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KEPHIS- PLANT QUARANTINE AND BIOSECURITY STATION
QUALITY ASSURANCE MANUAL
QUARANTINE PLANT HEALTH LABORATORY
ISO/IEC 17025:2017

Approval and authorizations

Completion of the below signature blocks signifies the review and approval of this document.

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SECTION: 1

INTRODUCTION:

I .1 Background Information

The Quarantine Plant Health Laboratory (QPHL) is a section of the Plant Quarantine and Biosecurity Station of the Kenya Plant Health Inspectorate Service (KEPHIS), a Government of Kenya statutory organization situated in Muguga, off Nairobi-Nakuru highway. The vision of the institution is healthy plants, safe trade and sustainable agro-environment for a prosperous Kenya with a mission to provide a science based regulatory service by assuring quality of agricultural inputs and produce to promote security and sustainable development.

The QPHL is charged with the responsibilities of:

- i) Undertaking diagnosis of plant pests and diseases with emphasis on pests of quarantine importance.
- ii) Virus indexing and disease cleaning of planting material through tissue culture.
- iii) Diagnosis of samples from field inspections for Phytosanitary certification.
- iv) Identification of Biological control agents and organisms requiring containment in provisional quarantine facilities.
- v) Offer advisory services to Farmers.

In order to effectively serve our customers and undertake the above functions sustainably, the laboratory charges a nominal fee for the services offered to its customers. These funds are used to supplement the laboratory in the purchase of equipment, reagents, and reference materials and for the day-to-day operations. Apart from analysis, the lab also offers training to students from institutes of higher learning.

I .2 Accreditation Goals and Justification

The most important or critical factor in sustaining the functions of the laboratory is the development and maintenance of a client base that recognizes QPHL's commitment to quality, specifically in relation to the value-added to the test result and report. The ultimate and fundamental value of a test result to a client is reliability. This critical value can be described as the ability to produce an output that is accurate and precise on a consistent basis and within the agreed time period.

In order for the laboratory to assure itself and its client of the reliability of its services, effective control procedures are implemented focusing on:-

- Retention of competent trained personnel.
- Maintenance of equipment that is fit for purpose and ready for use.
- Calibration of equipment traceable to National or International standards.
- Verification to ensure that equipment operating outputs are within prescribed tolerances.
- Having suitable accommodation and environment that is fit for purpose

- Applying methods of test or diagnosis of which the capabilities (accuracy, precision, robustness and specificity, repeatability) are known.
- Validation of methodologies using standards or references of required accuracy and traceability.
- Verifying the controlled performance of tests and methods by the use of in-house Quality Control and external proficiency testing.

It is recognized that this level of quality assurance can be obtained by means of accreditation by an internationally recognized accreditation authority to the requirement of ISO/IEC 17025:2017 international standard, *General requirements for the competence of testing and calibration laboratories*.

1.3 Scope

To provide quality and efficient services to its customers, the QPHL will have necessary procedures, policies, systems, organization and controls on all factors to demonstrate competence to carry out diagnostic tests to specified requirements according to ISO/IEC 17025:2017.

1.4 Impartiality

QPHL is committed to undertake its testing activities while ensuring that internal and external factors do not compromise on its impartiality. The laboratory identifies risks to its impartiality on an ongoing basis. Both internal and external factors are evaluated and mitigation measures implemented to manage and eliminate the risks.

1.5 Confidentiality

To maintain confidentiality of information derived from the laboratory testing activities or from other sources relating to the customer, the laboratory is committed to ensure that such information is not released to the public without informing the customer in advance of the information it intends to release. All information other than what has been agreed between the laboratory and the customer remain confidential, and where by law there is need for release, the customer be notified. Personnel keep all information derived from the laboratory activities confidential unless otherwise so required by law.

1.6 Purpose

This quality manual documents the management system and demonstrates the laboratory's ability to execute plant health diagnostic tests. This manual establishes compliance to ISO/IEC 17025:2017. The quality management system will be implemented and maintained by the laboratory.

1.7 Roles:

The main roles of the laboratory are to:

- a) Facilitate accurate identification and diagnosis of pests as per requests.
- b) Facilitate availability of disease free planting material for at least two crops.

- c) Perform Phytosanitary certification in line with service charter timelines.
- d) Offer advisory services on plant health matters as per service charter timelines

SECTION: 2. QUALITY ASSURANCE SYSTEMS.

2.1 Management Policy Statement

KEPHIS is a regulatory body mandated to undertake quality assurance services of Agricultural Inputs, Plant Variety Protection, and Plant Health.

- The KEPHIS Board of Directors, management and staff at the Plant health laboratory are committed to full implementation of ISO /IEC 17025:2017 standard requirements. In this regard;
- The KEPHIS management is committed to avail all necessary resources required to support the laboratory;
- The laboratory management is committed to maintain impartiality while carrying its testing activities, confidentiality and good professional practice, to meet the requirements of the ISO/IEC 17025 Standard, customers, legal requirements and to producing quality test results;
- All laboratory personnel understand the management system for all operations and implement the policies and procedures at all times;
- The laboratory manager and the quality manager are responsible for establishing, implementing and maintaining the quality assurance system in the laboratory.

