

AGRI WETENSKAPPE SCIENCES

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INHOUDSOPGawe • CONTENTS

Click on links / Klik op skakels

1

Groot eerste in SA
vir oud-Matié
Willie Esterhuizen
se skaapplaas



A century of teaching:
Help assemble
Centenary Book

2

HORTGRO
Science by
Welgevallen
verwelkom



Stokwe joins
African
Academy
of Sciences



Horticulturalist
receives SU
teaching
fellowship



Een van
oudste
alumni
op 101
oorlede

3

World Soil Day
celebrations in Moscow



Personeel in die media



Fruit fly
researchers
meet in
Upington



Martina
Treurnicht
awarded
Harper
Prize



Basson bags
Rovic and Leers
Conservation
Agriculture
prize

4

AgriWetenskappe
se nuwe doktore
AgriSciences' new
doctors

Contributions to aquaculture
and animal science:
Omowumi Binyotubo,
Ivy Zvinorova

About bees, grasshoppers
and land conflicts:
Samuel Adu-Acheampong,
Lelani Mannetti, Tlou Masehela

5

Zim friends awarded
PhDs for
research on
grapevine diseases

Viticulture, Wine Biotechnology,
Plant Pathology:
Tara Southey, Louwrens Theron,
Edson Ncube

Wood scientists work
on new products:
Stephen Amiandamhen,
Bernard Effah

6

Doctors in Food Science ready to
make their mark: Letitia Schoeman,
Luke Mugode



'n Doktors-
graad net
oor biltong



Navorsing help
internasionale
seël op Karoo-
lamsvleis sit

Two doctorates awarded in
Agronomy: Eliah Munda and
Jeronimo Ribeiro

7

Varkkenner,
prof Willem Vosloo
vier sy 90ste verjaarsdag



Added
incentive:
Maties now
play for a
magnum too!



Groot eerste in SA vir oud-Matie Willie Esterhuizen se skaapplaas

Betrokkenheid van die Fakulteit se Volhoubare Landbou-navorsingsgroep help met sertifiseringsproses

Wleis van die skaapplaas Elandsfontein naby Britstown in die Noord-Kaap Karoo is die eerste om – volgens internasionale standarde – amptelik gesertifiseer en bemark te word as organies geproduseer in Suid-Afrika. Die plaas, wat die afgelope drie geslagte in die besit van die Esterhuizen-familie is, het sy sertifisering kort gelede ontvang.

Daar bestaan nie wetgewing in Suid-Afrika wat betref die standarde waaraan produsente vrywillig moet voldoen as hulle hul produkte of vee as organies wil bemark nie. Daarom het mede-eienaars Willie en Sonja Esterhuizen besluit om die Elandsfontein-plaas te laat sertifiseer volgens die Ecocert Organiese Standaarde (EOS). Dit voldoen aan, en is gelykwaardig aan, die standarde van die Europese Unie.

Die Esterhuizens is gelei in die proses deur die sertifiseringsagentskap ECOCERT Suider Afrika. Insette van MSc-studente, wat die program Volhoubare Landbou aan die Universiteit Stellenbosch (US) volg, het ook 'n waardevolle rol gespeel om die plaas vroeër as wat verwag is, te laat sertifiseer.

EOS organiese regulasies bepaal dat dit nie toelaatbaar is om gelyktydig met dieselfde veebras op dieselfde grond met konvensionele sowel as organiese metodes te boer nie.

"Die enigste uitsondering wat gemaak word is indien navorsing deur 'n amptelike instelling op jou plaas gedoen word," sê Willie, wat sedert 2014 op Elandsfontein in vennootskap met sy ouers, Jacques en Esmé Esterhuizen, boer. Toe ECOCERT Suidelike Afrika voorgestel het dat

hulle 'n navorsingsvennoot betrek, was dit 'n maklike besluit vir Willie om te neem. Hy het 'n BCom-graad in Landbou-ekonomiese aan die US behaal voordat hy ook as gesertifiseerde finansiële beplanner gekwalifiseer het.

Willie verduidelik: "Danksy die waardevolle verhouding met Matie-navorsers in volhoubare landbou wat verskeie aspekte van ons bedrywigheede bestudeer, was ons nou al in staat om internasionale sertifisering te verkry. Ons werk nou hard daarvan om toenemend te verseker dat ons praktyke en aktiwiteite 100% inlyn met organiese regulasies is, en word hierin gesteun deur insette van die studente."

Elandsfontein se produkte is gesertifiseer volgens die internasionale Ecocert Organiese Standaarde (EOS). Dit beteken dat sy produkte as organies gesertifiseer uitgevoer kan word na alle lande in die Europese Unie, Australië, Taiwan, die Arabiese Emirate, Madagaskar, Asië, Turkye en Serwië.

Die MSc-studente betrokke by die Elandsfontein-projek is Pienaar du Plessis, Yonela Jafta, Paul Jordaan en Philemon Sithole. Tydens hulle studies het hulle tyd deurgebring op die plaas, en gefokus op aspekte soos die verskaffing van byvoere buiten lusern.

Hulle het onder meer 'n verslag opgestel wat aandui hoe die Esterhuizens die mesquite-indringerbome van die Prosopis-familie wat op 'n buurplaas groei, as 'n alternatiewe bron van organiese voer kan aanwend in droogtetye. Die studente het ook die mees onlangse bevindings oor hoe om plae en bosluise te beheer sonder



Willie Esterhuizen op sy skaapplaas, Elandsfontein.

sintetiese chemikalië ondersoek, en moontlike markte vir organiese produkte benewens vleis bekyk wat Elandsfontein-plaas kan verskaf, soos wol en heuning.

Prof Kennedy Dzama, voorsitter van die Departement Veekundige Wetenskappe en akademiese leier van die MSc in Volhoubare Landbou-program, meen die samewerking met die eienaars van Elandsfontein het aan die studente die geleenthed gebied om op 'n werklike voorbeeld van volhoubare boerdery te fokus, en om waardevolle insig in die proses te verkry.

