

# ARC INFRUITEC-NIETVOORBIJ

*the inside story*



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## ARC ASSISTS WITH THE FIGHT AGAINST FOOD INSECURITY DURING COVID-19

*ARC Infruitec-Nietvoorbij donated three boxes of jam to the Chris Nissen Park community feeding scheme in the Somerset West area.*

The programme was started when President Cyril Ramaphosa announced the Nationwide lockdown. The jam will be used to make sandwiches, which are distributed to about 300 poor and vulnerable people, including children.

The unique jams (grape & honeybush / peach & rosemary / plum & red wine as well as pineapple & chili) were made by our food science technicians in the cannery at the Post-Harvest and Agro-Processing division.

The ARC is honoured to have been part of this community feeding scheme and would like to encourage others to do the same where they can.



# STELLENBOSCH FEEDING SCHEME

ARC Infruitec-Nietvoorbij also donated 100 cartons of grapes to the 'Stellenbosch Feeding in Action' programme to help poor and vulnerable people in the Stellenbosch area meet their most basic need; to have sufficient and nutritious food. The grapes formed part of the food parcels that were distributed in Cloetesville at the Long Street Flats as well as Vlottenburg.

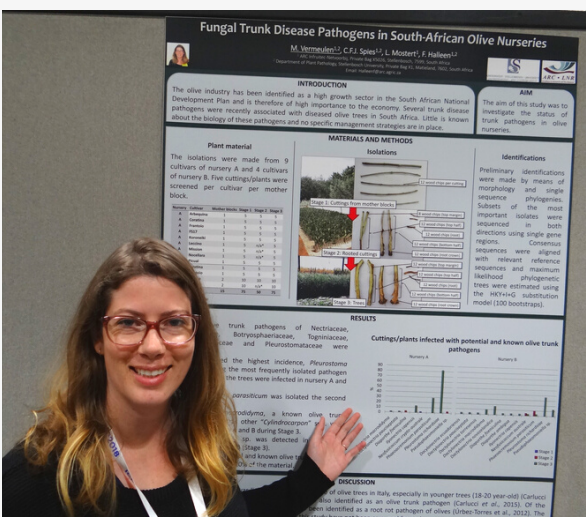
ARC Infruitec-Nietvoorbij focuses on research and development as well as technology transfer on the breeding, cultivation, protection and post-harvest technology of deciduous fruit, grape vines, alternative crops and indigenous herbal teas and flowers.

Through various research and development programmes, the Agricultural Research Council has been instrumental in improving South Africa's agricultural productivity and global competitiveness while increasing our food supply, reducing hunger and improving food security.



# OLIVE TRUNK DISEASES

Meagan van Dyk, a recent PhD (Plant Pathology) graduate of Stellenbosch University, has conducted research on what olive tree farmers can do to curb olive trunk diseases in their orchards.



The four-year research project was done under the supervision of Prof Francois Halleen in the Viticulture and Plant Protection Division at ARC Infruitec-Nietvoorbij. Her co-supervisors were Prof Lizel Mostert (Department of Plant Pathology, SU) and Dr Chris Spies (ARC-PHP). The title of her thesis was, "Characterisation, epidemiology and management of olive trunk disease pathogens in South Africa". Research into olive trunk diseases is fairly new worldwide. This was the first extensive study of olive trunk diseases in South Africa.



## PHD IN FOOD SCIENCE

Dr Neil Miller, a DST-PDP PhD student of Prof Lizette Joubert and Dr Christiaan Malherbe, was awarded a PhD in Food Science for a study on the development of a gastroretentive anti-diabetic nutraceutical that incorporated polyphenol-enriched fractions of *Cyclopia genistoides*. His project followed from product-orientated research conducted in recent years by the Plant Bioactives Group on honeybush that has presented new opportunities for value-adding. For his study he collaborated with researchers from the University of the North-West, University of the Western Cape and the Biomedical Research Innovation Platform of the South African Medical Research Council. Dr Miller has been a very productive student with several peer-reviewed papers (6) to his name. Another two papers are currently under review.



