

Mid-term Review of the 2013-2014 Viticultural Year Harvest Potential Forecast for 2014

Information Bulletin 10-2014

Associação para o Desenvolvimento da Viticultura Duriense • "Cluster" dos Vinhos da Região do Douro

July 2014

Evolution of the weather conditions (November to June)

In the beginning of the wine year (November and December) the average temperatures were below normal 31-60 in about 2°C in all sub-regions, although there was a significant temperature increase in the month of January. In the other months, excluding June, temperatures were very close to normal (Fig. 1).

Regarding precipitation, in the winter period, stands out the low amount of rain recorded in the month of November, and the higher rainfall than normal 31-60 in the months of January and February. Throughout the spring stand out, in general, the precipitation values below normal 31-60, except for the month of April.

Some aspects of the vegetative cycle

The observations made on the network of reference plots located at ADVID's Associates indicate that sprouting occurred, on average, during the second week of March. Until the end of May there was an anticipation of the cycle in about two weeks, when compared to an average year, essentially as the result of the evolution of temperatures (Fig. 2). However, climate developments in June brought the phenology back to normal values for the period (Fig. 3).

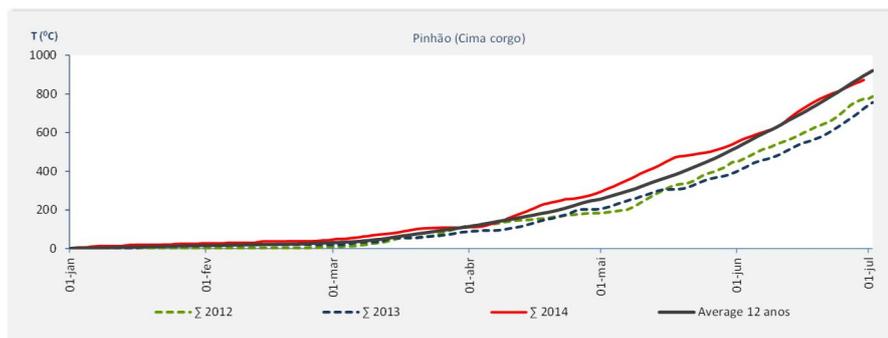
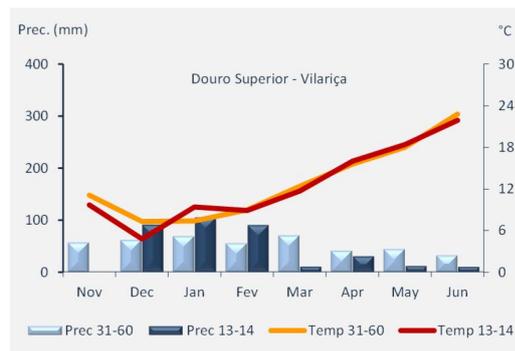
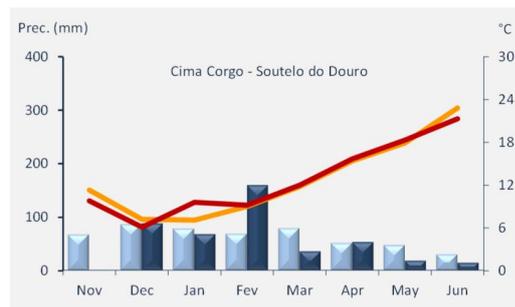
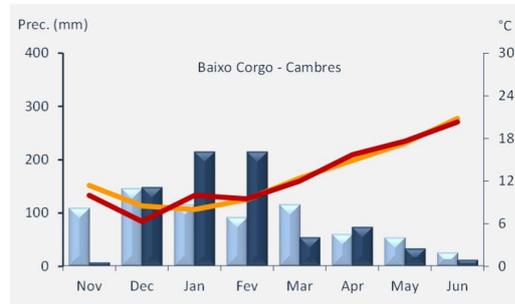


Fig. 2—Sum of the active temperatures (above 10°C) calculated based on data from the automatic weather station

Flowering was affected by the irregularity of temperatures recorded during the month of May and early June - so there were two flowering periods. At lower altitudes, and for early grape varieties, this event occurred between May 2nd and 16th, with average temperatures of 20oC. In the higher altitudes, and for late grape varieties, flowering occurred between late May and early June. Between those two periods, from 20 to 27 May, temperatures were unusually low (minimum of 5oC) contributing towards the occurrence of millerandage and / or coulure.