Hy voeg by: "Hulle navorsing vorm deel van hul werk-geïntegreerde leerproses, maar in die proses help hulle ook om werklike probleme op grondvlak aan te spreek. Die teoretiese basis van die MSc-program is gegrond op werklike voorbeeld en vorm deel van 'n unieke module wat ons Werk-geïntegreerde Leer noem."

- ECOCERT is 'n sertifiseringsliggaam in Franse besit – vir volhoubare ontwikkeling wêreldwyd. Dit word sedert 1999 in meer as 130 lande bedryf danksy sy 24 filiale – een waarvan ook op Stellenbosch gebaseer is.

KALENDER 2017

01 Mei	Werkersdag
12 Mei	Klasse vir tweede kwartaal eindig. Laaste dag vir bekendmaking van klaspunte
16 Mei	Eerste Junie-eksamengeleentheid begin
26 Mei	Laaste dag vir betalings van 75% van studentegeld tot 2017
05 Jun	Eerste Junie-eksamengeleentheid eindig
06 Jun	Tweede Junie-eksamengeleentheid begin
16 Jun	Jeugdag
23 Jun	Einde van eerste semester
30 Jun	Aansoeke vir voorname studente wat vir voorgraadse programme in 2018 oorweg wil word, sluit

Help assemble Centenary Book

A century of teaching agriculture at Stellenbosch will be celebrated next year (2018). Festivities will go hand in hand with Stellenbosch University's centenary celebrations.

To mark this momentous milestone the Faculty of AgriSciences is planning a celebratory publication. Says Prof Danie Brink, acting Dean of the Faculty: "We plan to compile a very special publication, one that provides a comprehensive historic overview of all our endeavours during the last century."



Without the help and assistance of loyal alumni this undertaking just will not be possible. Perhaps you have a special class picture to share with us, or one taken during a field trip or experiment? What were the highlights of your study years, or of the time you spent as lecturer in one of our departments? Are there specific "firsts" you remember, or people who made an impact on your life, or further, in industry? Kindly send your memories, and/or pictures, to cbruce@sun.ac.za.

Basic instructions:

- Please confine your anecdotes and memories to one page.
- It's preferable to send pictures in electronic format. To eliminate damage, rather send a scanned copy of an original picture.
- Please ensure that these files are of good quality. Normally this means that the file size of the picture should be 300 dpi or at least 1MB.
- Kindly provide some background in the form of a brief picture caption and also send us the names (not only initials) and surnames of those in the picture.



HORTGRO Science by Welgevallen verwelkom

bestuurder, het in 'n mediaverklaring gesê die nuwe kantore by Welgevallen is die kulminering van 'n langtermyn strategiese visie vir die organisasie om 'n samekompunt, of sogenoemde "hub," vir navorsingsinitiatiewe te kon skep.

Campbell stel dit so: "Ons voorsien dat deur die konsep van 'n 'hub' 'n werksplek geskep sal kan word vir soortgelyke bedrywe. In 'n era van beperkte fondse en kapasiteit is alliansies belangrik, en kan ons nie in isolasie werk nie."

HORTGRO Science se intrek versterk die jarelang verhouding wat reeds tussen die sagtevrugtebedryf en die US bestaan. Campbell sê een derde van HORTGRO Science se navorsingsbegroting word aan navorsers verbondé aan die US toegedeel. Dit sluit onder meer personeel en studente van die Departement Hortologie en die Departement Plantpatologie in.

Die beskikbaarstelling van insektariums vir die Departement Bewaringsekologie en Entomologie en op die Welgevallen-proefplaas, asook koekamers vir die Departement Hortologie, is onder die onlangse kapitaalprojekte waarin HORTGRO Science belê het.

Stephen Rabe, voorsitter van die HORTGRO Science-adviesraad, het waarnemende dekaan Danie Brink uitgesonder vir die visie wat hy gehad het om 'n gesamentlike navorsingsruimte beskikbaar te stel.

Hugh Campbell, HORTGRO Science se hoof-

Horticulturalist receives SU teaching fellowship

Dr Michael Schmeisser (picture) of the Department of Horticultural Science is the second lecturer in the Faculty of AgriSciences in as many years to be awarded a teaching fellowship from Stellenbosch University (SU).

On why this fellowship is so valuable he says: "I have many innovative ideas, but never really find the time for deep thought, design or implementation given the current teaching, administrative and research load. The fellowship opens the world for me to consider curriculum re-design that promotes innovative teaching."

Schmeisser is a proponent of authentic learning. In the next three years he will among others be considering how to enhance meaningful learning by using software tools such as C-mapping to evaluate students' prior knowledge at the start of a module. Knowing at what level his students are will provide the opportunity to implement interventions before new knowledge is to be taught. It will allow struggling students to come up to speed so that the new coursework can be integrated into their prior knowledge structure.

In addition, Schmeisser hopes to guide students to compile e-portfolios during their time on campus. He believes it could offer them a reflective journey of their degree, deepen learning and provide them with a type of CV that they can use when applying for jobs after the successful completion of a degree. It is important to him that his teaching style and pedagogy ensures meaningful learning in his students.

He notes: "The so-called 'sage on the stage' style of teaching simply doesn't foster meaningful learning according to literature. Yes, students pass exams, but often cannot recall that knowledge a few weeks down the line. Meaningful learning takes place when new knowledge becomes conceptually integrated into a person's prior knowledge structure in a logical,



retrievable and, importantly, a transferable manner."

This popular Horticulture senior lecturer first studied at SU before starting to lecture on a contract basis in 2007 whilst pursuing his PhD. In 2010 he was appointed a full-time member of the Department of Horticultural Science.

What would he rate as his most successful teaching innovation to date?