The above commitments are geared towards compliance with ISO/IEC 17025:2017 standard and to continually improve the effectiveness of the management system while meeting and even exceeding customer needs and expectations.

The Quality objectives will be continually reviewed for their adequacy, relevance and general suitability for provision of reliable test results.

Signed

Date

Managing Director.

2.2 Quarantine Plant Health Laboratory (QPHL) Commitment:

Quarantine Plant Health Laboratory (QPHL) Policy on Competence , Impartiality and consistent operation of the laboratory:

QPHL and the Laboratory Staff are fully committed to the concept of third party recognition, by means of accreditation, on the **competence** of the laboratory to perform plant based diagnostic services for agricultural inputs and produce. The policy of the laboratory is to offer services that comply with requirements as specified in the ISO/IEC 17025 standard and this will be demonstrated through independent recognition by the accreditation authority. The laboratory undertakes to **consistently** provide valid test results and maintain confidentiality and **impartiality** while undertaking its testing activities.

The laboratory staffs acknowledge relevant quality objectives and policies that contribute to the fulfillment of the ISO/IEC 17025:2017 standard.

This policy statement has been formulated by the laboratory management as a show of commitment and a guide for the laboratory direction to realize its main purpose/objectives namely:-

- a) Pests diagnosis through validated methods
- b) Customer satisfaction
- c) Consistently ensure provision of valid results

Deputy Director-PQBS: _____

Date: _____

3.0 DEFINITION OF TERMS

3.1. Top Laboratory Management:

Means a team consisting of the Deputy Director-PQBS, Head of laboratory, Laboratory manager and Quality manager.

3.2. Laboratory Technical Management

Means a team consisting of the following Head of the laboratory, Quality assurance manager, Technical manager, Head of section, and their deputies.

3.3. Institution Management

Means a team consisting of the following Managing Director, General Manager — Finance and Administration, General Manager — Phytosanitary Services, General Manager — Quality Assurance, Deputy Director-PQBS.

NOTE:

The quality manager is responsible for setting up and maintaining a list of definitions.

SECTION 4.0: GENERAL REQUIREMENTS

4.1 Impartiality

The Quarantine Plant Health Laboratory is a section in Plant Quarantine and Biosecurity Station of the Kenya Plant Health Inspectorate Service (KEPHIS) which is a State Corporation established under Legal Notice 305 of 1996 and subsequently through the KEPHIS Act of 2012. It is therefore a part of the larger organization, with the organizational chart as shown below. [Diagram 1](#)

4.1.1. The Quarantine Plant Health Laboratory undertakes its testing activities impartially and are structured and managed so as to safeguard impartiality. Staff undertaking testing activities shall sign a confidentiality agreement QAM-C.01

4.1.2 The management of the laboratory is committed to safeguarding impartiality as described in this manual.

Quarantine Plant Health Laboratory is a section in Plant Quarantine and Biosecurity Station of the Kenya Plant Health Inspectorate Service (KEPHIS) which is a State Corporation established under Legal Notice 305 of 1996 and subsequently through the KEPHIS Act of 2012. It is therefore a part of the larger organization, with the organizational chart as shown in the organogram [Diagram 1](#).

4.1.3 The Quarantine Plant Health Laboratory is responsible for the impartiality of its laboratory activities and does not allow commercial, financial or other pressures to compromise impartiality.

4.1.4 The laboratory identifies risks to its impartiality on an on-going basis. These include those risks that arise from its activities, or from its relationships, or from the relationships of its personnel.

4.1.5 Once a risk to impartiality is identified, the laboratory has devised ways to eliminate or minimize such impartiality risk(s) QAM-[R.01](#).

4.2 Confidentiality

4.2.1 The Quarantine Plant Health laboratory is responsible, through legally enforceable commitments, for the management of all information obtained or created during the performance of its activities. Where the intent of putting customers information to the public exists, the laboratory informs the customer in advance, of the information it intends to place in the public domain. Except for information that the customer makes publicly available, or when agreed between the laboratory and the customer (e.g. for the purpose of responding to complaints), all other information is considered proprietary information and be regarded as confidential.

4.2.2 When the laboratory is required by law or authorized by contractual arrangements to release confidential information, the customer or individual concerned , unless prohibited by law, be notified of the information provided.

4.2.3 The laboratory will endeavor to keep all information (obtained from sources other than the customer) about the customer confidential. The provider (source) of this information shall remain confidential to the laboratory and shall not be shared with the customer, unless agreed by the source.

