

## RESUMÉ

### Dr Wessel du Toit (*Senior Lecturer in Oenology*)

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#### *Vision statement:*

My research profile initially focused on fermenting and wine spoilage, but I have decided later to focus more in wine chemistry, as there is a profound shortage of wine chemists in South Africa. My Masters research focused on acetic acid bacteria occurring in SA wines, as well as factors affecting their survival. My doctoral research focused on the effect of oxygen on certain chemical and microbial aspects of SA wines. Currently my postgraduate program focuses on the effect of oxygen and other winemaking treatments on the phenolic and aroma profile of wines and how these are influenced during ageing.

I believe that research in Oenology should be industry focused, but with a sound underlying fundamental basis. Key to the production of quality wine is the phenolic composition thereof, as well as its development during aging. This aspect has not been investigated in detail not only in South Africa but also worldwide and needs more attention. I feel that my research will assist wine producers to produce wines aged in the correct manner in a more controlled, cheaper and constant manner. I also believe that my experience in the industry, as well as that at Stellenbosch University enables me to do this in an effective manner. I had research collaborations with Bordeaux University, Polytechnic University of Valencia, Spain, as well as the Slovenian Agricultural Institute, which also broadens the horizons of my research area in wine.

I also act as project leader of the wine ageing section of the Wine Science Research Niche Area (RNA), which will investigate key factors playing a role in the ageing of wine. This RNA program will form a key component in understanding basic chemical reactions taking place during the aging of wine. I am also the representative of our department in the International Masters Vintage program of Erasmus Mundus.



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## PERSONAL INFORMATION

35 years  
Single

### QUALIFICATIONS

- BSc (Microbiology and Genetics), Stellenbosch University, 1996.
- HonsBSc (Wine biotechnology) *cum laude*, Stellenbosch University, 1997.
- MScAgric (Oenology), Stellenbosch University, 2000. "Sources of acetic and other fatty acids and their role in sluggish and stuck red wine fermentations".
- PhD (Agric) (Oenology), Stellenbosch University, 2006. "The effect of oxygen on the composition and microbiology of red wine".

#### *Other qualifications*

- Passed the wine sensory exam for South African wine judges at Stellenbosch University, 2002.

### NRF RATING

- Submit application for NRF rating in 2008.

### WORKING EXPERIENCE

*Industry experience:* ca. 5 years

*Academic experience:* ca. 8 years

- Winemaking Assistant for holiday work, several cellars in South Africa, e.g. ARC-Nietvoorbij, Stellenbosch, 1993 - 1999.
- Microbial Analyst, several South African wine farmers, 1998 – 1999.
- Guest Lecturer, Department of Viticulture and Oenology (DVO), Stellenbosch University (SU), 1999 – 2000.
- Oenologist, KWV, 2000 – 2001.
- Lecturer, DVO, SU, April 2001.
- Senior Lecturer, DVO, SU, July 2007.

### TRAINING COURSES ATTENDED

- Advanced brandy course at Van Ryn Brandy Cellar, 1999.
- Course on statistical process control – during employment at KWV, 2000.
- Course on configuration management – during employment at KWV, 2000.
- Course on logistics and project management, Potchefstroom, 2000.

### AWARDS AND BURSARIES/SCHOLARSHIPS

- KWV bursary, 1997 – 1999.
- Establishment funds for young researchers at SU, 2002.
- Thom bursary from SU for overseas research, 2003.
- Bursary from the Conseil Interprofessionnel du Vin de Bordeaux for research at Bordeaux University in France, 2003.
- Young Researcher Award of the Society for Viticulture and Oenology for the best publication in the *South African Journal of Enology and Viticulture*, 2006.

### TEACHING

#### *Undergraduate teaching courses*

- Principles and techniques of winemaking II.
- Wine stabilisation, quality control and environmental management.