"I think that would be the introduction of a digital story type of project into my second year Crop Production module. In the process the students have to create a virtual plant propagation nursery, which enforces the application of a range of theoretical concepts taught during the module."

He adds: "Group work, the use of digital media and creative design are part of the package; not necessarily all skills that one would associate with agriculturalists, but they are becoming increasingly important in a world that is seeking creative thinkers and problem solvers."

Schmeisser was also recently involved in the recirculation of AgriSciences' Plant and Soil Science Programme. Based on his recommendations a new module for first year students will be introduced with the aim of improving SU's readiness for new students.



Stokwe joins African Academy of Sciences

Dr Nomakholwa Stokwe (picture), of the Department of Conservation Ecology and Entomology, has been selected as an African Academy of Sciences (AAS) Affiliate for the period 2017 to 2021. The nomination and review to identify AAS Affiliates was a highly competitive process with over 50 nominations. The selected second cohort of AAS Affiliates consists of two (Central Africa), six (Eastern Africa), four (Southern Africa), five (Northern Africa) and five (Western Africa) successful nominees from the AAS regions.

Alumnus op 101 oorlede



'n Groot seder het geval met die heengaande einde Maart vanjaar van een van die Fakulteit AgriWetenskappe se oudste alumni, dr Danie Joubert, wat twee weke voor sy 102de verjaardag oorlede is.

Joubert was jrelank dosent en hoof van die Afdeling Wingerdbou-en Wynkunde aan die Landboukollege Elsenburg waar hy ook die bekende kursus in Keldertegnologie begin het. In 2010 is hy deur die SA Nasionale Wynskouerenviging as een van die wynlegendes van die afgelope 300 jaar aangewys en as 'n man met 'n passie vir studente, 'n geliefde dosent en 'n wonderlike rolmodel vereer.

Dié oud-Dagbreker het reeds sy BSc in Landbou in 1937 verwerf en sy doktorsgraad in 1971 oor knopwortale op wingerdwortels. Hy was op sy dag boer op Caledon, 'n voorligtingsbeampte, die opleier van sultana-boere en lid van die Wynuitvoer-adviesraad. Hy't selfs die wyn help uitkies vir die Wit Trein waarmee koning George VI van Brittanje en sy gevolg in 1947 deur Suid-Afrika gereis het.

Soil Science at World Soil Day celebrations in Moscow

Three lecturers of the Department of Soil Science recently travelled to Moscow to attend World Soil Day celebrations and take part in the Food Security Round Table at the Timiryazev Agricultural Academy in the Russian capital.

Drs Cathy Clarke, Ailsa Hardie and Andrei Rozanov, as well as PhD student and FAO Global Soils



Andrei Rozanov, Liesl Wiese, Ailsa Hardie and Cathy Clarke are pictured here during their visit to the Soil Museum of the Timiryazev Agricultural Academy in Moscow.

Partnership representative, Liesel Wiese attended the World Soil Day celebrations organised by the Food and Agriculture Organisation of the United Nations (FAO).

During the event the soil museums of Wageningen in the Netherlands, St Petersburg and Moscow showcased their research, data collection and educational programmes for the general public and school learners. The SU lecturers were in full agreement that experience gained in this regard would be useful in promoting the South African terroirs, particularly in the wine-making regions of the RSA.

Clarke, Hardie, Rozanov and Wiese were also invited to join the Round Table on Food Security which was hosted by the Timiryazev Agricultural Academy and supported by the ECFS, World Bank and FAO. The main focus of the discussion was on addressing the problems of training soil scientists in Africa and Asia to face the challenges of land degradation and sustainable intensification of land management. The Stellenbosch presentations were well-received and further co-operation in this regard is expected between Stellenbosch University, ECFS, FAO and RUFORUM – the network of African Universities.

Staff in the news

An article by Prof Michael Samways, Distinguished Professor in the Department of Conservation Ecology and Entomology, in which he begs of humans to do more to preserve the millions of small and unassuming species with which they share the planet, was afforded major prominence in the Natal Daily News and the Johannesburg Sunday Star.



'n Artikel deur dr Willem de Clercq, verbonde aan die US se Waterinstituut, het oor 'n onderwerp gehandel wat nou se dae op almal, veral in Wes-Kaapland, se lippe is – water. Dit het prominente dekking in nasionale dagblaaie soos Die Burger, Beeld en Volksblad geniet. Hy doen 'n beroep dat elkeen 'n rentmeester van ons waterbronne word en dat iedere huigesin met minder as vyf-duisend liter per maand klaarkom.

Fruit fly researchers meet in Upington

A recent FRUITFLYNET networking trip to Upington afforded Dr Pia Addison, her colleague Dr Minette Karsten and students Francois Bekker and Monique James of the Department of Conservation Ecology and Entomology the opportunity to meet with renowned fruit fly researchers from Europe and Africa.

The trip was organised as part of the FRUITFLYNET networking initiative and Addison and company met up with Dr Marc De Meyer of the Royal Museum for Central Africa in Belgium, Dr Maulid Mwatawala of the Sokoine University of Agriculture in Tanzania and Dr Domingos Cugala of the Eduardo Mondlane University in neighbouring Mozambique.

FRUITFLYNET aims to bring together institutions to share, compare and discuss fruit fly monitoring and management methods in order to standardise the control of these important pests. Addison arranged the Northern Cape field trip so that together all could engage with other researchers, meet with fruit farmers, and be exposed to fruit fly issues in this arid fruit production region. With the assistance of fruit fly worker, Ian Sutherland the group visited the Department of Agriculture, as well as several farms focusing on table grape, wine grape and raisin production. A visit to RAF2000, a company producing gyrocopters and currently involved in area-wide release of baits against fruit flies, was particularly interesting.



