

CITRUS ACADEMY celebrates two decades

The Citrus Academy celebrates its 20th anniversary this year. By **Sam Louw**

The significant contribution of the Citrus Academy to the citrus industry of SA over the last 20 year must be acknowledged and celebrated.

Established in 2005 by the Citrus Growers' Association of Southern Africa (CGA), the Academy has been instrumental in addressing challenges in the citrus industry, particularly skills development, empowerment and transformation.

Guiding its activities, the CGA funds the Citrus Academy through a service fee, as one of its transformation initiatives. It has also assigned the Citrus Academy to enable and facilitate skills development, and gives direction to the activities of the Academy, through its representation on the Citrus Academy board of directors.

One of the flagship initiatives of the Academy is the Citrus Academy Bursary Fund, launched in 2006. The fund aims to provide financial support to students pursuing citrus-related studies, ensuring a steady inflow of skilled professionals into the industry. Over the years, the fund has awarded R35 million for 1 095 bursaries to 390 recipients, covering tuition, accommodation, and research costs for postgraduate students. The Citrus Academy also funds students to participate in its industry exposure programmes. Work-integrated learning like vacation work is encouraged, to gain practical experience.

Understanding the need for accessible and relevant learning resources, the Citrus Academy has developed comprehensive learning materials tailored to the citrus industry. These resources encompass a range of topics, from citrus production and packing to business administration and export supply chain management.



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The Academy works closely with citrus growers and the CGA to drive industry growth and transformation.



Available through their e-learning platform, these materials ensure that both current and aspiring industry participants build the knowledge they need.

In its commitment to continuous learning, the Academy offers various programmes aimed at different facets of the industry. A standout initiative is the Citrus Secondary

Programme that targets high schools in citrus-producing regions. This two-year course offers Grade 10 and 11 learners a pathway to a citrus production qualification. By engaging students early on, the Academy is paving the way for a new generation of skilled professionals in the industry. Then there's the Citrus SuperPower Programme, designed to enhance supervisory skills within the industry.

At the helm of these initiatives is Jacomien de Klerk, the general manager of the Citrus Academy. Her leadership has been instrumental in steering the Academy's projects and programmes, fostering collaboration with various stakeholders, and ensuring that the programmes align with CGA objectives and industry needs. Under her guidance, the Academy has worked closely with citrus growers and the CGA group of companies, creating synergies that drive industry growth and transformation.

So, as the Citrus Academy marks 20 years of service, it remains committed to its mission of empowering individuals, supporting growers and advancing the citrus industry. With a solid foundation built on skills development, innovation, and collaboration, the Academy is well-positioned to continue its work, nurturing the next generation of citrus industry leaders.

In celebrating this milestone, the Citrus Academy is reflecting on its past achievements, as well as looking to future opportunities to enable skills development in the Southern African citrus industry.



Exploring X-ray irradiation

Exploring X-ray irradiation as a sustainable alternative for XSIT's Sterile Insect Technique in the control of false codling moth. By **Rob Elfick**

Sterile insect technique (SIT) is a population suppression mechanism that is used for the area-wide integrated pest management of *Thaumatotibia leucotrea* – false codling moth (FCM) – in citrus and other fruit crops in SA. This SIT programme has been successfully implemented by XSIT since 2007, using a Cobalt-60 gamma irradiation source. A dose of 150-200 Gy is used for sterilisation of male and female moths, which are released into orchards. The sterilised moths compete and mate with wild moths, leading to a reduction in viable eggs, larval infestations and moth numbers.

For the past two years XSIT has been working on a project funded by Sandia National Laboratories, in conjunction with the National Nuclear Security Administration's Office of Radiological Security (ORS) in the US. The project aims to investigate the use of X-ray irradiators for SIT in SA, as well as working towards reducing the risk of high activity sources such as Cobalt-60. As part of this project, the XSIT team has been collaborating with researchers and other stakeholders from various South African organisations (including the Wits Health Consortium, National Institute Communicable Diseases, iThemba Labs, the South African Sugarcane Research Institute, the Agricultural Research Council and other SIT facilities) to investigate the feasibility of using X-ray irradiators instead of radioactive gamma sources for insect irradiation.

The main purpose of our work is to determine whether X-ray irradiation, as a viable alternative to gamma irradiation, can be used by XSIT to successfully sterilise FCM.

Key items to be addressed

- What is the correct absorbed dose required for sterilisation of the moths using

an X-ray irradiator, and can that dose be delivered consistently?

- Does the selected dose provide suitable levels of sterility in both male and female moths?
- Can we maintain similar levels of moth quality using X-ray irradiation, i.e., do X-ray irradiated moths maintain good levels of flight ability, flight propensity and competitive mating behaviour in relation to wild moths?
- Can we reliably irradiate and deliver the quantity of moths that are required per day for a full season of the XSIT programme?

XSIT team members travelled to Johannesburg to conduct trials, receive training and participate in the collaborative project. Dose mapping was completed in conjunction with iThemba Labs to determine the Gy/min required to ensure moths received an even, equivalent X-ray irradiation dose. This dose rate was then used to conduct small-scale sterility tests on irradiated FCM moths. We were able to achieve similar levels of sterility in

comparison to gamma-irradiated moths. We also conducted small-scale flight tests as part of the sterility trials. These flight tests indicated that the quality of X-ray irradiated moths was satisfactory. Therefore, the initial results showed that the Rad Source X-ray irradiator was comparable to the gamma source in terms of sterility and quality.

Positive project results have led to the installation of an onsite X-ray irradiator at the XSIT facility in Citrusdal, Western Cape – exciting news! This machine will enable bulk/stress testing of the capabilities of X-ray irradiation to better understand the use of an X-ray irradiator in a more commercial setting.

Overall, the project has allowed XSIT to enhance scientific knowledge regarding the use of these alternative methods of irradiation, particularly for moths. Next, will be furthering the studies on a larger scale.



Rob Elfick and Charlene Scott at the X-ray Source, at the XSIT facility in Citrusdal