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SOUTH AFRICAN SUGARCANE RESEARCH INSTITUTE



Careers in Sugarcane Agriculture

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Careers in Sugarcane Agriculture

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Careers in Agriculture

What is agricultural science?

Agricultural science is the study of the science and technology underlying the principles and practices of agriculture. It aims to develop knowledge, skills and attitudes concerning the factors that affect the long-term well-being of agricultural resources, and places emphasis on the managed use of these resources. It is an interdisciplinary science that requires knowledge and understanding of a wide range of fields which include the study and care of soil, plants and animals, and how their relationships produce and process food, fibre, and fuel.

Agricultural scientists may be microbiologists, chemists, veterinarians, engineers, plant pathologists, nutritionists or other specialists. What they all have in common is a commitment to sustaining the foundation of our society by working out how to grow crops, raise livestock, produce renewable raw materials for industry or help preserve our environment.

Why choose a career in agricultural science?

There is a shortage of learners interested in studying agricultural science at tertiary level mostly because learners do not equate agriculture with science. Young people often think that taking up a career in agriculture is the same as becoming a farmer. They may also believe that a career in this area is not financially rewarding. This is not necessarily true. Agricultural science is a worldwide industry and there are currently

many employment opportunities in agricultural science throughout South Africa. Agricultural science also contributes to food security and to the economy of the country.

Since agricultural science is a global, interdisciplinary field, students learn to interact with a diverse cross-section of scientists, researchers and environmentalists from many nations. Each person brings a unique perspective to universal issues based on experiences and conditions in his homeland.

How to prepare for a career in agricultural science?

Choose the right subjects in high school e.g. Mathematics, Natural Sciences & Technology. This is usually dependent on your field of study and the requirements of your chosen qualification at a tertiary institution.

Generally it is very difficult to enter an agricultural scientific organisation without some tertiary education. School leavers are encouraged to enroll for further studies.

Who will employ you?

- Government departments (Agriculture, Land Affairs, Water affairs, Land Reform and Development).
- Research Institutes.
- Tertiary Institutions.
- Non-governmental organisations.
- Agricultural organisations.

Salary and remuneration

Salary is not fixed and depends on your level of qualification, experience and the organisation you are working for. Many institutions provide opportunities for overseas and local travel.



SOUTH AFRICAN SUGARCANE RESEARCH INSTITUTE



Who is SASRI?

The South African Sugarcane Research Institute (SASRI) is world-renowned for its research into the development of new sugarcane varieties and improved crop management and farming systems that enhance productivity and profitability.

SASRI is located at Mount Edgecombe in KwaZulu-Natal and was established in 1925 to produce new disease resistant varieties of sugarcane. Today, SASRI delivers new knowledge and technologies, making a significant contribution to the sustainability of the industry. SASRI also facilitates the adoption of technology and best management agricultural practices that encourage responsible and sustainable land use.

SASRI is one of eight divisions of the South African Sugar Association. At present, its main source of funding is derived from the sugar industry, with government funding contributing to Extension and research initiatives. Collaboration with a number of local and international research organisations also significantly contributes to enhancing research output.

Our research at SASRI is guided by four research programmes which help us to focus our specific attention to the various areas of sugarcane farming. By doing this, we can dispense the best advice to growers based on tried and tested research so that they can sustain their farming operations and productivity levels. Our four research programmes are:

Variety Improvement

Variety improvement looks at producing superior new varieties for all regions of the industry.

Crop Protection

Involves the integrated management of diseases and pests to reduce risks and damage.

Crop Performance & Management

Enables the production of high quality sugarcane through understanding how land, water and crop management affect the sugarcane environment.

Systems Design & Optimisation

Optimises crop production through computer modelling technologies and farming systems approaches.

Career opportunities at SASRI

There are a number of career opportunities at SASRI for candidates who have completed an agricultural or scientific qualification. Specific professions may include:

Agronomist, Entomologist, Plant Geneticist, Agricultural Economist, Plant Pathologist, Technician, Extension Specialist or Soil Scientist to name just a few.

In addition to research positions at SASRI, there are a number of people who offer support and contribute to research programmes, for example technical and field assistants, extension specialists, knowledge workers and laboratory technicians.

Joining SASRI

If a suitable vacancy exists at SASRI, you could be employed in one of the above disciplines.

A National diploma or undergraduate degree could see you entering the organisation at a junior level.

Personal growth and development in agricultural research and science is encouraged at SASRI. Individuals therefore have a chance to develop their careers further by enrolling for higher degrees. Senior staff include those at an MSc or PhD level with suitable years of experience thus making them recognised experts in their chosen disciplines.

If vacancies do not exist at the time of your enquiry, there is a possibility of joining SASRI's Research Internship programme.