From the left: Maulid Mwatawala, Ian Sutherland, Marc de Meyer, Minette Karsten, Pia Addison, Monique James and Domingos Cugala on the way to Onseepkans to visit grape growers.

The excursions highlighted various problems experienced by grape growers such as direct damage to fruit, threats from the export market, high persistence of the pest and brought about many discussions around these issues.

This trip signalled the last of the networking meetings by FRUITFLYNET, which was sponsored by the

Belgium Development Corporation and co-ordinated by Dr De Meyer. Plans were made for future collaborations, including the development of a fruit fly App for technical field workers and non-specialist researchers/students – focusing on the southern African region – in order to further combat the mighty fruit fly.



Martina Treurnicht awarded the 2016 Harper Prize

Conservation Ecology PhD student, Martina Treurnicht (picture), was recently awarded the 2016 Harper Prize for her paper published in *Journal of Ecology* with the title: *Environmental drivers of demographic variation across the global geographical range of 26 plant species*. The Harper Prize is awarded annually to the best paper in the journal by an early career author.

The editors of the journal honoured Martina's paper for its breadth of data, interesting findings and novelty of the approach represented. They view it as a true step forward in plant demographic research and a model example for future investigations.

She conducted her research in our very own Cape Floristic Region, which spans a sizable area of ca. 90 000km².

Martina's ongoing PhD research is supervised by Frank Schurr, Jörn Pagel, Karen Esler and Jasper Slingsby and aims to understand how large-scale demographic variation and functional traits shape the population dynamics and ecological niches of plants with fire-dependent life cycles.



Conrad Basson

Basson bags Rovic and Leers Conservation Agriculture Reward

Conrad Basson (Agricultural Economics) has bagged the Rovic and Leers Conservation Agriculture Reward.

Basson attended the 2017 Combined Congress held near Bela Bela earlier this year as a member of the SA Society of Crop Production. Many topical issues relevant to the country's dynamic agricultural sector were addressed by researchers and scientists from various fields, including soil sciences, plant and weed sciences, horticulture and conservation agriculture.

Keynote speakers included Mr Ivo Brants of Monsanto, who spoke on the facts and myths of glyphosate, and Dr Adriana Marais who gave a thorough overview of her planned one-way trip to Mars.

Conrad delivered a presentation on the financial implications of different livestock management approaches within various crop rotation systems. At the gala dinner, which concluded the 2017 Combined Congress, Conrad was awarded the Rovic and Leers Conservation Agriculture Reward for best oral presentation.



Voor vlnr: Tlou Samuel Masehela, Letitia Schoeman, Providence Moyo, Mukani Moyo, Ivy Zvinorova, Omowumi Binyotubo, Stephen Amiandamhen. Middel: Luke Mugode, Lelani Mannetti, Samuel Adu-Acheampong, Eliah Munda, Bernard Effah, Louwrens Theron. Agter Sarah Erasmus, Maxine Jones, Edson Ncube and Tara Southey. Jeronimo Ribeiro was afwesig toe die foto geneem is.

Contributions to aquaculture and animal science

DR OMOWUMI BINYOTUBO is employed as a principal fisheries officer at the National Institute for Freshwater Fisheries Research in Nigeria, but has been on study leave to complete her PhD in Aquaculture full-time at Stellenbosch University.

She received her degree after completing her research under guidance of the Faculty's acting dean Prof Danie Brink, and Dr Helet Lambrechts of the Department of Animal Sciences.

Binyotubo conducted a comparative assessment of the production performance of six unrelated strains of Nile tilapia. The assessment was done under low input production conditions where fish received a low energy (LE) diet consisting of duckweed, and high input production conditions, where fish received a high-energy (HE) commercial feed.

Her study indicated that the strains differed in terms of production performance, with the GIFT tilapia strain outperforming the other strains in the HE and LE energy systems. The study also indicated that all six strains are adaptable to both low and high input systems.

DR IVY ZVINOROVA took a closer look at the genetic resistance of indigenous goat breeds in Zimbabwe to specific parasites found in their intestines and gastric system. The title of her dissertation was: *A genome-wide association study on mechanisms underlying genetic resistance to gastrointestinal parasites in goats, Zimbabwe*.

She completed her PhD in Animal Sciences part-time while lecturing at the University of Zimbabwe, under guidance of Prof Kennedy Dzama of the Department of Animal Sciences.

About bees, grasshoppers and land conflicts

From the farmlands in the Cape Floral Kingdom to the borders of the Etosha National Park in Namibia – that's where the research of the Department of Conservation Ecology and Entomology's three newly capped PhD graduates took them.

DR SAMUEL ADU-ACHEAMPONG focused on the Cape Floristic Region, a global hotspot of biodiversity, and the grasshoppers that live among the natural and agricultural lands of this region. Grasshoppers are good indicators of land quality.

As part of his PhD in Conservation Ecology, he found that vineyards are more biodiversity-friendly than apple orchards when it comes to supporting grasshoppers. The method he developed with grasshoppers as indicator species could be used further by producers wishing to integrate nature better into their efforts to ensure more sustainable farming.

The supervisors of his study were Prof Michael Samways and Dr Corinna Bazelet.

DR LELANI MANNETTI grew up in Namibia, and has been pursuing her studies in Conservation Ecology at SU since her undergraduate years.

For her PhD, she took a socio-ecological look at various land use conflicts around the borders of the Etosha National Park to the north of the country. She reflects on the experience: "I had many thought-provoking discussions with landowners and local communities in the area about the extent to which the fencing off of the park influences their livelihoods."

Mannetti found that the system of land tenure under which land and resource use

in Namibia is legally governed has a much greater impact on land use conflicts in and around the park than land use practices (such as livestock production, sport hunting and communal conservancies) do.

She says she started her studies in view of the fact that Namibia plans to expand its protected area network. "The only way to do this is to understand resident communities living adjacent to national parks, game reserves and other wildlife management areas, and to incorporate them into the protected area landscape," says Mannetti, who is also Namibia's current ambassador to the Next Einstein Forum (NEF).

