

## **Measuring Energy Sustainability in Global and Local Agricultural Systems: the *Sustainable Winegrowing New Zealand* assessed by the SAFA framework**

*Vicent Gasso, Andrew Barber, Henrik Moller, Jon Manhire, Frank W. Oudshoorn*

Measurement of energy sustainability is an important aspect of the *Sustainable Winegrowing New Zealand* (SWNZ) framework, which aims to improve the environmental, social, and economic sustainability of vineyards and wineries. Sustainability metrics require the development of robust indicators and benchmarks within a transparent and workable framework. The United Nations Food and Agriculture Organisation is currently developing one such framework, the *Sustainability Assessment of Food and Agriculture systems* (SAFA), to harmonise sustainability assessments throughout global food systems. We performed a first test of the SAFA prototype in New Zealand wine supply chains to 1) test its applicability and practicability for New Zealand conditions, and 2) further develop the sustainability-metrics methods for SWNZ. Sustainability assessments need to accommodate and benchmark diverse production and processing approaches associated with different climatic zones, seasonal weather conditions, grape varieties, and production scales within New Zealand. The SAFA framework, however, is more generalised and is designed to guide sustainable production of vastly different crops and social-ecological conditions around the world. We conclude that SAFA's general approach is likely to build trust amongst diverse stakeholders (producers, distributors and consumers) spread throughout global food chains. Its framework, however, will have to be extended by locally tuned metrics and benchmarking for effectively guiding local vineyard and winery management towards more sustainable production.