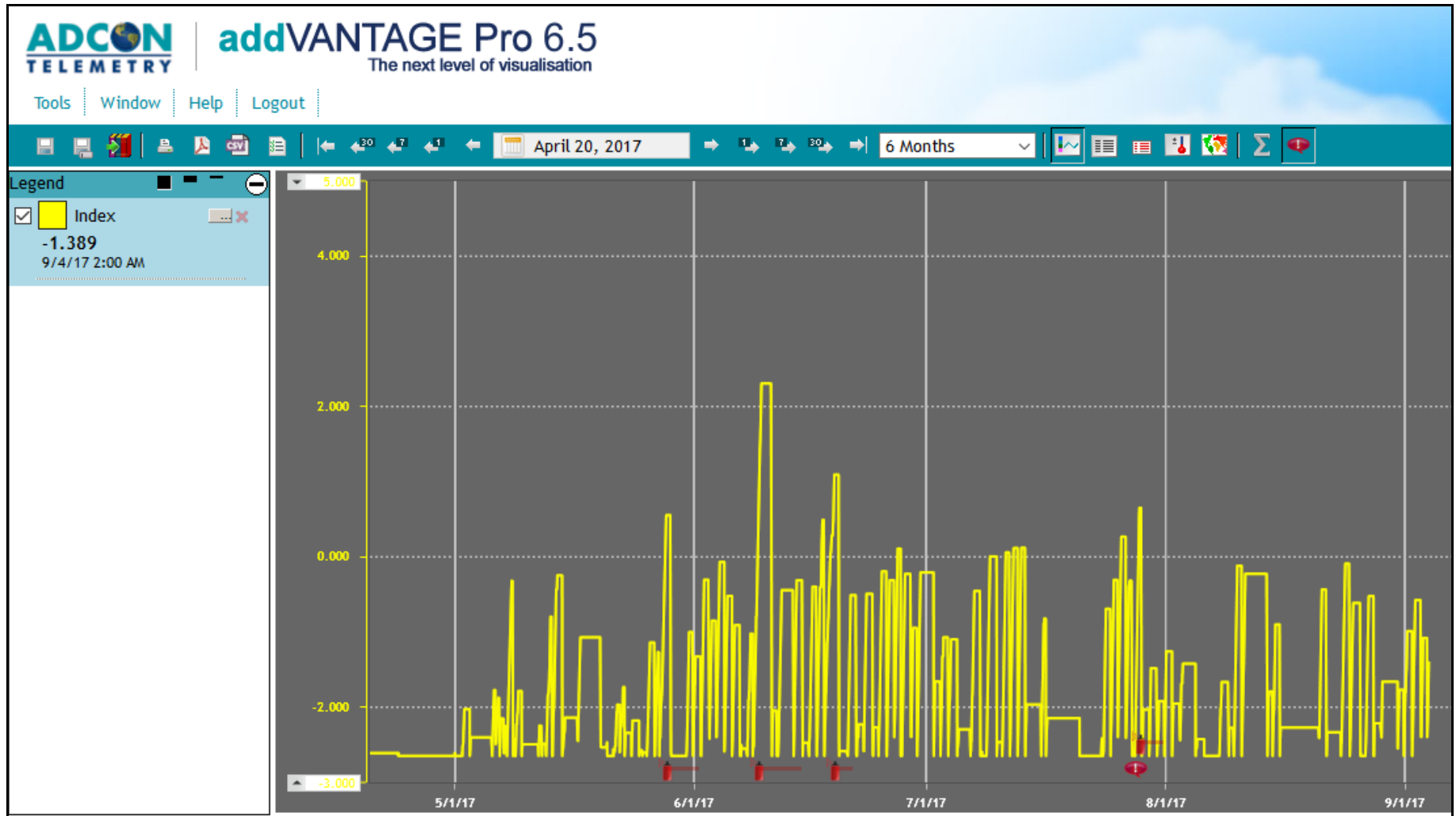


The **Downy Mildew** threat was also strictly followed through 3 distinct indexes: active incubation, infection and sporulation index. Evolution diagrams of these indexes (complicated enough and hard to understand, see above) were for the grower merely informative. It was the Beia-Adcon system that has continuously followed these evolutions using the Kast model and has issued the treatment recommendations contained in the event list on next page.

#	Begin Date	Duration	Source	Area	Comments
<input checked="" type="checkbox"/>	Aug 21, 2017 3:00:00 AM	11d 6h	Mana (Downy Mildew - Kast...	Viticola SA Cogealac	Treatment recommended
<input checked="" type="checkbox"/>	Jul 28, 2017 2:15:00 AM		Mana (Downy Mildew - Kast...	Viticola SA Cogealac	Treatment from Jul 24, 2017 8:28:00 AM was washed out by rain!
<input checked="" type="checkbox"/>	Jun 9, 2017 5:00:00 AM	3d 4h	Mana (Downy Mildew - Kast...	Viticola SA Cogealac	Treatment recommended
<input checked="" type="checkbox"/>	Jun 9, 2017 5:00:00 AM		Mana (Downy Mildew - Kast...	Viticola SA Cogealac	Treatment recommended for sensitive cultivars
<input checked="" type="checkbox"/>	May 28, 2017 5:00:00 AM		Mana (Downy Mildew - Kast...	Viticola SA Cogealac	Treatment from May 23, 2017 10:28:00 AM was washed out by rain!
<input checked="" type="checkbox"/>	May 20, 2017 4:45:00 PM		Mana (Downy Mildew - Kast...	Viticola SA Cogealac	Treatment from May 9, 2017 8:25:00 AM was washed out by rain!
<input checked="" type="checkbox"/>	May 17, 2017 6:00:00 AM		Mana (Downy Mildew - Kast...	Viticola SA Cogealac	Oospores germination possible

For each of the monitored diseases (Powdery Mildew, Downy Mildew and Grape Bunch Rot) as well as for other monitored parameters, the system has continuously kept update **event lists** like the one above, related to grape Downy Mildew evolutions featured on the previous page. The system has issued for Downy Mildew two treatment recommendations dated 09.06 and 21.08.2017. For such important and urgent events, the system has also sent **e-mail alerts** towards e-mail addresses in a predefined list.

In brief, treatment recommendations against Powdery Mildew and Bunch Rot have helped the grower to save his crop. At the same time, the fact that treatment recommendations against Downy Mildew were few has allowed him to save pesticides and to keep at the minimum necessary the exposition to chemicals of leaves, fruits and soil. Recommendations issued by the Beia-Adcon system have this way helped the grower at Crama Histria to sustainable utilize pesticides, as strongly recommended by the EU 2009/128/EC Directive.



Grape Bunch Rot threat was at Crama Histria during summer 2017 higher than in previous years. The pressure index of this disease has exceeded the alert limit set by Broome at + 0.50 at four distinct moments along the season, when treatment recommendations were issued.

Conclusion and Invitation

Only very few was shown above of what an Beia-Adcon addVANTAGE Pro server can offer when provided with accurate data by an Beia-Adcon agro station installed in a wine-growing area.

Besides Wine and Table Grapes, disease management can be as well performed for Apple, Pear, Plum, Potato, Sunflower, Wheat, Oilseed and other such crops.

And besides Degree-days, Evapotranspiration and Chill/Heat hours, Beia-Adcon agro-meteo calculation extensions also include Dew point, Wet bulb temperature, Sunshine duration, Soil moisture, Formula calculations and many others.

These are only a few of the many reasons to again kindly invite our distinguished reader to learn more about Adcon Telemetry at www.adcon.com and more about Adcon applications in Romania at www.beia-telemetrie.ro

November 2017

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