She completed her degree under guidance of Prof Karen Esler of the Department of Conservation Ecology and Entomology.

DR TLOU MASEHELA completed his PhD in Entomology with Dr Ruan Veldman as supervisor.

Masehela assessed the forage dependence of different beekeeping practices in South Africa. He works for the South African National Biodiversity Institute.

By taking into account the forage that bees need, he showed how this impacts the pollination services they provide and how aspects such as vandalism and hive theft threaten forage use and the local bee industry.

Zim friends awarded PhDs for research on grapevine diseases

Two classmates from Bulawayo who studied together at Zimbabwe's Midlands State University in their undergraduate years, both received their PhD degrees in agricultural sciences from SU in March. Interestingly, the newly capped doctors both researched diseases that are associated with grapevines. Both will also be turning 35 years old in May this year – and they even share the same surname: Moyo. Providence is the plant pathologist and Mukani the wine biotechnologist.

Providence, called Pro by her friends, says they met in 2002 while studying Biological Sciences as undergraduates. They then went their separate ways, just to meet up again in Stellenbosch while pursuing their postgraduate careers.

Providence Moyo's research work

For her PhD in plant pathology, Providence surveyed which types of Diatrypaceae fungi species are found on grapevines and other woody plants growing near South African vineyards. This fungal family, and especially the species *Eutypa lata*, is known to cause a potentially devastating disease called Eutypa dieback. It causes the arms or trunk of a grapevine to rot, until the plant dies over a period of a few years.

She found 15 different species of Diatrypaceae, and established that some species are associated with specific dieback symptoms. In the process she identified a new species of *Eutypa* never described before in the world, as well as seven species of Diatrypaceae that viticulturists and plant pathologists did not know occurred in South Africa.

Providence completed her research under guidance of supervisors Dr Francois Halleen of the

Agricultural Research Council and Dr Lizel Mostert of the Department of Plant Pathology.

Her study is more than just a tick list of the types of fungi that cause dieback in South African vineyards. She also developed a laboratory test that plant pathologists and viticulturists can use to detect whether the species *Eutypa lata* and *Cryptovalsa ampelina* are present in the woody part of a vine.

Mukani Moyo's research work

For her PhD in wine biotechnology, Mukani used different molecular techniques to investigate the interplay between grapevines and fungal pathogens that cause diseases. In particular, she investigated what happens when grapevine plants are infected by *Botrytis cinerea*, a fungal pathogen that causes grey mold of grapevine.

She used techniques that made it possible to identify the attack strategies of the fungus, as well



Providence and Mukani Moyo.

as the defence strategies of the plants. These so-called interactome studies lead to interesting insights into the interaction between grapevine and its pathogens.

She found proof that some of the defences of grapevine are not used, or even effective against the pathogen. For example, a grapevine defence protein, the polygalacturonase-inhibiting protein (PGIP), was shown to be ineffective against protecting the plants against Botrytis. This is interesting, because the same protein when tested in tobacco helps to effectively control the fungus.

Moyo completed her degree under guidance of Prof Melané Viviers of the Institute for Wine Biotechnology in the Department of Viticulture and Oenology.

And...

The two Doctors Moyo are not the only graduates to have worked on issues relating to South African vineyards, or about plant pathology for that matter...

For her PhD in Viticulture, **DR TARA SOUTHEY** developed ways to better integrate climate and thermal satellite remote sensing data to assess how Cabernet Sauvignon grapevines react to changing environmental conditions. Dr Albert Strever of the Department of Viticulture and Oenology supervised her research project.

DR LOUWRENS THERON received his PhD in Wine Biotechnology by taking note of the role that specific enzymes called proteases could play in wine making. His supervisor was Dr Benoit Divol of the Department of Viticulture and Oenology.

Theron's work focused on MpAPrI, an aspartic protease isolated from the wine yeast *Metschnikowia pulcherrima*. He used different techniques to show that MpAPrI is able to degrade certain grape and wine proteins. The overall impact on wine properties was found to be minimal; however an increase in the production of certain volatile compounds was noted.

DR EDSON NCUBE received his PhD in Plant Pathology for his investigation into the interactive effect of the African stem borer (*Busseola fusca*) and *Fusarium verticillioides* on ear rot and fumonisin production in maize. His supervisor was Prof Altus Viljoen of the Department of Plant Pathology.

Wood scientists work on new products

Dr Stephen Amiandamhen and Dr Bernard Effah both received PhD degrees in Wood Product Science after completing their research in the Department of Forest and Wood Science. In the process they showed proof of concept for new developments in their field.

DR STEPHEN AMIANDAMHEN hails from Nigeria and has been based in Stellenbosch since 2014 in pursuit of his degree. He was among only a few postgraduate students awarded an Innovation Doctoral Scholarship for Non-South African Students from the National Research Foundation.

In 2016, he became the first student from an African university to win a poster award from the Society of Wood Science and

Technology, and this in a competition dominated since 1995 by students from North America. He received a second place plaque at the Society's international conference in Brazil.

Amiandamhen developed a new phosphate based in organic wood composite building material. He found that different sources of plant residues (such as wood-based industrial and agricultural waste) can be incorporated into phosphate cement binders to produce durable products that are comparable with current cement bonded products.

In explaining more of the sustainable biomaterial he developed, Amiandamhen said: "Good quality materials can be produced with this technology at a low energy consumption and low carbon foot-

print by utilising coal fly ash."

His supervisor was Dr Luvuyo Tyhoda, with Prof Marina Meincken as co-supervisor.

DR BERNARD EFFAH took a fresh look at invasive plants found across South Africa to establish if there may be value in using them as materials in the building, automotive and marine industries.

Through his research, he proved that invasive trees such as beefwood, Port Jackson, black wattle and long-leaved wattle can be successfully used as fillers for the production of wood plastic composites.