*Dr Neil Miller operating a spray-drier of the Plant Bioactives Group at Post-Harvest & Agro-Processing Technologies*

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## SOIL SCIENCE PHD

Congratulations to Dr Thandile Mdlambuzi, who received his PhD in Soil Science from UKZN. The subject of his research was 'the fertiliser value of biogas slurry for maize and dry bean production and its effects on soil quality and carbon dioxide emissions'.

He completed his PhD under the ARC's Professional Development Programme, initially working at the Institute of Soil, Water and Climate in Pretoria as a junior researcher, before moving to Infruitec-Nietvoorbij where he works on soil water management for production of table and wine grapes.

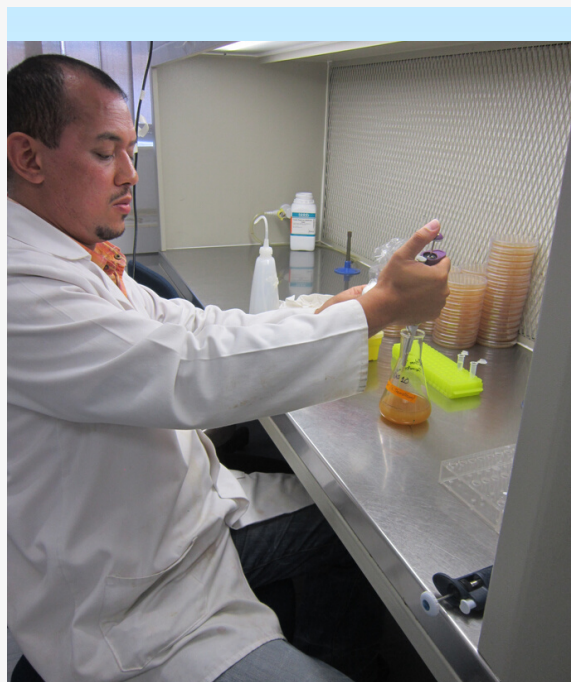




# MASTERS IN BIOCHEMISTRY

Francois October received his Master of Science (Biochemistry) from the Faculty of Science at Stellenbosch University. The title of his research was “Effect of yeasts and oenological parameters on acetaldehyde production during alcoholic fermentation of South African grape musts”.

The overall aim of this project was to investigate the effect of yeasts and oenological parameters on acetaldehyde production, to better understand the impact of acetaldehyde on alcoholic fermentation and wine sensorial composition. The university had a virtual “graduation” during lockdown in April 2020.



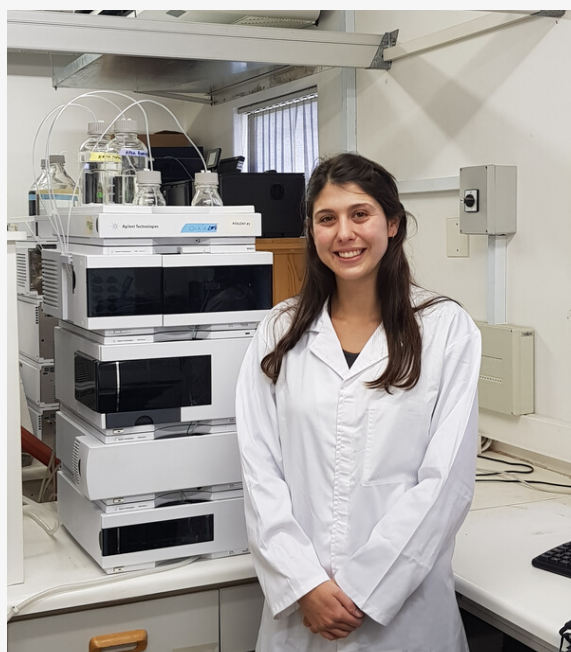
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# WELCOME BACK!

Dr Chantelle Human, a previous DST-PDP PhD student of Prof Dalene de Beer and Prof Lizette Joubert, was recently appointed as a researcher in the Plant Bioactives Group (Post-Harvest & Agro-Processing Technologies).

She has an MSc in Polymer Science and a PhD in Food Science. Her PhD focused on using different encapsulation techniques to produce micro and nano-particles containing rooibos extract for use in food and nutraceutical products.

