



TERMS OF REFERENCE FOR TRAINING

APPSA SCIENTISTS ON DATA

MANAGEMENT AND STATISTICAL

ANALYSIS

A. INTRODUCTION

The Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA) wishes to engage a qualified and reputable firm from the SADC region to provide technical services in the implementation of Agricultural Research for Development (AR4D) sub-projects under the Agricultural Productivity Programme for Southern Africa (APPSA).

CCARDESA is a Sub Regional Organisation (SRO) that was created in 2010 by the Council of Ministers responsible for Agriculture from the Southern African Development Community (SADC) and launched in 2011 to coordinate and facilitate agricultural research and development in the SADC region. CCARDESA's mission is to promote innovative research, technology generation and adoption for sustainable agricultural development through effective partnerships and capacity building. APPSA is a regional programme supported by the World Bank to promote regional collaboration and has put in place mechanisms to encourage technology generation and dissemination across the national borders of participating countries in the SADC region. Since 2013, CCARDESA has been coordinating the implementation of APPSA in three countries, namely, Malawi, Mozambique, and Zambia. The project has since extended to Angola and Lesotho. CCARDESA wishes to engage the services of a firm to provide specific services as outlined in section C.

B. TECHNICAL SERVICES

The firm is required to prepare training materials and conduct a hands-on training on Data Management and Statistical Analysis for Scientists from Angola and Lesotho.

C. OBJECTIVES OF THE ASSIGNMENT

The objective of the assignment is to help Scientists under APPSA Angola and Lesotho develop competence in quantitative techniques through hands-on practices in study design, data collection and management, statistical analysis and interpretation of results.

D. SPECIFIC TASKS OF THE FIRM

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

- i) Develop clear and detailed training materials.
- ii) Conduct a five-day training workshop in each of the two countries (Angola in Portuguese and Lesotho in English) on "Experimental designs, Data Management and Statistical Analysis." The training is expected to cover the following:

Part 1: Overview of experimental designs (1 day)

- (a) Planning of experiments
- (b) Review of basic concepts and principles of experimental designs (Blocking, Randomization, Replication, Sampling)
- (c) Experimental designs and statistical models

Part 2: Data collection and management (1day)

- (a) Research questions and data collection (experiments & surveys)
- (b) Overview of software for inputting data
- (c) Introduction to R/SPSS/GENSTAT
- (d) Data entry and management of errors

Part 3: Data analysis (3 days) – Using R/SPSS/GENSTAT

- (a) Choosing the right statistical test
- (b) Preparing files for analysis
- (c) Data cleaning and Exploratory data analysis (checking for outliers, normality, independence of variance, homogeneity, summary statistics, graphical representations, etc.)
- (d) Data transformation
- (e) Analysis of data using parametric and non-parametric tests
- (f) Multiple regression

iii) Produce a report on the proceedings of the training workshop.

E. QUALIFICATIONS AND WORK EXPERIENCE OF THE FIRM

a. Work experience of the firm:

The firm is expected to have at least 15 years of continuous experience in offering training in Data Management and Statistical Analysis.

b. Qualifications and Experience of key staff: The firm should have an expert(s) with the following qualifications and experience:

- i) At least a Master's degree in Biometry, Statistics, Agricultural Sciences or any other related qualification (PhD. will be an added advantage);
- ii) Minimum 10 years' experience in offering training in data management and statistical analysis; and
- iii) Minimum 5 years' experience with R, SPSS, GenStat and Stata.

c. Added advantages and preferences

- i) Experience in offering similar training in English and Portuguese

F. DELIVERABLES

- 1. Training materials on data management and Statistical analysis
- 2. Five-days hands-on training in each country (Angola and Lesotho)
- 3. Report on the proceedings of the training with recommendations

G. TIMEFRAME

The firm is expected to conduct a five-day hands-on training in each of the two countries (Angola and Lesotho) in the month of March / April 2023.

H. REPORTING

The firm will be reporting to CCARDESA through the APPSA Regional Coordinator, Dr. M.L. Mabuza.