The high precipitation in winter and during part of spring induced strong vegetative growth, making the management of interventions more complicated, and leading to some phytosanitary issues.



PHENOLOGICAL STAGES 2014

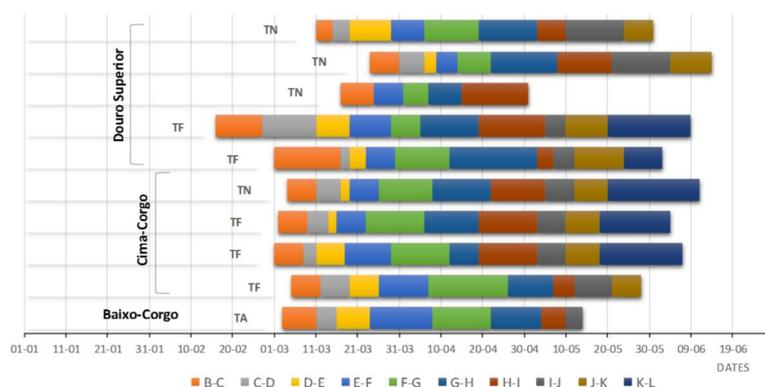


Fig. 3— Evolution of phenology in several grape varieties in the three sub-regions in 2014 (network of reference plots)

Fig. 1— Climate evolution recorded in the ADVID automatic weather stations from November 2013 to June 2014

Phytopsanitary aspects with possible impacts on production forecasts

Mildew

The high precipitation in winter (December to February) and early spring provided good conditions for the development of this disease, mainly in the sub-region of the Lower Corgo. The first symptoms appeared quite early, in mid-April, following the first infections on April 5th, in vineyards located in the lower altitudes and with vegetation higher than 10 cm. Thereafter, the occurrence of various lightning events provided the conditions for developing secondary infections in these locations. There was even a high intensity attack in this sub-region .

Powdery mildew

The high soil moisture, which gave rise to strong vegetative growth, combined with high relative humidity, both recorded during the month of June, provided ideal conditions for the development of powdery mildew, with greater intensity from the last week of June.

Grape-berry moth

In general, the levels of attack recorded in the 1st generation did not exceed the Economic Level of Attack of 200 nests / clusters, however, it was seen that the intensity of the attack was higher than what has been normally recorded in the Region.

Forecasting the harvesting potential - Pollen Method

Since 1992, ADVID has been issuing a **forecast on the potential harvest for the Demarcated Douro Region**, calculated based on the Pollen Method, developed by the Faculty of Sciences of the University of Porto (FCUP). This model consists in capturing and analysing the amount of pollen emitted by vine plants in three representative sites of the three sub-regions of the DDR, integrating climatic and phenological data. The prediction of the potential harvest is a tool to support the technical and economic activity of the Region. Monitoring the pollen activity has been carried out both by ADVID, through the placement and collection of filters twice a week, and by the FCUP by counting the pollen grains in the filters and then preparing the production forecast with the financial support of the Port Wine Institute.

Results from the pollen emissions

The capture of pollen in 2014 was carried out in collection stations at Peso da Régua and Valença do Douro, between April 29 and June 13, and at the Vila Nova de Foz Côa station between May 6 and June 13. Figure 4 shows some graphs of the flowering dynamics for these three sites (A– Peso da Régua, B– Valença do Douro and C– Vila Nova de Foz Côa).

