Mid-term Review of the 2012-2013 Viticultural Year
Harvest Potential Forecast for 2013

Meteorological trends (November to June)

The mean air temperature curve was below the 31-60 series average for all months except December and January. In terms of precipitation, we highlight the months of January and March which were above the average of the 31-60 series (Fig.1). January in particular stood out because of the continuous rainfall (9th to 12th and 16th to 27th), recording a total of 165.8 mm in Baixo Corgo, 115.0 mm in Cima Corgo and 82.0 mm in Douro Superior. This occurrence led to the meteorological drought situation declared by the Instituto Português do Mar e da Atmosfera (Portuguese Sea and Atmosphere Institute) of the Sea and the Atmosphere coming to an end at the end of January.

Heavy rainfall was recorded in early spring. March registered twice as much precipitation as the average of the 31-60 series in all sub-regions. This fact means that this month was the second rainiest in the last 50 years and the seventh rainiest since 1931, something which has taken its toll on the normal performance of work during this period. The large temperature fluctuations which occurred during the months of April, May and June have influenced the normal development of the vine, which has resulted in a significant delay in the vegetative cycle. The sum of active temperatures in 2013 is noticeably lower than it has been in the last 11 years, and particularly lower than 2012 (Fig. 2).

Vegetative cycle

In a general way, the climate trend strongly influenced the development of the vegetative cycle of the vine, as reflected in the delay of some of its phenological stages. Despite the low temperatures recorded in the month of March, budburst is the only the phenological stage which has taken place within the expected dates during March in the last decade. Subsequent to budburst, there was a delay which intensified over the average period of approximately two weeks. The period of inflorescence occurred in an irregular manner and was associated with a high degree of climatic instability which resulted in a significant lowering of temperatures after each occurrence of precipitation. This precipitation resulted in significant growth of vegetation (Photo 3) which may have contributed to poor berry set observed in some vineyards, primarily because of millerandage (Photo 4) in some of the more sensitive varieties such as the Tinta Roriz, Touriga Nacional, Tinta Barroca and Malvasia Fina. The climatic conditions recorded during June served to prolong this delay until the end of the month.
Phytosanitary trends

The meteorological conditions in winter provided good preservation and viability for oospores, indicating a strong possibility for the development of downy mildew in 2013. The climate trends confirmed subsequently, however, did not allow the disease to assume proportions of any significance. As far as oidium is concerned, the high moisture content of the soil, combined with the temperatures during the month of June, contributed to strong vegetative growth of the vine which, taken in conjunction with days of overcast skies, will have created favorable conditions for the development of the fungus. The high potential for damage from powdery mildew in 2013 led to a protection strategy which went beyond the usual crop intervention, involving fungicidal treatments which in some cases resulted in curative control before bunch set. Despite the intensity of symptoms in 2012, Black Rot was not very pronounced in 2013.

The first grape berry moth adults were observed on 21 March, the mean date of their emergence. The first flight was very mild, having registered in general a much reduced attack on bunches. The second flight also began within the anticipated period (beginning of June). Unlike the first flight, the second was quite intense, translating into a significant presence of eggs and perforations on bunches. The high temperatures have, however, had the positive effect of dehydrating many eggs.

As regards, green leafhopper, the flight of first-generation adults throughout the month of June was intense (weekly counts in excess of 700), resulting in a significant presence of second-generation nymphs on the leaves. Generally speaking, however, the high rate of vegetative growth in the vine has diminished the symptoms of this pest and it has not done much damage to date.

The American grapevine leafhopper vector, Scaphoideus titanus, although present in fewer numbers than in 2012, has been observed with greater intensity in the Rodo and Santa Marta de Penaguião valleys. The first nymphs were observed at the end of May at lower elevations, and at the beginning of June at higher elevations, with the first adults being observed in early July.

Yield Forecast- Pollen Method

Since 1992, ADVID has issued a harvest potential forecast for the Demarcated Douro Region (RDD), calculated using the Pollen Method developed by the Faculty of Sciences of the University of Porto (FCUP). This model involves the capture and analysis of the amount of pollen released by grapevines in three locations representative of the three sub-regions of the RDD, thus integrating climatic and phenological data. The harvest potential forecast is a support tool for technical and economic activity within the Region. ADVID’s pollen monitoring activity has to be performed through the placement and collection of filters at biweekly intervals by FCUP, and by counting the pollen grains in the filters prior to processing the data. This activity receives financial support from the IVDP.

Pollen emission results

Pollen capture in 2013 occurred at capture posts located in Peso da Régua and Valença do Douro between 4 May and 28 June and a capture post at Vila Nova de Foz Côa between 21 May and 25 June. Figure 5 is a graphic representation of the dynamics of inflorescence at the three sites (A- Peso da Régua, B– Valença do Douro and C– Vila Nova de Foz Côa).

Forecast results

The forecast for 2013 ranges between 233,000 and 253,000 barrels of must (Table 1).

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<thead>
<tr>
<th>Unit</th>
<th>Minimum</th>
<th>Maximum</th>
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<tr>
<td>hl x 1,000</td>
<td>1.281</td>
<td>1.393</td>
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<tr>
<td>Barrels x 1,000</td>
<td>233</td>
<td>253</td>
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Table 1 - Range of forecast harvest potential in 2013 in the RDD

This year there is a change in the assumptions used in previous years, because the pollen counts from the Foz Côa station were not considered in the predictive model because the results recorded were not clear. This is not expected to influence the forecast, however, given the specific weighting of this sub-region on the total production of the RDD and the high degree of correlation in production between sub-regions.

This forecast does not take into account post-inflorescence factors which can change the harvest potential estimated at inflorescence. These include the incidence of diseases and/or pests and industrial production output closely related to the hydric status of the vine, which may at a later stage, affect the figures forecast.

For more information, please see www.advid.pt for the published workshop material “Production Forecast - 2013 Viticultural Year”