

## **THE USE OF REMOTE SENSING IN SOUTH-AFRICAN TERROIR RESEARCH**

**A.E. Strever**

Department of Viticulture and Oenology, Stellenbosch University, Private Bag X1, 7602 Matieland, South Africa  
aestr@sun.ac.za

The diversity of soil types in the Western Cape of South Africa leads to high levels of within-vineyard variability. Multispectral remote sensing has received a lot of attention recently in the South-African wine industry in an attempt to identify and deal with this variability. While this technology holds promise for precision vineyard management as well as segmented harvesting of grapes, its potential as a tool in research has not yet been fully utilised. It holds promise as a tool to study the interaction of the grapevine with its environment, especially with regards to differences in vine performance due to soil variability. One of the most important goals of this research is to determine how the information derived from the vegetation indices used in the imaging relates to grapevine performance. Another objective is to assess the effects of practices that could differ between vineyards, such as trellis systems or canopy management on the image signal.

In a terroir study, aerial images were used to optimise plot layouts in the vineyards at different localities according to vineyard characteristics. Factors limiting or enhancing vine vigour were investigated using multispectral images. The use of hyperspectral satellite imagery from the Hyperion imager was also investigated as an additional tool to monitor the effects of the environment on the performance of the grapevine.

Terroir research focuses on identifying homogenous environmental units that have a specific viticultural and oenological potential. It is deemed necessary to investigate the “building blocks” of these “homogenous” units, which may encompass high levels of variability, in order to adapt them to a micro-scale for application on a vineyard level. Closer investigation of these “micro” terroirs that exist within vineyards may enable us to utilise the full potential of our diverse natural environment.