She will continue her research on the encapsulation of compounds and extracts, in particular nano-encapsulation, for applications in the post-harvest and agro-processing fields.





*in particular, cultivars should:*

- be well adapted to mild winters and hot summers,
- need minimal pesticides to control pests and diseases,
- have crop reliability (stable yield),
- have attractive fruit with good appearance, texture and flavour (for fresh market),
- keep well in cold storage (for fresh market), and
- look good and taste good after drying or canning (for processing)



## ARC EXCELS WITH AWARD WINNING BREEDING PROGRAMMES

Research at ARC Infruitec-Nietvoorbij is done to provide growers with improved cultivars of pome-fruit, stone-fruit, fynbos, table and raisin grapes that are easy to grow and easy to sell – whether for the fresh market, for drying or for canning.



Commercial development of ARC-bred varieties has already made a significant impact on the South African Deciduous Fruit Industry. During the last 12 years, more than 50 cultivars including 5 climate-smart apples, 1 pear, 15 peaches, 12 nectarines, 8 plums, 6 apricots, 6 table grapes, and the very first South African raisin grape cultivar were developed, granted PBRs and commercialised.



# PROTEAS

Looking at the impact of ARC fynbos breeding on the SA indigenous flower industry, three genera of Proteaceae forms the foundation of the South African floriculture industry: Protea, Leucospermum and Leucadendron.

The ARC initiated their Fynbos floriculture program in 1970 at Riviersonderend, with the focus to support a new commercial industry that expanded from picking flowers in the wild, to commercial planting and marketing of fynbos flowers.

# HONEYBUSH

ARC Infruitec-Nietvoorbij also does research on the Cyclopia species, known as honeybush - an endemic genus growing in the fynbos region of South Africa. Honeybush tea is a well-known sweet tasting herbal tea and has many documented health properties. In the past 20 years, a small industry was developed, mainly driven by ARC researchers, which annually exports around 200 tons of processed tea to more than 25 countries. Income generated from the sales of the honeybush seed covers the direct running costs of the breeding programme.



Through external funding, novel and valuable research on genetic and breeding aspects contributes to the knowledge and science of this unique South African plant genus. Over the years, three ARC researchers have received recognition for their contributions by becoming the only honorary members of the South African Honeybush Tea association (SAHTA).



# WINE YEASTS

The team in wine microbiology focuses on selection, breeding, evaluation and characterisation of new wine yeasts. Overall, the yeast project developed numerous novel yeast strains according to the changing demands of the wine industry. The ARC has a relationship with Anchor Yeast for the commercialisation of yeasts. Pictures from Anchor Yeast.

Read the full story - [www.arc.agric.za](http://www.arc.agric.za)



# VINEYARD TIPS

According to a press release issued by Vinpro, nearly 300 people tuned into a series of six regional webinars that looked at issues from COVID-19 to drought, climate change and shifting consumer trends. ARC Infruitec-Nietvoorbij researchers formed part of the discussions.

Dr Philip Myburgh explained that wind causes large-scale evapotranspiration from the soil's surface. This can be managed by cover crops, wind breakers, row direction and irrigation scheduling that is continuously reviewed.

Apart from row direction, plant spacing within rows has a significant effect on vine performance, as can be seen in Dr Kobus Hunter's experimental vineyard at the ARC farm in Robertson.

Dr Francois Halleen did a presentation on trunk diseases demonstrating that dead bearers in Sauvignon Blanc and Cabernet Sauvignon can often be attributed to pathogenic fungi that invade pruning wounds. Pruning wounds can be protected with richoderma, a beneficial fungus.

# FRUIT INDUSTRY GALA DINNER

Even though the 2020 Deciduous Fruit Industry Gala Evening is cancelled due to the Covid-19 pandemic, the industry would still like to acknowledge individuals who made a valuable contribution over the past year.

Award categories:  
<https://events.hortgro.co.za/fruit-industry-gala-evening>.

- Advanced Agri / Office Manager
- Specialist Agri Worker
- General Agri Worker
- DFI Industry New Entrant Award
- Research and Technology Award
- Izethelo Media Award



# COVID-19:

*we are in this together*

