Manipulating bunch zone light quality to optimise ageing potential of Riesling wine

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Context

» Occurrence of an undesired premature 'aged' character has been observed in German Riesling wine, likely caused by the C13-norisoprenoid trimethyl dihydronaphthalene (TDN).
» Some compounds relevant to ageing aroma are affected by sun exposure.

Aim

» Examine the impact of sun protectants on wine composition and ageing potential
» Understand the effect on wine composition of using coloured shade cloth for light regulation in the vineyard

Set-up

1 Application of carnauba- or kaolin-based spray-on commercial sunscreen products to the bunch zone
2 Whole (green) & 3 partial (green, red or black) canopy shading with coloured shade cloth

Results

1 'Control' wines and wines made from sunscreen-treated grapes showed no significant differences in compounds relevant to ageing aroma.
2 Whole canopy shading negatively affected wine aroma and flavour, leading to significant 'oxidative' and 'green' characters.
3 Partial canopy shading with coloured shade cloth reduced ageing aroma attributes from TDN without negatively affecting other wine sensory aspects.

Daily bunch zone sunlight measurements for control and different types of applied shade cloth

Conclusions

» The use of agricultural sunscreens had only limited impact on Riesling flavour composition.
» Well-balanced shade management in the vineyard regulates compounds related to Riesling ageing.
» Coloured shade netting is a practical alternative to current viticultural management practices and warrants more detailed examination.

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