He used Chemical Force Microscopy (CFM), a type of Atomic Force Microscopy, to characterise the individual components of wood plastic composites, in an effort

to understand how the different components or layers bind together.

"I am the first person from the western part of Africa to be trained in Atomic Force Microscopy (AFM), as well as Chemical Force Microscopy (CFM)," said Effah, who has returned to Kumasi Technical University in Ghana to lecture and do further research.

In December 2016, he bagged an award for the best paper on innovative microscopy techniques at the 54th Annual Conference of the Microscopy Society of Southern Africa, held in Port Elizabeth, when he used Chemical Force Microscopy to reveal the functional groups present on the cell wall surfaces of wood.

Prof Marina Meincken served as his supervisor.

Doctors in Food Science able and ready to make their mark

Four PhD degrees in Food Science were awarded in March. The recipients were Dr Sarah Erasmus, Dr Maxine Jones, Dr Luke Mugode and Dr Letitia Schoeman.

For her PhD, **DR LETITIA SCHOEMAN** compared the characteristics of whole cereal grains roasted in a South African patented roaster against traditional oven roasting methods.

She explains: "Roasting is used to improve the flavour, texture, antioxidant activity and to extend

the shelf-life of the food products made from whole cereal grains such as wheat and maize.

One of Schoeman's findings was that roasting improves the thermal properties of grain and results in shorter cooking times.

She used X-ray micro-computed tomography as part of her studies, which she completed under supervision of Prof Marena Manley of the Department of Food Science and Dr Anton du Plessis of SU's Central Analytical Facility.



'n Doktorsgraad net oor biltong

Maxine Jones se doktorsgraad in Voedselwetenskap is moor 'n onderwerp wat so eg Suid-Afrikaans is as wat kan kom: biltong. Sy is daarbenewens bes moontlik die eerste persoon wat al 'n hele doktorale studie gedoen het net oor hoe mens goeie kwaliteit biltong keer op keer kan maak.

Dié Kapenaar en oudleerder van Wynberg Hoër Meisieskool se bedryfsgebaseerde navorsingsprojek het op verskillende aspekte van die biltongmaakproses gefokus. Sy het onder meer gestandariseerde metodes voorgestel oor hoe die uitdroog van die vleis ten beste gedoen kan word. Maxine het onder meer gekyk na faktore soos temperatuur, lugvogtigheid en die beweging van lug. Sy het ook fyn opgelet na die verskillende soorte gisse, swamme en selfs bakterieë wat op biltong voorkom, en wat 'n invloed op dié vleishappie se rakleefyf het.

"Kwaliteit en deurlopende gehalte is belangrik vir die verbruiker en vir die biltongbedryf," sê Maxine, wat glo dat die plaaslike bedryf meer moet doen om riglyne rondom die uitdroog van biltong te standaardiseer sodat deurlopende gehalte verseker kan word en voedselveiligheidsrisiko's uitgeskakel kan word.

Sy voeg by: "Die biltongbedryf het 'n ekonomies belangrike sektor in die Suid-Afrikaanse vleisbedryf geword, en het die potensiaal om selfs meer op plaaslike en internasionale vlak te groei."

Maxine weet beslis hoe om met 'n goeie porsie vleis te werk. Sy weet goed hoe om 'n stuk vleis te ontbeen, of om salami, biltong of spek daarvan te maak. Dis van die ekstra nie-akademiese dinge wat nagraadse studente leer wat vleisverwante navorsing onder leiding van prof Louw Hoffman van die Suid-Afrikaanse Navorsingsleerstoel in Vleeskunde: Genomika tot Nutriomika in die Departement VEEKUNDIGE WETENSKAPPE doen.

Haar navorsing het haar van Namibië en die Wageningen-universiteit in Nederland tot by 'n internasionale konferensie in Thailand geneem. Sy het selfs na die afgeloë Reunion-eiland naby Mauritius gereis om ultraklanktoerusting van die Centre de coopération internationale en recherche agronomique pour le développement (CIRAD) te gebruik. Sy het sodoende aspekte rondom die byvoeging van speserye by biltong en die uiteindelike uitdroogproses getoets. Die Departement VEEKUNDIGE WETENSKAPPE doen gerealiseerde navorsing saam met CIRAD.

DR LUKE MUGODE completed his research under guidance of Prof Linus Opara, DST/NRF South African Research Chair in Postharvest Technology in the Department of Horticultural Science, and Prof Gunnar Sigge of the Department of Food Science and Dr PV Pramod (external) as co-supervisors.

Through his research Mugode showed that the storage and shelf life of pomegranate fruit is extended when it is stored under controlled atmosphere conditions.

In the process the incidences of fruit decay is reduced, and the sensory qualities of this increasingly popular fruit is maintained.

Dr Jones and Dr Erasmus (see articles below) both completed their PhD degrees under guidance of Prof Louw Hoffman of the SA Research Chair in Meat Science: Genomics to Nutriomics in the Department of Animal Science. Their co-supervisors were the Department of Food Science's Prof Pieter Gouws and Ms Nina Muller respectively.

Navorsing help internasionale seël op Karoo-lamsvleis plaas



Toe Sarah Erasmus haar doktorsgraad in Voedselwetenskap verlede maand aan die Universiteit Stellenbosch (US) verwerf het, was dit met die wete dat haar navorsing help staaf het dat daar werlik iets streekspesifieke en uniek aan lamsvleis uit Suid-Afrika se Karoostreek is. Dit het ook daartoe bygedra dat Karoolam verlede jaar eksklusieve naamregte in terme van die Europese Unie se bemarkingswetgewing verkry het (kyk hoofberig op bl 1).

Erasmus het haar nagraadse studies aan die US in 2013 begin in 'n tyd toe daar nog geen wetlike beskerming vir plaaslike Suid-Afrikaanse produkte soos Karoo lam, rooibos en heuningbos, wat internasional be-mark word, was nie.