Research internship programme

This is a one to two-year internship programme for candidates with a diploma or degree. Having met the SASRI criteria, candidates are then considered for the internship programme. It aims to

develop research skills and offers candidates an opportunity to apply their theoretical undergraduate education within a research context. After a two-year internship, students may be considered for SASRI's Post-graduate Student Programme. One of the aims of the internship programme is to provide individuals with work experience thus preparing them for full-time employment. Opportunities also exist for interns to contribute to specialist support areas at SASRI. These areas include Extension, Health & Safety, Programming, Knowledge Management and Library Sciences.

Post-graduate programme

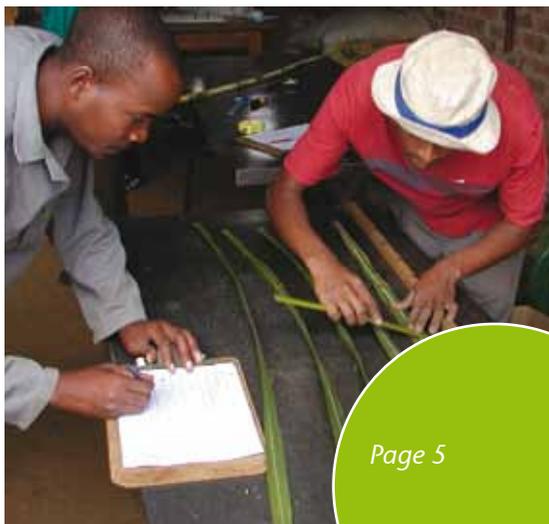
SASRI conducts a portion of its research in collaboration with other research institutes and universities. Post-graduate students play an important role in these collaborative efforts and Masters, Doctorate and Post-doctorate students are involved in not only achieving their own personal objectives, but contribute to research projects that impact the sugar industry.

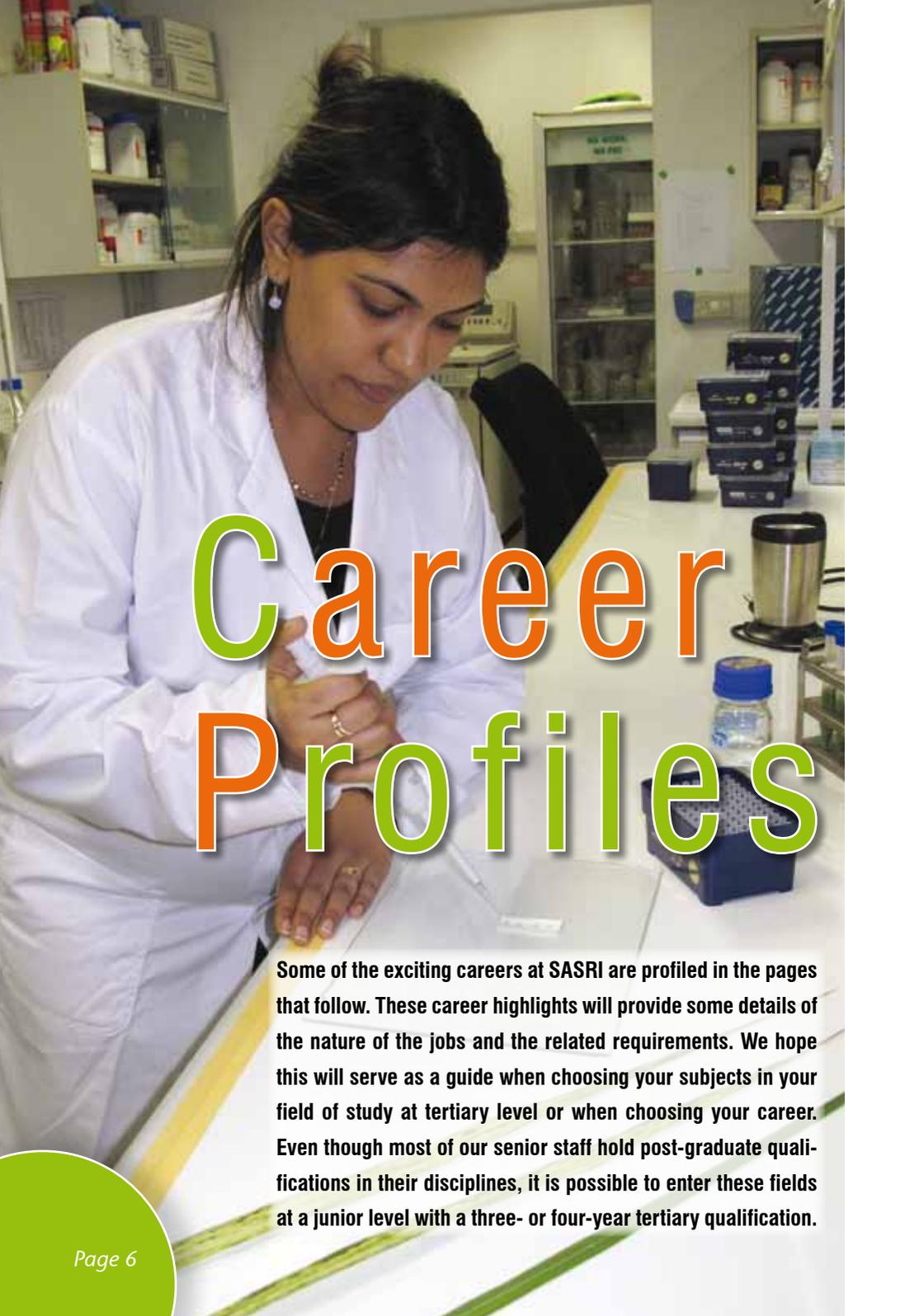
To apply for the Internship or Post-graduate programme, contact:

