

  
**Expert Group on VINE PHYSIOLOGY**  
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### **Scope of this group**

This group is concerned with the physiology and biochemistry of grapevines as related to vine productivity and fruit/wine quality. In addition to questions of primary interest to students of vine growing, European members of this group are involved in parallel research activities which are funded by EU to provide a technical underpinning to decisions regarding acceptable methods of culture (limits on irrigation, cropping level, methods of training, etc.), factors which influence terroir, and models which predict the productivity potential of different climates (zonation, see notes below). In that all of these are meant to define and regulate acceptable viticultural methodology in a manner which may be inconsistent with American practice or viewpoint, the recommendations of this committees may become controversial.

At this meeting the committee heard reports and discussed a) proper methods of sampling grapevines for mineral element analysis, b) vineyard irrigation in relation to wine quality, 3) factors associated with terroirs and production zones, and 4) a new method to predict regional crop size. The irrigation and terroir discussions probably will have no direct affect on the US industry, but may be used to justify future EU actions. The foliar diagnostic discussion will be of interest only to viticulturists, but the crop prediction method might be of considerable interest to those who would benefit from accurate estimates of current season regional crop size available shortly after grape bloom. Highlights of the reports to and deliberations of the committee follow, attachments contain submitted papers:

### **Foliar Diagnosis**

Attached is a "summary" of the results of a questionnaire on how different countries sample grapevines in order to assess their mineral nutrient status. It will be of interest only to viticulturists and is not likely to create any problems. However, because it is very inconstant with American practice, its recommendations are not likely to be, implemented here.

### **Vineyard Irrigation**

OIV is on record as believing irrigation increases ("forces") yield and is inconsistent with quality wine production. Presentations were made by representatives from Australia, Israel and Spain (Rioja) concerning this subject. The first two indicated that irrigation is a management tool that can lead to either increases or decreases in quantity and quality. They aver that quality and quantity are not irrevocably linked. Optimal irrigation leads to moderate production of high quality fruit.

The Spanish research report showed that in Rioja "moderate" additions of water slightly increased yield and dramatically increased quality. Quality was improved because small additions of water allowed leaf photosynthesis to be maintained through the whole season. The French were skeptical and inferred that implementation would only lead to a larger wine lake. The Spanish, on the other hand, would like to be able to increase their wine quality so as to justify future production (see discussion of Délimitation des terroirs below).

## **Délimitation des terroirs**

M. Fanet from the Institute des Appellations d'Origine (IAO) made a presentation which summarized the present French position on terroirs (defined by the combined effects of environment - site and climate plus the effects of local history and culture on grape and wine quality). There followed two separate, but linked, presentations (by Calo of Italy and Carbonneau of France) concerning a 6 year study funded by the EU. In this study, temperature and rainfall data from very many wine growing regions of Europe were used to predict potential yield and especially sugar level obtained in the regions. The study was successful in achieving correlation coefficients of about 0.5 and used the theoretical expected sugar levels to divide Europe into different production zones. This study will likely be used to determine which areas can reliably achieve sufficient grape sugar to reach the OIV definition of wine. Presenters were apologetic about the potential use for data. There seemed to be a feeling that it would be used to justify future EU decisions about where wine growing will be supported. A book has been printed which I will send for. The process, as presented, seemed overly complex, and probably no more accurate than simpler models are likely to be.

The president of the group announced that a request had been received from unnamed sources to set up a sub-committee of experts to study the questions of zones and terroirs. Observing IAO representatives appeared anxious to support this move. The request was tabled until a better definition of goals for the committee could be developed. Although this seems to be primarily a concern of European producers, US should be aware of actions which might further limit or reinforce the definition of terroirs.

## **Early crop prediction**

As the grape buyers and wine makers are well aware, getting timely, accurate information about the size of the upcoming grape crop can be difficult. For several years EU has been investigating the possibility of monitoring the amount of grape pollen in the air over a production region to estimate the size of the season's crop. The system seems to work well. A collecting filter is set up on a mast in the region. An instrument to measure the volume of air passing through the filter is also needed. Filters are changed at intervals during bloom. The pollen is then washed from the filter, quantified and the pollen/cubic meter of air is used to predict grape yield. Training is required to distinguish grape pollen from that of other plants, and a few years data are required to derive the relationship between pollen and yield. CNR is offering training to people interested in implementing the system.

## **Proposed Resolution**

Attached is a proposed resolution which will be brought to the viticulture commission (VITI 3/95). It appears to endorse the concept that safety should be considered when designing vineyard equipment. I couldn't find anyone who would claim authorship or knowledge of the resolution, but it seems innocuous.