Forecast results

The forecast range for 2014 is situated between **221 and 235 thousand barrels of grape must** (Table 1).

Table 1 - Forecast interval for the potential harvest of grape must in 2014 in the DDR.

FORECAST OF THE HARVESTING POTENTIAL IN THE DDR Estimated on June 30th, 2014		
Unit	Minimum	Maximum
hL x 1 000	1.214	1.294
Barrels x 1 000	221	235

As in 2013, the pollen values for the Vila Nova de Foz Côa station were not considered in the prediction model, because its results were not clear. However, it is not expected that this will influence the prediction, taking into account the specific weight of this sub region in the DDR and the high correlation in the production of the sub regions.

This forecast **did not take into account the post-floral factors that may affect the potential harvesting estimated during the flowering period**. Among these, we highlight the incidence of diseases and / or pests and industrial processing performance, very much related to the water condition of the vine plants, **which may, at a later stage, affect the amounts presented**.

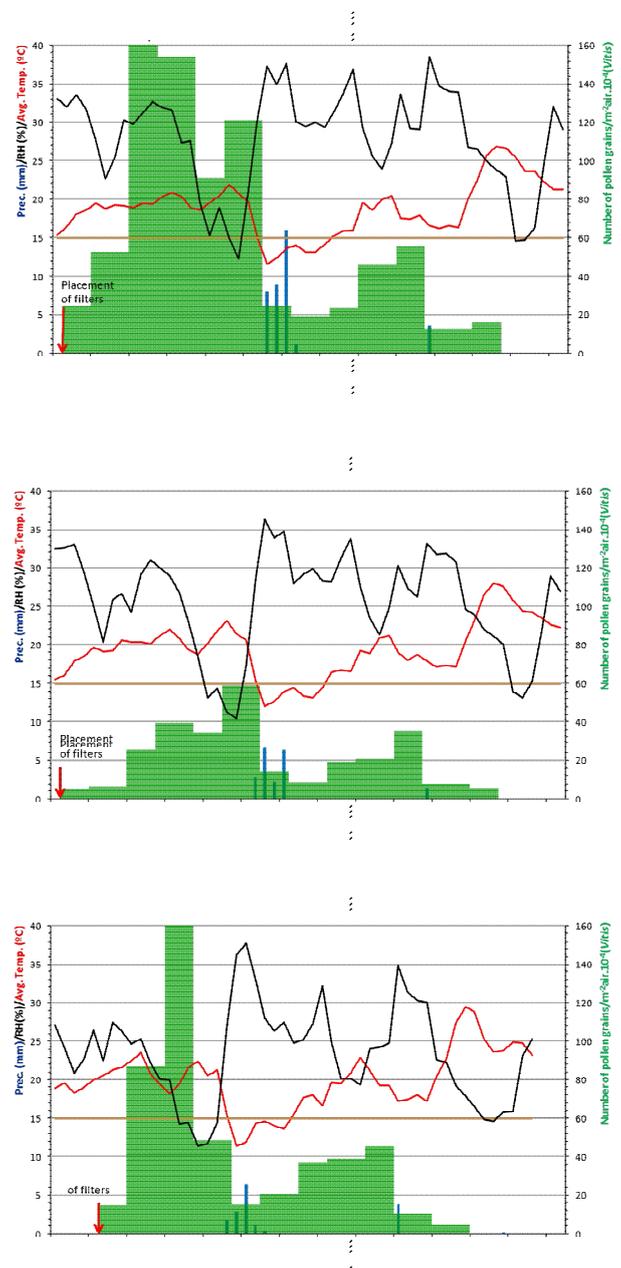


Fig. 4- Pollen emissions, and weather conditions recorded for: A– Peso da Régua, B- Valença do Douro and C- Vila Nova de Foz Côa. The pollen flow in the atmosphere is expressed in grains of pollen.m⁻²

For further information, please refer to www.advid.pt for the papers presented at the workshop "Production Forecast - Viticultural Year 2014".