The Human Resources Officer

Tel: 031 – 508 7506 Fax: 031 – 508 7596

E-mail: applicants@sugar.org.za



A woman with dark hair tied back, wearing a white lab coat, is focused on her work in a laboratory. She is leaning over a white lab bench, with her hands near a piece of equipment. The background shows shelves with various lab supplies, a refrigerator, and a coffee maker on the bench. The text 'Career Profiles' is overlaid on the image in large, colorful letters.

Career Profiles

Some of the exciting careers at SASRI are profiled in the pages that follow. These career highlights will provide some details of the nature of the jobs and the related requirements. We hope this will serve as a guide when choosing your subjects in your field of study at tertiary level or when choosing your career. Even though most of our senior staff hold post-graduate qualifications in their disciplines, it is possible to enter these fields at a junior level with a three- or four-year tertiary qualification.

Biometrician



Nikki Sewpersad works as a Biometrician at SASRI. She provides statistical support, advice and guidance into the design of experiments and analysis of data. Her job involves:

- consulting with research workers about their research projects, gaining subject area knowledge and helping to formulate relevant research questions,
- advising on the best statistical designs to use by reference to past experiences and best practices,
- analysing data using various statistical packages, ensuring that the analyses are designed to meet the objectives of the experiment, and
- assisting with the interpretation of results.

To work as a Biometrician you would need to complete a BSc with Honours (Biometry) or an MSc (Biometry). Nikki enjoys her job because it is very challenging. She liaises with different departments on a daily basis thus deepening her knowledge on a variety of research areas. As textbook statistics cannot always be applied to real life situations, a big challenge of being a Biometrician is finding a way to implement sound statistics that can actually be applied out in the field.



Bio-resource Engineer

Peter Tweddle is a Bio-resource Engineer at SASRI. He constantly seeks ways to adapt, design, develop or improve technology or systems that are used in the sugarcane industry. The main focus areas of bio-resource engineers at SASRI are irrigation, mechanisation and transportation system improvements. Projects may range from mill level investigations through to sustainable farming practice recommendations. SASRI engineers team up and work together with farmers, scientists, economists and other specialists to develop practical sustainable solutions to problems that need to be solved.

Peter finds his job challenging and varied with a good mix of field-work, conceptual, analytical, creative, design, strategic and tactical aspects. Engineers interact with a wide range of people of different disciplines which is interesting and rewarding. As demands on water, energy and other resources change, the challenge is to continuously improve, adapt, solve and promote engineering technology and solutions to meet industry needs.

