

Book of Abstracts



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Evaluation of the efficacy of first fungicide application on the control of *Erysiphe necator* and the ascospores release on Douro Wine Region

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Abstract: Powdery mildew (*Erysiphe necator*) is the most harmful disease of grapevines in Douro region, inducing a decrease in yield, as well as on the quality of the wine.

An experiment was conducted in the Douro Wine Region (Portugal), in a field plot located at Cima Corgo, with the CV Tinta Roriz (Tempranillo), the second variety most used in Douro, and very sensitive to powdery mildew. The vines of the study were grown in two rows terraces. During the phenological stage dormant bud, on beginning of March, the ascospores release started to be monitored using glass microscope slides placed in three vines, one per plant. The slides were replaced always after the occurrence of some rain. The temperature data (°C), relative humidity (%) and rainfall (mm) during these periods were also recorded in order to verify the period of greatest ascospores release to do a better position of the first spraying.

The experimental design consisted in four treatments arranged in a randomized block design with four replicates; each plot had 14 vines (10 evaluated). The treatments consist in **T1** - (control) with any spray applied; **T2** - three fungicide sprays applied before blooming: the first spray was at two to three leaves unfolded, the second at inflorescence clearly visible and the third at inflorescence fully developed; **T3** - the fungicide spray started at inflorescence fully developed, which is the common practice in Douro, and the second spray was at pre-blooming and **T4** - the spraying started only at pre-blooming with a DMI. After blooming, all the treatments (T1, T2, T3 and T4), with exception of the control, were sprayed at the same time with the same product.

The severity of powdery mildew was assessed in grapes and leaves, based on the scale of OEPP (1981), in all plots in three different periods. The average weight of bunches (PM), the number of bunches per vine (NC) and the production per vine (kg / vine) was evaluated. Moreover, the pruning buds and the buds evolved were counted, and the pruning wood of each vine was weighed to compare the effect of vigor of plants on the intensity of powdery mildew.

The preliminary results reveal significant differences to the control, but no difference was observed between the treatments T2, T3 and T4. This shows that, nevertheless the event of ascospores release initiate early; the beginning of development of disease only starts close to blooming. It is necessary to develop further studies on the powdery mildew control strategies, and confirm the results here obtained in years with different climate conditions.

We can then say that the disease might be controlled as effectively with a smaller number of treatments, positioning the first time only in pre-flowering. The reduction on the number of treatments (even if only one) can contribute significantly to improving the environment, in particular, through the reduction of residues on grapes, with effective benefits to public-health, the reduction of soil compaction, and pollution of atmosphere, saving costs of the treatment itself (product, labor, machine application and fuel).

Key words: Douro Wine Region, fungicides, grapevine, powdery mildew