

## **PROGRAMME: WINE GRAPE TERROIR IDENTIFICATION AND UTILIZATION**

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### **WINETECH DEFINES A RESEARCH PROGRAMME AS:**

A number of projects with common goals that either encompass strategic benefits for the industry and/or address industry needs/problems.

### **INTRODUCTION/DEFINITION OF TERROIR**

A viticultural terroir can be defined as a unit of the earth's biosphere that is characterised by relatively homogenous topographical, pedological and climatic features, which find expression through interaction with the vine and vintner, resulting in a distinct wine with an identifiable origin. The study of viticultural terroirs always has two steps, firstly the characterisation of the countryside in terms of topography, soil and climate and the integration of the resulting data to identify relatively homogenous natural terroir units; followed by characterisation of the viticultural and oenological potential of the identified units by monitoring reference plots and evaluating resulting wine. The complete study involves characterisation of the environment (geology, soil, landscape, climate); monitoring the vine (water status, canopy structure, growth, phenology, yield, berry composition) and evaluating/typifying wine character (sensory analysis) and composition together with the use of powerful computer aids such as geographic information systems (GIS) and statistical methods to manipulate and integrate the data.

### **OBJECTIVE OF THE WINE GRAPE TERROIR PROGRAM**

**The overarching aim of the wine grape terroir program is to integrate all data pertaining to the interaction of different cultivars with their growing environment in a data base and GIS platform in order to be able to formulate a model to serve as a decision aid for site selection.**

Generic objectives for the related projects are:

1. To better understand the terroir/vine/wine interaction for optimal choice of cultivar, vineyard and cellar technology, in order to:
  - a. improve wine typicity and quality and/or
  - b. improve economy of production and/or
  - c. improve sustainability of agricultural practices and/or
  - d. be better able to adapt to global climate change
2. To improve local knowledge with regard to natural resources to aid in terroir demarcation
3. To assist a global and national marketing campaign for South African wines based on the terroir concept and natural biodiversity
4. To advance the scientific basis for the demarcation system
5. To add value to the notion of terroir in South Africa

#### **RESEARCH AREAS TO BE ADDRESSED**

1. To integrate all available information in a database and on a GIS platform
2. To identify and research the effect of geology, soil, climatic and topographic factors on grapevine performance as well as on grape and wine typicity and quality
3. To supply guidelines by which different sites can be classified according to their suitability for certain cultivars and their potential for the production of high quality grape-based products of different styles and price points
4. To promote environmentally friendly viticultural practices by matching cultivars with specific terroirs to maintain and protect biodiversity
5. To identify and research the effect of terroir on health-related aspects (e.g. anti-oxidant potential) of wine
6. To identify and research the potential impacts of predicted global climate change on the terroir/vine/wine interaction and on wine typicity and quality.

**DR VICTORIA CAREY**  
**PROGRAMME COORDINATOR**  
**2011**

The following projects are currently classified under this programme:

### COMPLETED PROJECTS

COMMITTEE	PROJECT NUM./ PROJECT LEADER	SHORT PROJECT TITLE	BEGIN DATE	END DATE
Soil Science	WW 13/01 – K Conradie	Effect of soil and climate	1993	2004
Wine Production	WW 08/09 – A Louw	Bitterness local wines		
Wine Production	WW 08/20 – P Minnaar	Ethyl carbamate	2001	2003
Microbiology	WW 10/08 – N Jolly	Wild yeast for wine style	1994	2004
Microbiology	WW 10/13 – N Jolly	Wine yeasts for specific regions	Contin.	
Cultivation	WW 12/22 – K Hunter	Temperature limits – key physiological processes	2000	2004
Cultivation	WW 13/02 – V Carey	Demarcation of areas	1993	2003
Cultivation	US – W Pienaar	Effect of wind	2003	2004
Soil Scienc	WW 13/11 – J Wooldridge	User-friendly geology	2001	2006
Cultivation	WW 12/14 – D van Schalkwyk	Management practices for Pinotage	1998	2009
Cultivation	WW-AS1 – A Strever	Optimum yield/Vigour balance	2006	2009
Wine Production	WW 08/26 – F van Jaarsveld	Authenticity of S.A. Wines	2002	2007
Cultivation	VE-OR/1 – A Strever	Multispectral imagery	2003	2006
Soil Science	WW13/13 – P Shange	Effect of soil, geology, climate – Helderberg area	2004	2009
Soil Science	WW13/14 – P Myburgh	Contribution of soil water status & selected atmospheric variables on water stress	2005	2008
Cultivation	WW13/16 – P Shange	Effect of soil, geology, climate – Overberg area	2005	2010
Cultivation	ARC-ISCW (GW50/031) – C Potgieter	Atmospheric modelling	2003	2010

Cultivation	DVO-VAC 02 – V Carey	Identify terroirs for Chardonnay and Shiraz	2006	2008
Cultivation	WW 13/12 – V Carey	Ecophysiological characterization: Stellenbosch	2003	2010
Cultivation	DVO-VAC 04 – V Carey & C Howell	The use of multi-source data for a site-selection model for the SA wine industry	2003	2010

## BUDGET 2011

<b>COMMITTEE</b>	<b>PROJECT NUM./PROJECT LEADER</b>	<b>PROJECT TITLE</b>	<b>BEGIN DATE</b>	<b>END DATE</b>
Cultivation	US-B&C – V Carey & V Bonnardot	Agroclimatic analyses for viticultural terroir studies	2004	2011
Technology-Transfer	TO-Sprog. – B Oberholzer	CATENA - soil associations, features and properties of different soils, use of soils for viticultural purposes	2005	-
Cultivation	F de Viliers & H Schloms	Site selection for specific cultivar wine styles	2011	2013

## **PROGRAMME COMMITTEE**

Jan Booyesen (Interim Programme coordinator)  
Victoria Carey  
Duimpie Bayly  
Francois Viljoen  
Neil Ellis  
Keith du Plessis  
Kobus Gerber  
Aidan Morten  
Francois Knight  
Reckson Mulidzi  
Alain Deloire  
Dirk Bosman  
Andries Burger  
Braham Oberholzer  
Phillip Myburgh  
Heinrich Schloms  
Philisiwe Shange  
JC Bekker  
Briaan Stipp  
Charl Theron  
Ernst le Roux (Chairman Viticulture committee)  
Irene Waller (Chairman Oenology committee)  
Eben Archer (Chairman Cultivation & Optimal ripeness Programme)  
Florian Bauer (Chairman Biotechnology Programme)  
Johan Burger (Chairman Vine Virus Programme)  
Eduard Hoffman (Chairman Soil Science committee)  
Pierre van Rensburg (Chair Vinification committee)  
Hannes van Rensburg (Chair Plant Protection committee)  
Willem Botha (Chairman Viticulture & Oenology Forum)

## **ANNUAL MEETINGS**

**August / September:** Feedback by researchers on progress with listed projects. Verification of programme aims and identification of research gaps that require attention. Discussion of project progress and new projects by the Programme committee.

**September (biennially):** Information day in conjunction with SASEV. In years when an Information Day is presented, a special meeting to determine the programme will be called during June/July.