Biotechnologist

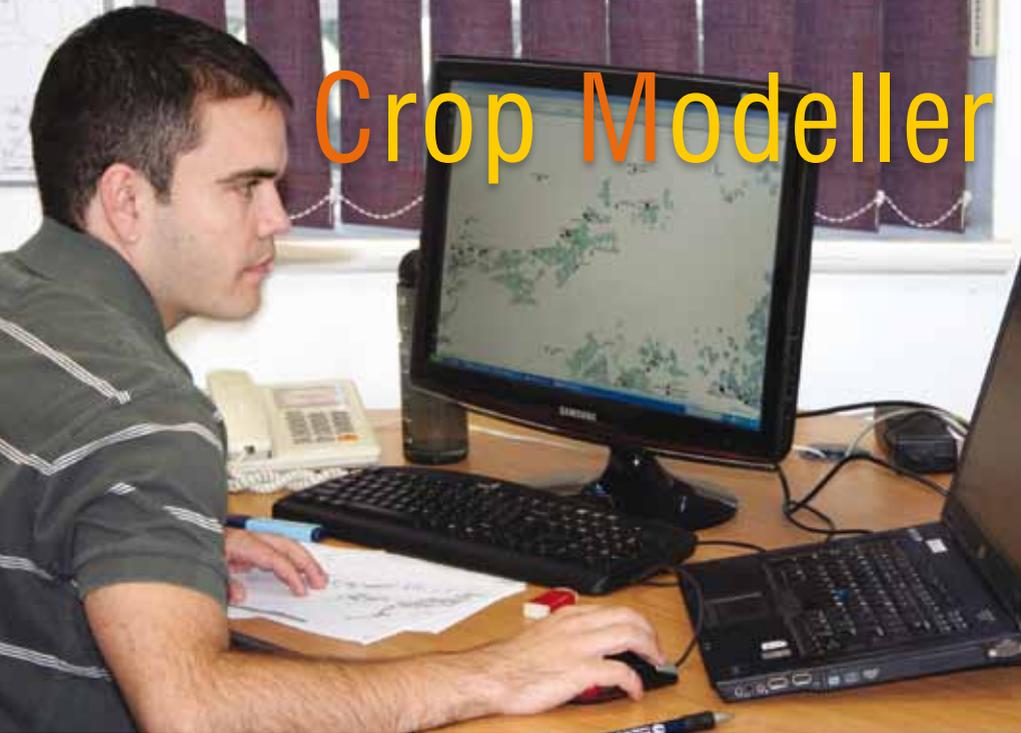
Sandy Snyman works as a Biotechnologist at SASRI. As a biotechnologist, she aims to improve sugarcane by conducting research in the areas of *in vitro* culture and genetic engineering. *In vitro* culture can also be referred to as tissue culture and there are many applications of this technology: micropropagation of sugarcane, screening for pest and disease resistance and disease elimination. Genetic engineering involves the incorporation of novel genes in sugarcane which confer characteristics such as insect and herbicide resistance and altered sugar production. Both aspects of the job involve a research and development phase which is laboratory-based before any application can be implemented in the field.

To work as a Biotechnologist, you would need to complete an MSc or PhD in the biological sciences (agricultural biotechnology, molecular biology or cell biology). Sandy enjoys applying scientific-based research to answer practical problems, involvement in post-graduate student training, studying a broad range of sugarcane related research topics and being able to participate in inter-disciplinary research (e.g. interaction with pathologists, physiologists, entomologists and agronomists). A few challenges of her job include ensuring that:

- research has an applied outcome for sugarcane growers,
- research results are communicated effectively, and
- new technologies are harnessed in a manner that will benefit sugarcane growers.



Crop Modeller



Michael van der Laan is a crop modeler at SASRI. He develops and applies computer models to improve SASRI's knowledge on the functioning of agronomic cropping systems. The ultimate aim of this work is to support research endeavours and transform it into profitable and sustainable sugarcane production.

His job involves using data from previous research to develop models that can be used to investigate sugarcane production system dynamics. It also includes applying existing models in current research projects in order to help farmers make decisions on how to manage their farm.

To work as a crop modeler you would need to complete an MSc or PhD in agronomy or soil science.

Michael is helping sugarcane growers get better crops by using modeling to effectively compare and assess the effectiveness of different management strategies. Modelling can be applied, for example, to determine the best timing for irrigation and fertilizer applications according to crop demand.

He enjoys collaborating with a wide range of scientists with different specialties and developing new models that can be used to advance SASRI's knowledge and help farmers. The challenge of helping farmers produce a profitable crop with minimal negative impact on the environment is also very exciting and rewarding.

Some of the challenges of Michael's job include: using mathematics to adequately describe agronomic systems, converting findings from modelling exercises to inform improved management decisions, keeping up with the interesting research that is being done all over the world and ensuring a fair balance between production objectives and environmental sustainability.



Entomologist

Graeme Leslie is an Entomologist at SASRI. He studies insects that damage the sugarcane crop and devises ways of controlling them so that sugarcane production can be maximised. Often basic information on insect pests is poor. As a result, research is devoted to examining challenging issues such as the biology, distribution and seasonal cycles of pests. This requires much laboratory and field research in a wide range of applied entomology fields. Not only do entomologists conduct and develop projects, they also need to communicate their findings to growers in the form of recommendations that can be usefully applied on the farm.

To work as an entomologist you would need to complete an MSc or PhD in fields such as integrated pest management, insect physiology, biology and ecology. Graeme enjoys the wide range of skills and techniques that can be learned and applied to pest control, the opportunity to do both laboratory-based and field-based research and talking to growers and explaining research findings that are of use to them. Some of the challenges of being an entomologist include the continual monitoring of the pest situation in the industry so as to be aware of possible new threats and developing cost-effective recommendations and communicating these to sugarcane growers.

Extension Specialist

- N**athi Hlongwa is an Extension Specialist. He helps individual cane growers to:
- solve their farming problems by promoting good farming practices that lead to increased profitability and productivity in harmony with the environment,
 - identify their research needs and communicate these to SASRI,
 - assist with the implementation of trials and experiments to meet these research needs, and
 - support grower structures and other relevant institutions and persons with technical advice related to the production of sugarcane.