#### *Postgraduate teaching courses*

- Wine evaluation
- Chemical compounds of grapes and wine

#### *Postgraduate supervision*

- Graduates: ..... 14
- PhD ..... 1
- (co-supervisor of 1)
- MScAgric ..... 7
- (supervisor of 3; co-supervisor of 4)
- HonsBSc ..... 6

- Registered students:
  - PhD (Agric) ..... 4  
(supervisor of 2, co-supervisor of 1)
  - MScAgric ..... 7  
(supervisor of 1; co-supervisor of 2)
  - HonsBScAgric ..... 3

## RESEARCH

### *Research programme*

- Established research programme with the focus on wine ageing, aroma and wood, and with five running projects for the wine industry.
- Part of Wine Science Research Niche Area of the NRF.

### *Research collaborators*

- Bordeaux University, France (Prof Lonvaud-Funel). Effect of SO<sub>2</sub> and oxygen on *Brettanomyces* and acetic acid bacteria in wine.
- Slovenian Agricultural Institute, Slovenia (Dr Lisjak). Effect of oxygen additions to white must and red wine on the composition and ageing of the wines.

### *Research grants*

- Highest scoring Research Niche Area (RNA) in the developed RNA category award by the Institutional Research Development Programme (IRDP), 2007.
- Establishing grant from the University of Stellenbosch for young researchers, 2001.
- Research grants for projects funded by Winetech, THRIP and Robertson Winecellar for the following projects:
  - The characterization of acetic acid bacteria in South African Wines, 2003 - 2005.
  - Micro-oxygenation in SA wines, 2004 - 2005.
  - The use of exogenous tannins in SA wines, 2004 - 2005.
  - Characterizing different red grape cultivars in terms of certain wine parameters, 2006.
  - Research Niche Area (RNA) on Wine Science (with co-applicants), 2006.
  - Oxygen management during the winemaking process, 2006 and 2007.
  - Colour and phenolic characterisation of Robertson cellar vineyards and cellar, since 2007.
  - Establishing stave dosages comparable with an oak barrel, since 2007.

### *Research outputs (since 1997)*

- Papers in refereed scientific journals .... 10
- Popular scientific articles .... 16
- Published conference proceedings ..... 8
- Abstracts of papers at conferences .... 41
  - international ..... 9
  - national ..... 32

## SERVICES

### *Managerial services for DVO management team*

- Member, DVO Management Committee, since 2004.
- Manager of Welgevallen Cellar, where wine is made on a commercial scale (180 tons).
- Manager of Experimental Cellar, where wine is made as part of the training programmes.
- Project leader of Wine Ageing research group.
- Project leader of DVO's Cellar Project.
- Supervisor for 5 cellar staff members.

### *Membership of SU's committees/boards*

- Member, Faculty Board for AgriSciences, since 2001.

### *Membership of professional societies and committees*

- Member, Experimental Biology Group, 1997-2001.
- Member, BOWWUS (association for Viticulture and Oenology alumni), since 1997.
- Member, Management Committee, BOWWUS, 2003 - 2004.
- Member, South African Society for Enology and Viticulture, since 1999.
- Member, Wine Spectrum Subcommittee: Winetech, 2003 - 2004.
- Member, Oak Research Committee: Winetech, since 2006.
- Member, Optimal Ripeness Committee: Winetech, since 2006.
- Member, Sensory Panel of the South African Wine and Spirits Board, which approves wines for export, since 2005.

### *Other professional services*

- Examiner, 4 M-theses, Stellenbosch University.
- Reviewer, 5 scientific journal articles.
- Advisor on wine production to South African wine makers, since 2001.
- Co-ordinator, Aropur red wine colour experiment in collaboration with a German company, 2002.

### *Presenter of short courses and lectures at research workshops*

- Shortcourse presenter, Garagiste wine making course, Stellenbosch University, since 2003.
- Course presenter, Wine making techniques, Elgin Learning Foundation as part of community interaction project, 2006
- 16 technology transfer lectures at Stellenbosch University and in wine industry.
- 13 research seminars and workshops at Stellenbosch University and in wine industry.

Updated: 2009 April