



Winetech Scan

Wine Industry Network of Expertise and Technology • Netwerk van Kundigheid en Tegnologie vir die Wynbedryf

New project 2017: Ecology and management of *Lobesia vanillana* in vineyards

Researcher: Pia Addison

Lobesia vanillana is a pest species that was recently confirmed to attack wine grapes in the Western Cape. Grapes have not been listed as a host for this pest, therefore its ecology in vineyards is a mystery. Preliminary observations have indicated that this could be a severe, direct pest that appears to be expanding its host and geographic range. Apart from taxonomic literature and one host list, excluding samples from the Western Cape, no information is available for *L. vanillana*. The aim of this study is therefore to obtain data on the basic ecology and possible management of this pest. The following questions will also be addressed:

- 1) What are the best trapping systems to use for monitoring this pest?
- 2) What is its current distribution in vineyards and what are its hosts?
- 3) What management practice could be applied to control its populations?

Research will focus on biological control to assist in developing an initial management strategy.

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New project 2017: Pruning wound protection of rootstock mother vines

Researcher: Francois Halleen

Research has indicated that protection of pruning wounds on rootstock mother vines should be a priority, considering the availability of inoculum and high pathogen spore counts within rootstock mother blocks. Although pruning wound protection has been studied in South Africa, no study has investigated pruning wound protection in rootstock mother vines.

The aim of this study will be to determine the duration of pruning wound susceptibility of rootstock mother vines. Furthermore, various chemical and biological control agents will be selected and evaluated to determine their efficacy to protect pruning wounds.

Knowledge gained from this study will be used to formulate a protocol based on scientific evidence. The protocol will provide guidelines for local grapevine nurseries, rootstock mother block owners and the Plant Improvement Scheme on effective pruning wound protection of rootstock mother vines. This will benefit industry by helping to manage pruning wound infections and to minimise the risks of spreading trunk pathogens in vineyards through infected propagation material.

New project 2017: Thiol stability in commercial Chenin blanc wine

Researcher: Astrid Buica

The aroma profile of a wine is given by the wine's chemical composition but it is evaluated from a sensory perspective through the mediation of human perception. It is more and more evident that the link between chemical composition and sensory attributes is not a simple one. Interaction effects, masking and enhancing effects, the influence of non-volatile compounds on the volatility (and perception) of volatile compounds, matrix effects - all play a role in the sensory evaluation of a wine. Modifications in chemical composition that come with ageing or storage, for example, determined by chemical analysis only, do not accurately reflect the impact chemical changes have on sensory perception.

The availability of data concerning the stability of aroma and aroma compounds is dependent on the cultivar and compounds of interest. For Chenin blanc some hypotheses can be proposed based on the research done on Sauvignon blanc.

One of the aspects relevant to Chenin blanc aroma is its stability during storage. Thiols in particular are sensitive to oxidation and it can be hypothesized that the matrix effects will play a role in degradation (or stability) of these compounds. The aim of the project is to evaluate the stability of commercial Chenin blanc wines aroma using both analytical chemistry and sensory evaluation approaches, with a focus on the stability of thiols. The evaluation will be done in parallel for Chenin blanc and Sauvignon blanc. Since chemical data is available for the stability of thiols in S. blanc.

New project 2017: Pilot study on the separation and purification of resveratrol from wine waste

Researcher: R Pott

Resveratrol is an antioxidant phenol compound found predominantly in the skins of red grape varieties. This compound has been linked to health benefits in both animals and humans, and there are ongoing clinical trials to determine the effect and efficacy of the compound for treatment of a number of maladies. Due to its pharmacological and antioxidant behaviour, there is a significant market for purified resveratrol.

During the wine making process, a significant portion (>90%) of the resveratrol in the wine grapes is lost and discarded in the wine must, since the compound is only sparingly soluble in water and so doesn't partition into the wine readily.

Previous studies have shown that resveratrol can be separated from wine must using organic solvent extraction. However, these methodologies are often difficult to implement industrially due to their cost, their complexity and their environmental impact. This project aims to develop a different method to separate and purify resveratrol from the remaining waste organic material. If successful, this project would pave the way for the implementation, at an industrial scale, of a technology which takes in solid waste organics, and produces a valuable product, in the form of resveratrol.

Latest biodynamic wine articles

An overview of the biodynamic wine sector

Researchers: Alessandra Castellini, Christine Mauracher, Stefania Troiano

The wine industry is currently shifting toward more sustainable production practices. Due to the growing globalized wine market and the increasing environmental impacts, producers have begun to pay more attention to organic and biodynamic products. Using a systematic literature review, this review aims to investigate the biodynamic production system in the viticulture and winemaking process. In particular, the review examines, 1) the biodynamic practice and its main characteristics including the certification system; 2) the biodynamic market characteristics and the recent trends, the production costs and the marketing strategies adopted by wineries; 3) the demand attributes and wine consumers' perception on sustainable practices and "green products" such as biodynamic products; and 4) the association between the biodynamic wine chain and the environment. The review highlights the research progress in this field and reflects on the potentiality and needs of the biodynamic viticulture and wine sector. The literature clearly indicates the lack of knowledge regarding, mainly, the biodynamic farming concept and the label. Moreover, while it is clear that consumers are willing to spend more for an organic wine than for a conventional one, there are no data about the willingness to pay for biodynamic wines. Finally, the review concludes with implications and suggestions for further research.

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Expectation or Sensorial Reality?

Researchers: Wendy V. Parr , Dominique Valentin, Phil Reedman, Claire Grose and James A. Green

The study's aim was to investigate a central tenet of biodynamic philosophy as applied to wine tasting, namely that wines taste different in systematic ways on days determined by the lunar cycle. Nineteen New Zealand wine professionals tasted blind 12 Pinot noir wines at times determined within the biodynamic calendar for wine drinkers as being favourable (Fruit day) and unfavourable (Root day) for wine tasting. Tasters rated each wine four times, twice on a Fruit day and twice on a Root day.

The findings reported in the present study provide no evidence in support of the notion that how a wine tastes is associated with the lunar cycle. The Pinot noir wines in the sample set were judged by experienced wine professionals as varying significantly in a range of characteristics. However, the day on which they were tasted did not influence these judgments. It is conceivable that the anecdotal reports of sensory effects that have been described in wine-industry media could be due to expectation effects rather than actual differences in the wines. Consumers expecting a wine to be more expressive and aromatic on Fruit days might actually perceive them as such through top down cognitive effects.

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