

1st Pesticide Analysis Summer School

Supporting sustainable agricultural practices, ecosystem health and exports through accurate measurement.

The agricultural sector is a major contributor to the gross domestic product (GDP) as well as total employment of many African Countries. To place exports in context, the value of edible fruits and nuts from Africa to the European Union represent a € 43 billion market.

Agricultural products to be sold for human or animal consumption are governed by local and international legislation stipulating MRLs for pesticides. Therefore, accurate quantification of these compounds is not only crucial in safeguarding human and animal health but also in securing exports.

The aim of this summer school will be to empower attendees with a broad background in pesticide analysis, as well as hands-on experience in the extraction, purification, and quantification. This will range from legislative requirement, the implementation of decision rules, calculations of acute reference dose (ARFd) using the PRIMo – Pesticide Residue Intake Mode as well as the analysis process from intake to reporting.

**Limited space available,
maximum of twenty
participants - register now!**

**JOIN OUR PESTICIDE
ANALYSIS JOURNEY**

**From the farm to market
– how to ensure analysis
supports industry.**

**27 November - 8 December
2023**

**An informative workshop
aimed at anyone interested
in the analysis of pesticides
in food matrices.**



The AFRIMETS initiative is supported by



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**Excellence through measurement
Opening the doors to Africa and beyond**

Friendly, Knowledgeable Facilitators

- The course will be presented by facilitators that strongly encourage interactive training, with a willingness to share.
- The first day of the course will be combined with a virtual workshop to encourage the sharing of information from suppliers to users throughout the continent.
- Facilitators will include:
 - Dr Laura Quinn (NMISA)
 - Dr Angelique Botha (NMISA)
- Technical applications featuring the following manufactures/ suppliers
 - Agilent; Leco Africa; Thermo Scientific and Waters
- Presentations by academic specialists

WEEK 1 - THEORETICAL CONSIDERATIONS OF PESTICIDE

DAY 1: Fundamental laboratory techniques	DAY 2: Regulations and Legislation	DAY 3: Decision rules and ARFd	DAY 4: Extraction and purification	DAY 5: Chromatographic analysis
<ul style="list-style-type: none"> • Good weighing practice • Care and effective use of pipettes • General calculations for the preparation of calibration solutions • General quantification calculations • Introduction to performing these calculations in Excel 	<ul style="list-style-type: none"> • Morning Coffee • Maximum residue levels • Coffee break • How to adapt to the export market. EU regulation/ legislation example • Lunch • Method requirements • Coffee break • Adapting methods to adhere to changing regulation 	<ul style="list-style-type: none"> • Morning Coffee • Introduction to decision rules • Coffee break • How the decision rule should be applied in the laboratory • Lunch • Introduction to acute reference dose (ARFd) • Coffee break • Application of ARFd in your laboratory 	<ul style="list-style-type: none"> • Morning Coffee • Extraction techniques commonly used for pesticide analysis • Coffee break • Purification – improve your LOD/ LOQ • Lunch break • Theory of QuEChERS • Coffee break • Adapting the QuEChERS technique to suit your matrix and analyte 	<ul style="list-style-type: none"> • Morning Coffee • Combining the analytical strength of liquid and gas chromatography • What to consider when procuring an instrument • Coffee break • Improving your separation • Lunch • Quality control in your pesticide laboratory

Finding a course that is right for you

The NMISA Training Centre is committed to building measurement capacity in Africa. The centre has a number of courses that may meet your training needs, from personnel at the beginning of their careers to those wanting to develop advanced skills. Please visit our website www.nmisa.org for more information or contact us at training@nmisa.org or call +27 12 947 2461.

We are with you every step of the way

- The NMISA provides an extensive suit of products and services to meet your laboratories needs. This includes but is not limited to consultation services that spans the entire lifetime of your laboratory from design to implementation.
- Training in method development; validation and uncertainty.
- Providing calibration, proficiency testing and reference materials to assist your laboratory in meeting quality control and assurance objectives.



nmisa
training centre



AFRIMETS
Intra-Africa Metrology System
Système Intra-Africain de Métrologie

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Measurement and calibration expertise

The NMISA offers calibration and measurements in a wide field of scientific disciplines including, but not limited to:

- Acoustics, Ultrasound and Vibration
- DC Low Frequency and Radio Frequency
- Fibre Optics
- Gas Analysis
- Mass Calibration Services
- Temperature and Humidity Calibration Services
- Photometry and Radiometry
- Essential oils
- Environmental contaminants
- Toxic and nutritional content
- Food contaminants and nutritional content

WEEK 2 - LET'S GET PRACTICAL SAMPLING TO REPORTING

DAY 1: Experimental design and quality considerations

- Laboratory safety
- A tour of the NMISA facilities
- Coffee break
- Experimental design
- Lunch
- Analytical standards
- Quality control and assurance in pesticide analysis
- Coffee break
- Preparing the raw fruit for analysis

DAY 2: Extraction and purification of various fruit

- Preparing the laboratory
- Coffee break
- Weighing
- Preparing analytical standards
- Lunch
- QuEChERS extraction
- Coffee break
- QuEChERS purification

DAY 3: GC-MS/MS analysis

- Morning Coffee
- Setting up the GC-MS/MS
- Coffee break
- Analytical quality control
- Sample lists
- Lunch
- Data processing
- Coffee break
- Trouble shooting based on GC data

DAY 4: LC-MS/MS analysis

- Morning Coffee
- Setting up the LC-MS/MS
- Coffee break
- Analytical quality control
- Sample lists
- Lunch
- Data processing
- Coffee break
- Trouble shooting based on LC data

DAY 5: Data processing and reporting

- Morning Coffee
- Calibration curves
- Coffee break
- Mass conversions and dilution factors
- Lunch
- Setting up analytical reports
- Q&A session

Finding Proficiency Tests that suit your needs

The NMISA is an ISO/IEC 17043 accredited proficiency testing service provider with accreditation in the following fields: Food Testing (chemical additives, residues, and nutritional content); Water Testing (Chemical contaminants and residues) and Forensic Testing (forensic level alcohol, forensic preservatives and breath alcohol).

We are with you every step of the way

To support your measurement quality control and quality assurance objectives, the NMISA has released several reference materials and certified reference materials. These materials where possible originate from within the African Continent, to ensure compatibility with the samples routinely measured in your laboratory. Reference materials currently available include mycotoxins (analytical standards as well as naturally incurred materials such as maize flour and peanut slurry), forensic blood alcohol analysis analytical standards, matrix materials for nutritional content, nutritional and toxic elements as well as pesticides.

Please visit our on-line store for available products and pricing www.store.nmisa.org



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