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## Effect of Nitrogen Management Practices on Sauvignier Gris Wine Sensory Qualities

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### Objectives

The goal of the thesis was to test interventions aimed at improving yeast available nitrogen (YAN) in grape must of the fungus-resistant variety (FRG) Sauvignier Gris (SG) and research their impact on wine sensory quality.

### Methods | Experiences | Results

Five fertilization regimes and four levels of yeast nutrient addition were tested over three years and wine volatile compounds as well as sensory qualities were measured. Results show large vintage and vineyard block variations, but no significant treatment induced changes in soil fertility. YAN levels were mostly deficient (40 - 144 mg/l) but significantly higher with foliar fertilization (V<sub>FoliarN</sub>) and nitrogen fixating cover crop (V<sub>Seeding</sub>) - the latter producing a 50% higher yield than the first. Increased YAN led to faster fermentation, especially in 2022 where YAN at harvest was lowest.

It was shown that augmenting vine nitrogen status, especially through foliar fertilization, improved YAN levels in SG must and positively affected wine quality by favouring thiol levels, especially 3-sulfanylhexanol. The leguminous cover crop was not shown to improve wine quality, however. Yeast nutrient addition remained necessary in must deficient in YAN to ensure a thorough fermentation. Higher nutrient additions consistently increased fermentation ester abundance as well as fruity and exotic aroma of the wines. However, lower additions led to a preferable result on the palate with decreased astringence, bitterness and more body.

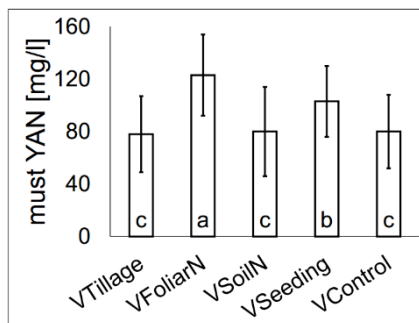


Figure 1: Must YAN level by fertilization method. Averages and standard deviation with significance groups are shown (vintages 2022 and 2023).

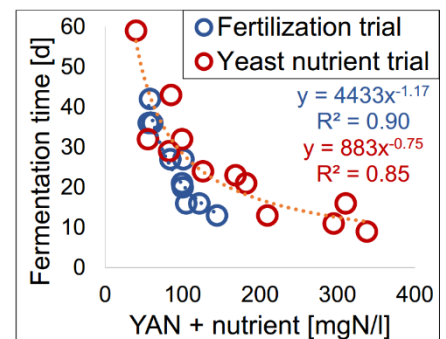


Figure 2: Relationship between must YAN including nutrient additions and fermentation duration