TERMS OF REFERENCE

FOR

AN INDIVIDUAL CONSULTANT

TO

CONDUCT TRAINING

IN

AGRICULTURAL EXPERIMENTAL DESIGNS, DATA MANAGEMENT AND ADVANCED STATISTICAL ANALYSIS

A. INTRODUCTION

The Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA) plays a pivotal role in strengthening the capacity of National Agricultural Research Systems (NARS) across the SADC region. In an era where agricultural research and innovation are increasingly driven by data, the ability to collect, manage, analyse and interpret complex datasets has become essential for evidence-based decision-making and sustainable agricultural development. However, many scientists within NARS still face challenges in applying advanced statistical techniques and modern data management tools, limiting the potential impact of their research outputs on policy and practice.

Providing training in advanced data management and statistical analysis will empower agricultural scientists to design robust experiments, analyse data accurately, and derive meaningful insights that inform agricultural productivity, climate adaptation, and food security strategies. It will also strengthen their ability to use modern statistical software, programming tools, and data visualization platforms to handle complex data generated from various sources.

This initiative aligns with CCARDESA's strategic goal of enhancing research excellence and regional knowledge sharing. By improving data literacy and analytical competencies, CCARDESA will contribute to building a regional community of practice capable of generating credible scientific evidence to guide agricultural innovation systems and policy. Moreover, the training will promote harmonization of research methods, improve the quality of regional datasets, and foster collaboration among scientists across member states.

Ultimately, investing in this capacity-building initiative will strengthen the overall effectiveness of agricultural research in the SADC region, ensuring that scientific findings translate into actionable solutions for farmers, policymakers, and other stakeholders in pursuit of resilient and sustainable food systems.

To achieve this, CCARDESA seeks to engage the services of a suitably qualified and experienced individual consultant to conduct regional training in agricultural experimental designs, data management, and advanced statistical analysis.

B. TECHNICAL SERVICES

The consultant is required to conduct a face-to-face training on experimental designs, data management and advanced statistical analysis for 40 Scientists from the SADC region. The training targets mid-to-senior level biometricians working in agricultural training and research institutions within the SADC region.

C. OBJECTIVES OF THE ASSIGNMENT

To enhance participants' technical capacity in experimental designs, data management and advanced statistical analysis using modern analytical tools and techniques.

D. SCOPE OF WORK AND KEY TASKS OF THE CONSULTANT

The specific tasks will include, but not be limited to, the following:

i) Conduct an on-line training needs assessment to tailor content to participants' level of competence.
ii) Develop and submit a detailed training plan, including course outline, methodology, and training materials.
iii) Deliver a five-day face-to-face training workshop, covering at minimum:
    a. Experimental designs in agricultural research;
    b. Data collection protocols, coding, quality assurance and management;
    c. Advanced statistical techniques using different software applications; and
    d. Data visualization, interpretation, reporting and best practice in research data management.
iv) Facilitate practical exercises.
v) Produce a report on the proceedings of the training workshop and recommendations for follow up.

E. DELIVERABLES

i) Inception report with detailed training design and methodology.
ii) Training materials (manuals, notes/slides, datasets, and exercises).
iii) Delivery of a five-day face-to-face training in Johannesburg in a location to be advised.
iv) Post-training evaluation report, including participant assessment and recommendations.

F. TIMEFRAME

The consultancy will run for a period of thirteen (13) working days spread over a period of 40 days as follows:

5 days – preparation and needs assessment;
5 days – training delivery; and
3 days – reporting and follow-up support.

Tentative period: The training is proposed for the second week of December 2025 in Johannesburg.

G. QUALIFICATIONS AND WORK EXPERIENCE OF THE CONSULTANT

i) **Work experience of the individual consultant:**

At least 15 years of continuous experience in offering training in agricultural experimental designs, data management and statistical analysis to Agricultural Scientists in different countries.

ii) **Qualifications and experience of the individual consultant:**

a. PhD in Biometry, Agricultural experimental designs and statistics, Agricultural Science, or a related qualification;
b. Minimum 10 years' experience in offering training in experimental designs, data management and advanced statistical analysis; and
c. Minimum 7 years' experience working with and providing training in different statistical packages, including R, GenStat, SAS, Python and Stata.

iii) **Publication record**

A good and traceable publication record in accredited high impact factor peer-reviewed journals.

H. REPORTING

The consultant will be reporting to CCARDESA through the Special Programmes Coordinator (FSRP), Dr M.L. Mabuza (mmabuza@ccardesa.org).

Review Process

Action	Office	Signature and date
Developed	Programmes	21/10/2025
Reviewed	Programmes	22/10/2025
Reviewed	Procurement	23/10/2025