

OSCAR, a national observatory to support the deployment of new grapevine disease-resistant varieties in France

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New high quality/high resistance varieties have been registered in France and it is expected that this offer will greatly increase in the coming years. The cultivation of disease-resistant varieties makes it possible to reduce drastically the number of sprays used in viticulture. Their recent but increasing deployment raises several issues that need to be addressed. The first issue concerns the qualitative potential of the varieties and their marketing. The second issue, more collective, concerns the management of the durability of resistance. Several cases of erosion or resistance breakdown have indeed already been described in Europe (Delmotte et al. 2014; Delmas et al. 2016). The monitoring of the evolution pathogens populations targeted by the resistance is therefore required to maintain the long-term efficacy of grapevine resistance. The third issue is the design of cropping systems adapted to resistant varieties, i.e. that maintain production objectives, promote the durability of resistance while using as little as possible phytosanitary products. To meet these challenges, INRA have set up the National Observatory for the Deployment of Resistant Cultivars (OSCAR's Website: <http://observatoire-cepages-resistants.fr>). OSCAR is a participative network based on the plots in production situations planted by growers. The participative dimension of the network promotes the sharing of experiences on the agronomic behavior, the potential for mechanization, the ease of driving and the quality of wines. The observatory also allows monitoring the emergence of new diseases or of virulent strains. Powdery and downy mildew (targeted by resistance) isolates are collected and tested in laboratory conditions to follow the evolution of population aggressiveness. Data from OSCAR will feed mathematical models to understand how the epidemiological dynamics of erosion of resistance are affected by deployment strategies and landscapes features.

Delmas CE et al. 2016. *Evolutionary Applications*, 9, 709-725.

Delmotte F et al. 2014. *Infection, Genetics and Evolution*, 27, 500–508.

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