To work as an Extension Specialist you need to study a BSc (Agriculture) degree or an Agricultural Diploma, and have good people skills. Nathi enjoys the variety of challenges he faces on a daily basis. He likes working with people, helping them to achieve their goals and at the same time being exposed to and facilitating research and development. Nathi also enjoys working outdoors on farms for much of his time. Some of the challenges he faces are working with a wide range of problems and with people who have diverse needs. He has to facilitate contact between people and between organisations and has to be a 'jack-of-all-trades'.



Farm Manager

Anil Singh is a Farm Manager at SASRI. He manages the SASRI research station and 'off station' trial sites.

To work as a Farm Manager, you would need a Diploma in Agriculture or a BSc Agriculture with a Certificate in Sugarcane Agriculture. Practical farming and/or horticultural experience as a manager as well as a mechanical aptitude will be beneficial.

Anil's job is demanding, diverse and requires regular decision-making. He enjoys working outdoors in the natural environment and interacting with a range of people from different cultures and backgrounds.

Some challenges of his job include providing services and resources to the Plant Breeding and Selection Programme and other researchers despite varying weather conditions, and the accurate allocation of the appropriate resources for jobs that have to be done.





GIS Research Officer

Ingrid Mthembu works as the GIS and RS research officer at SASRI. A Geographic Information System (GIS) is a system of hardware and software used for storage, retrieval, mapping, displaying, and analysis of geographically referenced data. Remote sensing (RS) is a science of acquiring information about an object without being in direct contact with it, e.g. the use of satellite images. This information is used by farm planners to produce correct farm layouts for the grower and by researchers to link their information to real and existing locations on the ground. Remote sensing is also used to collect scientific information on sugarcane fields, e.g. detecting some diseases, water stress, etc.

Ingrid is responsible for:

- managing and maintaining the SASRI GIS database,
- providing Remote Sensing technology to the different research programmes,
- providing technical supervision to the GIS office, and
- co-ordinating hardware and software needs.

To work as a GIS Research Officer you would require a post-graduate qualification in GIS and RS, and preferably some work experience. Ingrid enjoys interacting with people from different disciplines as well as keeping abreast with remote sensing techniques. One of the challenges of her job is maintaining the vast GIS database which is filled with satellite images, aerial photos and GIS data files.

Irrigation Scientist

Francois Olivier is an Irrigation Scientist at SASRI. Francois studies the way crops grow under irrigation and seeks to optimise agronomic aspects of water management by:

- conducting field research into new ways of achieving high yields and quality and more efficient utilisation of our limited water resources,
- advising growers on the latest irrigation technologies available and the most efficient way of scheduling irrigation water i.e. (when and how much water to apply), and
- assisting in the development of various irrigation aids such as computer software programs and providing training in the use of these aids.

To work as an Irrigation Scientist you would have to complete an MSc or PhD in Agronomy with a strong focus on irrigation science, soil science and agro-meteorology. Francois enjoys his job because it is very challenging and ideal for someone who enjoys a good mix of field and office work. Irrigation scientists can either be employed as consultants, researchers or teachers and can work for agricultural experiment stations, state government agencies, industrial firms or tertiary institutions. Some challenges of his job are finding new ways to increase the output of irrigated crops while protecting and preserving our environment.



Knowledge Manager

As a Knowledge Manager at SASRI, Michelle Binedell facilitates the flow of research knowledge through the research institute by:

- developing systems for the collection, protection and accessibility of information,
- managing a portfolio of publications that communicate research outcomes to growers,
- providing mechanisms for the protection of intellectual property,
- providing a library service that serves as a store for information and facilitates the acquisition of new knowledge, and
- managing grower days, career days and liaison with key customers in the industry.

To work as a Knowledge Manager in an agricultural research institute, you would need a postgraduate qualification in biological sciences and/or a communication or media degree or diploma. Michelle enjoys being in a creative position within a scientific environment, meeting a diverse array of people and being involved in making research outcomes accessible to and useful for growers. A challenge of her job is ensuring that important messages are communicated clearly in the most appropriate manner to a select audience.



Laboratory Technician

Christy Moonsamy is a Laboratory Technician at the Fertiliser Advisory Service at SASRI. His job involves preparing and analysing soil, leaf and fertiliser samples to determine the requirements for fertiliser application. A technician uses a variety of techniques in a laboratory environment, including:

- various extraction procedures, where minerals are brought into solution from the soil,
- instrumentation such as the Atomic Absorption Spectrometer (AA), Inductively Coupled Plasma (ICP), Near Infra Red (NIR) and X-Ray Fluorescence Spectrometer (XRF) for analysing specific minerals, and
- bench chemistry, including titrations.

In addition to FAS, there are several other laboratories at SASRI including: biotechnology, pathology, nematology, plant physiology, and chemistry. Technicians working in these different laboratories require a specific set of skills and training for the efficient functioning of these facilities.

