



Master's Thesis Title:

Evaluation of the impact of certain biodynamic practices on the physiology of the vine: partially replacing the copper usage with buckthorn against downy mildew and improving the fruit setting by using the preparations of silica and valerian

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Abstract (max 300 words):

<p>Topic position and objectives:</p> <p>The experiment aimed to reduce the dose of the copper while comparing the impacts of different doses of the buckthorn practices during the vegetative season on the kinetics of the ontogenesis of the downy mildew on Merlot and Cabernet Sauvignon. Observations of the pathogen were done and the intensity and frequency of contaminations were measured. Another experiment aimed to reduce the problem of coulure and millerandage for Merlot and Cabernet Sauvignon, while enhancing the phenolic qualities (tannin, anthocyanin) by comparing different timings and doses of the preparations of 501 and 507. Morphological and chemical parameters were measured just before the harvest.</p> <p>Methods:</p> <ul style="list-style-type: none">➤ Tisane decoction and infusion for buckthorn bark and valerian➤ Pre-bloom spray of valerian and buckthorn with atomizer on back➤ Late-fruit set spray of horn silica with atomizer on back➤ Cluster closure and Mid-veraison stage N-Testers➤ Harvest chemical analysis method "200 baies" <p>Results:</p> <p>The pressure of downy mildew was much heavier on cluster than on leaves, especially for Merlot. There was an explosive increase of the kinetics of downy mildew in beginning of August for both varieties. The tisane of buckthorn bark was more interesting on Merlot than on CS. For Merlot, the most effective modalities against mildew were M2 and M5. For CS, M3 and M4 had equivalent impacts than the reference M2. For Merlot, the modality(yellow) which reduced the coulure rate proved to have increase the millerandage rate, versa (red). For CS, the treatments had more constraint effects, though the "red" confirmed to be optimal modality to reduce the millerandage rate. All the treatments involved did not modify the nitrogen status of vines, thus approved to be used.</p> <p>Main conclusions:</p> <p>For Merlot, it is more interesting to treat with the solution of 80% CU mixed with the tisane of buckthorn 200g/ha then, with the rotation of compost of 150g/ha, depending on the pressure of downy mildew. For CS, it's interesting to apply tisanes of M3 or M4 if the pressure is heavy. It's better to apply the "blue" and "green" treatments on Merlot to alleviate the problem of coulure and millerandage, but they did not improve the phenolic quality. While the two modalities "red" and "brown could improve the phenolic quality. The "red" can not only improve the fruit set but also enhance the phenolic content for CS.</p> <p>Keywords (5): Copper, buckthorn bark, Valerian, Horn silica, Phenology</p>