Sy het haar nagraadse studies voltooi onder leiding van prof Louw Hoffman van die Suid-Afrikaanse Navorsingsleerstoel (SARChI) in Vleiswetenskap: Genomika tot Nutriomika in die Departement VEEKUNDIGE WETENSKAPPE, en me Nina Muller van die Departement Voedselwetenskappe.

Erasmus vertel: "Vir baie Suid-Afrikaners is dit omtrent algemene kennis dat lamsvleis uit die Karoo 'n unieke smaak het weens die geurige Karoobossies wat die skape eet. Daar was egter geen betroubare wetenskaplike bewyse om hierdie anekdotes te staaf nie."

Sy het in haar navorsing verskillende soorte analitiese metodes gebruik om juis dit te doen, en het onder meer navorsing oor isotope gedoen. Sy het ook 'n beskrywende sensoriese analyse oor lamsvleis uit die Karoo voltooi. Van haar bevindinge is reeds in internasionale vaktydskrifte soos *Food Chemistry* en *Small Ruminant Research* gepubliseer.

Deur haar sensoriese analyse het Erasmus bevestig dat lamsvleis uit die Karoo oor unieke sensoriese kwaliteit beskik, en dat dit anders smaak as lamsvleis uit ander streke in Suid-Afrika. Karoolam het 'n meer prominente en definitiewe lamverwante smaak in vergelyking met vleis uit die Vrystaat of die Rûensgebied, waar die skape gewoonlik onderskeidelik gras en lusern en/of wintergraanstoppels vreet.

Erasmus het 'n deel van haar navorsing by RIKILT, 'n navorsingsinstituut aan die Wageningen-universiteit in Nederland, onder leiding van prof Saskia van Ruth, gedoen. Van Ruth is 'n kenner oor hoe mens die oorsprong en egtheid van kossoorte vasstel.

Two doctorates awarded in Agronomy

DR ELIAH MUNDA and **DR JERONIMO ERNESTO MENESES MACHADO RIBEIRO** were awarded PhDs in the Department of Agronomy.

The title of Munda's dissertation was: *Effect of intercropping and phosphorous application on the growth and yield of sweet potato, groundnut and soyabean*.

Munda pointed to the fact that Mozambique has the highest prevalence of vitamin A deficiency (VAD) in southern Africa and 44% of the population is malnourished. The

orange-fleshed sweet potato (OFSP) (*Ipomoea batatas* (L.) Lam) contains beta-carotene, a precursor to vitamin A and can significantly decrease VAD when included in the diet. In this study OFSP was intercropped with two other major protein-supplying crops, which was soyabean (*Glycine max* (L.) and groundnut (*Ara-chis hypogea* L.). Munda found that intercropping of OFSP and groundnut significantly increased the growth and yield of both crops and the combination was superior to any of the other cropping systems tested.

His supervisor was Dr PJ Pieterse and Dr M Andrade acted as external co-supervisor.

The title of Ribeiro's dissertation was: *Optimising harvesting procedures of Amaranthus hybridus L and A. tricolor L under different watering regimes during hot and cool seasons in southern Mozambique*

Drought is the major constraint for food production in arid and semi-arid regions such as southern Mozambique, that has a tropical dry savanna climate. Ribeiro's study assessed the effect of harvesting

procedures and watering regimes on growth, yield and quality of *Amaranthus hybridus* and *A. tricolor*. Both species, produced as leafy vegetables, were tolerant to water deficits of 50% of total available water when subjected to successive cuttings. The best harvesting procedures proved to be topping the plants by 25% every fortnight. The species are good sources of the calcium and protein required in the human diet.

His supervisor was also Dr PJ Pieterse and Dr SI Famba was the external co-supervisor.



Prof Willem Vosloo vier sy 90ste verjaarsdag

die prospektus van slegs een universiteit gegee: dié van die US.

Teen Oktober van sy tweede jaar het Vosloo egter geweet hy wil nie meer brûe en paaie bou nie, maar veel eerder met diere werk. Sy pa was glad nie verbaas oor sy voorgenome programverandering nie, want hy was nooit werkelik oortuig van ingenieurswese as loopbaankeuse vir sy seun nie. "Watter pa ken dan nie sy eie kind nie?" was glo sy woorde.

"Ek't nooit weer teruggekyk nie," vertel Vosloo en sy studieloopbaan het daarna voorwaar voorspoedig verloop. Dosente soos prof Theodorus Reimers, asook prof Jannie Swart, wat hom aan varknavoring bekend gestel het, was blywende invloede.

Sy MSc was oor die voedingswaarde wat gelulpunesaad inhoud vir groeiende varke. Vir sy doktorsgraad het prof Swart hom opdrag gegee om fyner te kyk na die invloed wat voedingsvlakke op die groei, ontwikkeling en karkassamestelling van Minnesotavarke het. Dié het hy blitsig teen 1957 behaal.

Loopbaan as akademikus begin in 1952

Vosloo se loopbaan as akademikus het in 1952 begin toe hy in diens getree het van die Departement van Landbou-tegniese Dienste by die Stellenbosch-Elsenburg Landboukollege. Dit het beteken dat hy ook klas op die hoofkampus van die Universiteit gegee het.

In 1982 het hy professor en hoof van die Departement Vekkunde geword tot en met sy afrede in 1988.

Deur die jare het hy dwarsdeur Suid-Afrika en ook in Zimbabwe praktiese ondervinding opgedoen en spesialiteitsvoortetting aan boere en produsente gelewer. Onder sy leiding is verskeie navorsingsprojekte deurgevoer, onder meer oor die groei en ontwikkeling van plaasdiere, vleisproduksie en vleiskunde. Dis egter varkboerdery wat hom sedert sy meestersgraaddae na aan die hart lê. Hy het gehelp om 'n varknavoringseksie op te bou, en heelwat werk gedoen oor die produksie en kwaliteitstudies oor dié plaasdiere.