To work as a Laboratory Technician you would have to study a National Diploma, BSc, or a B.Tech degree. Although Christy's job is routine in nature, it is interesting and technicians have an opportunity to perform different tasks on a daily basis. Some of the challenges of his job involve working with new technology and new instruments requiring calibration and problem solving skills.



Molecular Biologist

Deborah Sweby is a Molecular Biologist at SASRI. Molecular Biologists aim to understand how biological processes work at the molecular level. They study the interactions between the various systems of a cell, including DNA, RNA and protein biosynthesis. Molecular Biology contributes to many different aspects of research at SASRI including:

- pathology: devising diagnostic tests to detect diseases in the sugarcane plant based on the DNA or RNA sequence of the disease-causing organism.
- entomology: detecting genetic differences and similarities between insect populations.
- plant biochemistry and physiology: isolating genes associated with plant growth and sucrose accumulation and examining how these genes regulate physiological processes.
- plant breeding: identifying DNA markers that are linked to desirable traits in a sugarcane plant. This information assists the breeders when selecting the best sugarcane parents for breeding.

Molecular Biologists need an MSc or PhD in Biological Sciences specialising in molecular biology. Molecular biology is a rapidly developing discipline so there is always something new to learn. Deborah finds her job diverse as there are many different research areas where molecular biology approaches can be applied. Some challenges of the job include working at the molecular level which means never 'seeing' (with the naked eye) the subject matter under investigation. Since biological systems are complex, experimental results are often contrary to those expected and extensive troubleshooting is required.





Nematologist

Shaun Berry is a Nematologist at SASRI. Shaun studies nematodes (small, microscopic worms) in the soil that attack the roots of sugarcane and result in the reduced uptake of nutrients and water and reduced plant growth. This type of research typically involves:

- identifying the causes of poor growth in the field and advising sugarcane growers on the most appropriate course of action to take to limit further damage and spread,
- conducting research on management practices to reduce yield losses,
- testing released varieties for their susceptibility or tolerance to nematode damage and advising growers on which varieties to plant, and
- testing (biological, chemical and physical) control products to reduce nematode damage.

To work as a Nematologist you would need to complete an MSc or PhD in a biological science such as Nematology, Plant Pathology or Microbiology.

Shaun enjoys his job because it is challenging and varied with a good mix of field, laboratory and office work. Meeting people with different backgrounds and skills is very interesting. Attending conferences in exotic locations and visiting different laboratories is another perk of the job. Talking to growers and advising them of solutions to their particular problems is also rewarding. Challenges of being a Nematologist include having to constantly remind growers that this pest, which is not visible to the naked eye, is present and is causing significant yield losses. In addition, a nematologist has to formulate new and improved disease management strategies that can be adopted by growers.

Plant Breeder



Shailesh Joshi works as a Plant Breeder at SASRI. He develops and delivers new sugarcane varieties that provide increased economic returns for all sectors of the industry by:

- developing and releasing varieties with sucrose, yield, pest and disease and agronomic characteristics desirable to both millers and growers,
- diversifying breeding strategies to include fibre quality and quantity for next generation bio-fuel production,
- implementing molecular breeding and crop modeling strategies to improve variety delivery, and
- developing new genetic resources for variety improvement through basic research and genetic engineering.

To work as a Plant Breeder you would need to study an MSc or PhD in Agricultural Sciences with a specialisation in Plant Breeding and Genetics.

Shailesh enjoys his job as it is challenging and involves creating new varieties that address the needs of the farmers in the industry. It is also varied with a good mix of field studies, laboratory work, bio-informatics and biostatistics. Some of the challenges of his job include breeding and releasing varieties in an environment that is changing continuously in terms of pest and disease pressure, climatic change and social/political issues. Furthermore, because of the nature of the sugarcane plant genome, the identification of genes responsible for various characteristics in sugarcane is more difficult, thereby complicating the molecular breeding strategy.



Plant Pathologist

Sharon McFarlane works as a Plant Pathologist at SASRI. Sharon studies plant diseases with the aim of keeping sugarcane healthy and reducing the impact of diseases by:

- identifying the causes of diseases in the field and advising sugarcane growers on the most appropriate course of action to take to limit further damage and spread,
- conducting research on the spread and management of sugarcane diseases,
- assisting the Plant Breeders in selecting new sugarcane varieties that have acceptable disease resistance, and
- developing rapid and reliable disease diagnostic tests.

To work as a Plant Pathologist you would have to complete an MSc or PhD in a Biological Science such as Plant Pathology or Microbiology. Sharon finds her job challenging and varied with a good mix of field, laboratory and office work, while meeting people from different backgrounds with different skills is extremely interesting and rewarding for her. A few challenges of her job include: managing diseases caused by new pathogens or those that are common but have changed genetically, and formulating new and improved disease management strategies that can be adopted by growers.

