

Making the most efficient use of pesticide application in vineyards – Experiences from Europe

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ABSTRACT

In Europe it is estimated a viticulture surface of approximately 3 millions hectares and a number of sprayers used to apply pesticides in vineyards of more than 700000.

Most of spray application techniques currently used in vineyards are still not optimised and this imply negative effects in terms of efficacy, environmental pollution and operator safety. Several studies (Balsari *et al.* 2008, Cerruto 2007, Da Silva *et al.* 2001; Pergher *et al.* 1997) have estimated that the pesticide deposited on the target is not more than 55% of the volume sprayed and in several cases this value is only 20% of total amount applied. Main causes of these high pesticide losses are the bad sprayers performances and the not correct choice of the operating parameters.

To solve the first problem it is necessary to renew the sprayers (in several EU countries the average vineyard sprayers age is more than 15 years), to establish a mandatory certification of the performance of sprayers before they're put on the market, as intended in the proposal of amendment of EU Machinery Directive, and to periodically inspect the functionality of sprayers in use (see EU Directive on Thematic Strategy for the Sustainable Use of Pesticides).

More complex is the choice of the correct sprayer operating parameters, due also to the large number (more than 1000) of vineyard training systems in Europe.

Several research results are reported, aimed at providing indications concerning the correct choice of fan air volume, nozzles flow rate and sprayer forward speed.

It is also reported the advantage of leaf stripping technique in increasing the spray penetration into the canopy and in the bunches and the results obtained using a leaf-stripping machine able to apply pesticides at the same time.

Finally some examples of new sprayers are mentioned, enabling to improve in future also the traceability of wines.

References

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