Karkaskompetisie

In die vroeë 1950's het hy die saadjie geplant vir die jarelange karkaskompetisie van Spekenham, om produsente te motiveer om die gehalte van vleis wat gelewer word te verbeter. Hy't geweet boere kan nie sommer so 'n kompetisie waarin hulle kan naam maak weerstaan nie. So suksesvol was dit dat die inisiatief weldra landwyd uitgebred is.

"Ek't modelle en skale uitgewerk om alles reg te meet, en was vir jare die beoordelaar daarvan," vertel Vosloo, wat ook gehelp skryf het aan verskeie landbouhandboeke vir skole.

Hy was 'n stigerslid en later ook voorstander van die Suid-Afrikaanse Vereniging vir Diereproduksie, en was jare lank betrokke by die Kaaplandse Varkvleisprodusentevereniging, die SA Varkvleisprodusente-organisasie, die Varktelersgenootskap en die Skakelkomitee vir die Varkbedryf in die Winterreënvalstreek. Die Ministerie van Landbou het ook gereeld op sy nommer gedruk vir advies oor die varkbedryf en oor diereproduksie, en hy was lid van die 1990 KOVSA-kabinetskomitee gemoed met die ontwikkeling van 'n voedsel- en voedingstrategie vir Suider-Afrika.

Bydrae binne die Universiteit

Ook binne die Universiteit het Vosloo 'n bydrae gelewer. Onder sy leiding is die destydse Departement Vleiskunde tot stand gebring, onder meer danksy samewerking met US-verbruikerswetenskaplikes soos Mattie Jooste.

Hy was ook onder diegene aan wie dekaan prof Izak Perold die taak gestel het om in April 1987 'n tweedaagse seminaar te organiseer ter viering van die 100ste bestaan van landbou-onderrig op Stellenbosch. Al die hoë koppe in die landboubedryf was daar as sprekers: van sakeman Anton Rupert tot die voorstander van die Suid-Afrikaanse Landbou-unie, die Vleisraad en die KVV.

Ondanks sy hoë ouerdom geniet Vosloo steeds goeie gesondheid, en bly onder meer fiks deur gereelde stappies saam met een van sy vier kinders, Antonie.

In 'n leefhoekie in die 90-jarige prof Willem Vosloo en sy vrou Christa se huis in Dalsig, Stellenbosch, is 'n besonderse handbeskilderde oorkonde wat byna heuphoogte staan. Dit hang daar neffens ander eerbewyse en 'n klein skilderytjie van 'n vooruitstrewende pienk vark wat met aronskelke omring is.

Dié oorkonde is in 1993 deur die Suid-Afrikaanse Varkvleisprodusente-organisasie aan Vosloo oorhandig. In fyn sierskrif sluit dit soos volg af: "Willem Adriaan Vosloo se bydrae tot die varkvleisbedryf kan moeilik oorskot word. As wêreldekener van dié bedryf kan Suid-Afrika met reg trots wees op hierdie besondere akademikus en praktiese raadgawer."

Vosloo, wat sy 90ste verjaarsdag op 12 Maart gevier het, is een van die langlewendste professore wat voorheen aan die US verbond was. Hy het reeds in 1988 as professor en hoof van die Departement Vekkunde afgestree.

Bande sedert 1946

Sy bande met die instelling strek terug tot 1946, toe hy al die pad van Vereeniging gekom het om ingenieurswese te studeer. Sy bosbouer-pa, wat op sy dag gehelp het om die La Motte-plantasie buite Franschhoek tot stand te bring, het vir hom

Maties now play for a magnum too!

There's an added incentive for rugby players aspiring to be the *Man of the Match* at FNB Varsity Cup home games in Stellenbosch: a magnum bottle of red wine from Stellenbosch University's own wine cellar. This prize is a 1.5 litre Die Laan Alumni 2015 Magnum wine from the Faculty of AgriSciences, home of Stellenbosch University's Welgevallen Cellar. The wine is a blend of Cabernet Sauvignon, Shiraz and Petit Verdot.

Only 600 of these bottles were corked last year. Riaan Wassung, cellar master of the University's Welgevallen Wine Cellar, reckons the magnum could become quite a souvenir, as the wine keeps well.

Quite appropriately, the first recipient of the trophy bottle was Maties flanker Kobus van Dyk, who is a student in the Faculty of Agri-Sciences. Van Dyk received his bottle after the NWU-PUK game, while Brendon Nell received his after Maties beat Nelson Mandela Metropole University (NMMU).

Wassung hopes that the initiative to honour

the best Varsity Cup rugby players will also be extended to the hockey field and netball court later in the season, as well as to other sport codes.

"It's a wonderful initiative by which different entities of the University come together to celebrate our students' athletes and their achievements," says Maties Sport Deputy Director Support Services Matsobane Laka about this gesture received from the Faculty of AgriSciences and Welgevallen Wine Cellar.

Stellenbosch University is the only university in the country with its own wine cellar. It is situated between Coetzenburg and Paul Roos Gymnasium, and is open to the public for sales. Students studying viticulture at the University regularly visit it as part of their practical training.

- Matie Rooiplein and Die Laan wines are for sale throughout the year, and range from R55 per bottle upwards.
- Die Laan Alumni 2015 Magnum is sold at R250 to the public – you therefore do not have to strive



AgriSciences' acting dean, Prof Danie Brink (right) presenting a magnum bottle of red wine to Brendon Nell, Player of the Match in the SU game against NMMU.

to be named *Player of the Match*!

- For more information about the wines on sale, visit www.facebook.com/DieLaanWines
- For enquiries, contact winesales@sun.ac.za or Riaan Wassung at 021 808 2925.