Plant Physiologist

Riekert van Heerden is a Plant Physiologist at SASRI. He studies how sugarcane interacts with the environment (air, soil and water) with the aim of understanding the factors that determine sugarcane growth and yield (biomass and sucrose). This research includes:

- studying the plant's response to stress factors such as drought and temperature extremes,
- resource (sunlight, water, nutrient) use efficiency and how sugarcane varieties differ from each other in these efficiencies,
- assisting Plant Breeders in selecting new sugarcane varieties that have superior stress tolerance and resource use efficiency, and
- developing rapid and reliable screening tools to evaluate sugarcane varieties for the above mentioned desirable traits.

To work as a Plant Physiologist you would need an MSc or PhD in Botany/Crop Science with a strong focus on Plant Physiology and Biochemistry subjects. Riekert enjoys the satisfaction of interpreting the factors that determine sugarcane yield and productivity, exposure to a balance of field and laboratory based research, working with state-of-the-art research equipment and interacting with sugarcane growers. Some of the challenges of being a Plant Physiologist include: understanding the factors driving sugarcane productivity in a dynamic environment influenced by global factors such as climate change, and the formulation of new and improved management strategies that can be adopted by growers for enhancing the sustainability of sugarcane production.



Scientific Programmer

Aresti Paraskevopoulos works as a Scientific Programmer at SASRI. His main responsibilities include:

- making modifications to crop models,
- developing new models,
- running and maintaining existing models,
- performing analysis on results, and
- assisting growers and the industry with queries about models and weather data.

To work as a Scientific Programmer you would need to complete a BSc Honours with computer science and have studied some Mathematics, Physics, Biology, Agronomy or Statistics. The job requires programming in a variety of languages. In addition to programming he identifies ideas for improving models. He finds working with both scientists and growers very rewarding. One grows as a programmer by learning from past programmes and researching new techniques. A challenge of Aresti's job is learning new programming languages and techniques, improving model performances e.g. speed, and learning the science and equations used in crop models.



A man with grey hair, wearing a light green and white striped polo shirt and blue jeans, is looking down at a small amount of soil he is holding in his hands. He is standing in a field with tall green grasses in the background under a blue sky with light clouds.

Soil Scientist

Neil Miles is a Soil Scientist at SASRI. Soil types and their properties vary widely in South Africa. Soil Scientists play important roles in terms of:

- characterising the potential of various soils for crop production,
- conducting field trials to establish best management practices for sustainable crop production on different soils,
- optimising the use of fertilisers, manures and liming materials for sugarcane production, ensuring that the use of these products does not result in harm to the environment, and
- developing laboratory methods for testing soils.

A Soil Scientist would need an MSc or PhD, with Soil Science as a major subject. Neil enjoys the combination of practical field work, interaction with farmers and consultants, and laboratory and desktop research which ensures there are many challenges and no monotony in his work. Some of the challenges of his work include identifying limiting factors in order to optimise sugarcane production, developing management practices that ensure high yields and sustainable soil use, and promoting the adoption of these practices by farmers.

Weed Scientist

Peta Campbell is a Weed Scientist at SASRI. She aims to reduce weed vigour and competition thus promoting the rapid growth of sugarcane. Her focus is to reduce the impact of weeds by:

- conducting research on the control and management of 'problem' weeds,
- identifying 'emerging' weeds and conducting awareness campaigns to warn growers and offer advice on actions needed to limit spread on farms,
- assisting agrochemical companies test effectiveness of new herbicides to control weeds, and
- developing new and improved weed management strategies.

To work as a Weed Scientist, you would need to complete an MSc or PhD in a Biological Science such as Botany or Weed Science. Peta enjoys her job because the work requires the linking together of old ideas and technologies and 'thinking outside the box' to help develop new ideas to control problem weeds. Demonstrating improved weed control to growers is also very rewarding. Some challenges of her job include: encouraging the adoption of recommendations, managing weeds that may become resistant to some herbicides and assisting emerging growers to adopt the best technology on an affordable scale.



Tertiary Institutions

There are many Tertiary Education Institutions in South Africa. It is very important that you choose one that is best suited to your needs. Please contact them to find out about their respective requirements before registering for your undergraduate degree or diploma.

Tertiary institutions offering qualifications in Agricultural Sciences:

KwaZulu-Natal:

CEDARA College of Agriculture
Durban University of Technology (DUT)
Mangosuthu University of Technology (MANTECH)
Owen Sithole College of Agriculture (OSCA)
University of KwaZulu-Natal (UKZN)
University of South Africa (UNISA)
University of Zululand (Ongoye)

Other Provinces:

Lowveld Agricultural College
Nelson Mandela Metropolitan University (NMMU)
North West University
Potchefstroom Agricultural College
Rhodes University
University of Fort Hare
University of Free State
University of Pretoria
University of Stellenbosch

Web addresses of all Universities, Universities of Technology and Colleges:

Border Technikon

See: Walter Sisulu University of Technology and Science

Cape Peninsula University of Technology

URL: <http://www.ctech.ac.za/>

Cape Technikon

See: Cape Peninsula University of Technology

Cedara

<http://agriculture.kzntl.gov.za/portal/Colleges/Cedara>

Central University of Technology

URL: <http://www.cut.ac.za/www>

Durban University of Technology

URL: <http://www.dit.ac.za/>

Eastern Cape Technikon

See: Walter Sisulu University of Technology and Science

M. L. Sultan Technikon

See: Durban University of Technology

Mangosuthu Technikon

URL: <http://www.mantec.ac.za/>

Nelson Mandela Metropolitan University

URL: <http://www.nmmu.ac.za/>

North-West University

URL: <http://www.nwu.ac.za/>

Owen Sithole College of Agriculture

<http://agriculture.kzntl.gov.za/portal/Colleges/OwenSithole>

Peninsula Technikon

See: Cape Peninsula University of Technology

Port Elizabeth Technikon

See: Nelson Mandela Metropolitan University

Potchefstroom University for Christian Higher Education

See: North-West University

Rand Afrikaans University

See: University of Johannesburg

Rhodes University

URL: <http://www.ru.ac.za/>

Technikon Free State

See: Central University of Technology

Technikon Northern Gauteng

See: Tshwane University of Technology

Technikon Northwest

See: Tshwane University of Technology

Technikon Pretoria

See: Tshwane University of Technology

Technikon South Africa

See: University of South Africa

Technikon Witwatersrand

See: University of Johannesburg

Tshwane University of Technology

URL: <http://www.tut.ac.za/>

University of Cape Town

URL: <http://www.uct.ac.za/>

University of Durban-Westville

See: University of KwaZulu-Natal

University of Fort Hare

URL: <http://www.ufh.ac.za/>

University of Free State

URL: <http://www.uovs.ac.za/>

University of Johannesburg

URL: <http://www.uj.ac.za>

University of Limpopo

URL: www.ul.ac.za/

University of Natal (Durban)

See: University of KwaZulu-Natal

University of Natal (Pietermaritzburg)

See: University of KwaZulu-Natal

University of Port Elizabeth

See: Nelson Mandela Metropolitan University

University of Pretoria

URL: <http://www.up.ac.za/>

University of South Africa

URL: <http://www.unisa.ac.za/>

University of Stellenbosch

URL: <http://www.sun.ac.za/>

University of the North

See: University of Limpopo

University of the North-west

See: North-West University

University of the Western Cape

URL: <http://www.uwc.ac.za>

University of the Witwatersrand

URL: <http://www.wits.ac.za/>

University of Transkei

See: Walter Sisulu University of Technology and Science

University of Venda

URL: <http://www.univen.ac.za/>

University of Zululand

URL: www.uzulu.ac.za

Vaal University of Technology

URL: <http://www.vut.ac.za/>

Vista University

See: University of South Africa

Walter Sisulu University of Technology and Science

URL: <http://www.wsu.ac.za/>

Funding Assistance

Funding available through universities and technikons

Most universities and technikons offer financial assistance for students registered at that institution. Please contact their financial aid offices to find out more about their funding assistance.

Post graduate students should investigate bursary opportunities e.g.

- Third World Academy of Sciences
- The International Foundation for Science (IFS): Call for Research grant applications from developing country scientists
- JNCASR-COSTED FELLOWSHIP PROGRAMME
- National Research Foundation Funding
- Wellcome Trust Funding for Research

Funding available through SASRI's Post-graduate programme

Successful applicants of SASRI's Post-graduate programme are awarded a bursary, details of which are available from:

Catherine Botes (Human Resources Manager)

Tel: 031-508 7505 Fax: 031-508 7597

Email: catherine.botes@sugar.org.za.

Funding available through the South African sugar industry

The South African sugar industry offers bursaries for approximately 41 undergraduate students each year. These bursaries are administered by the South African Sugar Association through the Sugar Industry Trust Fund for Education (SITFE). SITFE is a private sector initiative aimed at assisting dependants of people associated with the sugar industry. To qualify, candidates must be South African citizens from KwaZulu-Natal or Mpumalanga, and must be accepted for studying Agriculture, Science or Engineering at a University, University of Technology or College of Agriculture.

For more information, please contact:

The Sugar Industry Trust Fund for Education (SITFE)

P. O. Box 700, Mount Edgecombe, 4300

Tel: 031-508 7000 Fax: 031-508 7191

Email: thandeka.mazibuko@sasa.org.za or

bursaries@sasa.org.za

Website: www.sugarindustrydev.co.za or

www.sasa.org.za



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