4.2.4 All personnel carrying out activities in the laboratory shall keep all information arising from its laboratory activities confidential. External personnel shall sign a confidentiality agreement QAM-C.02 as an undertaking to keep information

5 Structural requirements

5.1 The laboratory's legal identity is as found in Legal Notice 305 of 1996 and KEPHIS ACT of 2012.

5.2 To ensure the smooth operation of its testing activities, the laboratory has identified management personnel who have overall responsibility for the laboratory. The following roles and responsibilities are identified.

a.

a. Deputy Director-PQBS / Head of the laboratory

The Deputy Director-PQBS is the head of the laboratory and oversees the day to day activities of the laboratory and the station. He /She ensures availability of resources and that the requirements of ISO/IEC 17025:2017 standard are implemented and followed at all times. The Deputy Director-PQBS also communicates to the organizational top management of issues affecting the laboratory.

b. The deputy head of the lab assists the Deputy Director-PQBS /head of the laboratory in coordination of the laboratory's activities as well as implementing the requirements of the standard.

c. The Quality Manager ensures QPHL's compliance with quality standards and provide quality related guidance to management and staff.

d. The deputy Quality Manager assists the quality manager in ensuring implementation and maintenance of the quality management systems at QPHL.

5.3 QPHL has defined and documented the range of laboratory activities for which it conforms with the ISO17025 standard. Claim on conformity is only laid on activities that have been accredited under ISO17025 standard and exclude activities that are externally provided by the laboratory. The list of accredited methods is maintained(QAM-Methods/01).

5.4 The Laboratory carries its activities in such a way as to meet the requirements of the standard, the laboratory's customers, regulatory authorities and other organizations providing recognition. These include laboratory activities performed in all its permanent facilities, at sites away from its permanent facilities, in associated temporary or mobile facilities or at a customer's facility.

5.5 The laboratory has:

a) defined the organization and management structure of the laboratory, its place in any parent organization, and the relationships between management, technical operations and support services as found in the KEPHIS and the QPHL Organogram [Diagram 1](#).

b) specified the responsibility, authority and interrelationship of all personnel who manage, perform or verify work affecting the results of laboratory activities through personnel job descriptions. These job descriptions are contained in individual personnel files.

c) documented its procedures to the extent necessary to ensure the consistent application of its laboratory activities and the validity of the results. These procedures are availed to the staff.

5.6 The laboratory has identified personnel who, irrespective of other responsibilities, have the authority and resources needed to carry out their duties, including;

a) implementation, maintenance and improvement of the management system;

b) identification of deviations from the management system or from the procedures for performing laboratory activities;

c) initiation of actions to prevent or minimize such deviations;

d) reporting to laboratory management on the performance of the management system and any need for improvement;

e) ensuring the effectiveness of laboratory activities.

These roles are pertinent to the continual improvement of the laboratory's activities and are found in the individual personnel files.

5.7 Laboratory management:

a) communicates on a regular basis to its staff on the importance of ensuring the effectiveness of the management system and meeting customers' and other requirements. This is communicated through staff meetings, internal memos , and management review meetings;

b) should there be changes that may affect the integrity of the management system the management is committed to ensure that such changes do not affect the management system. These changes include staff movements, change and amendments to laboratory activities.

6 Resource requirements

6.1 General

The laboratory has personnel, facilities, equipment, systems and support services necessary to manage and perform its laboratory activities.

6.2 Personnel

6.2.1 All personnel of the laboratory, either internal or external, that could influence the laboratory activities act impartially, are competent and work in accordance with the laboratory's management system.

6.2.2 The laboratory has documented the competence requirements for each function influencing the results of laboratory activities, including requirements for education, qualification, training, technical knowledge, skills and experience. This requirements can be found in the [KEPHIS Career Guidelines](#). Competency is evaluated as per the [SOP-GE/01 Staff training and competence assessment](#).

6.2.3 To ensure that the personnel have the competence to perform laboratory activities for which they are responsible and to evaluate the significance of deviations, the laboratory undertakes planned competence assessments as detailed in the [SOP-GE/01 Staff training and competence assessments](#).

6.2.4 The management of the laboratory has communicated to its personnel their duties, responsibilities and authorities as contained in the job descriptions and authorization letters. These are filed in individual staff files.

6.2.5 The Procedure [SOP-GE/01-Staff training and competence assessments](#) describes and retains records for:

- a) Determining the competence requirements; .
- b) Selection of personnel;
- c) Training of personnel;
- d) Supervision of personnel;
- e) Authorization of personnel;
- f) Monitoring competence of personnel,

6.2.6 The laboratory management has authorized personnel to perform specific laboratory activities, including but not limited to, the following:

- a) Development, modification, verification and validation of methods;
- b) Analysis of results, including statements of conformity or opinions and interpretations;
- c) Report, review and authorization of results.

6.3 Facilities and environmental conditions

6.3.1 The laboratory ensures that the facilities and environmental conditions are suitable for the laboratory activities and not affect the validity of results

6.3.2 The requirements for facilities and environmental conditions necessary for performance of the laboratory activities are documented in the [SOP- GE/02 Test environment](#)

6.3.3 The environmental conditions are monitored, controlled and recorded by. Measures to control facilities are implemented, monitored and periodically reviewed and include but not limited to

- a) access to and use of area affecting laboratory activities;

- b) prevention of contamination, interference or adverse influences on laboratory activities;
- c) effective separation between areas with incompatible laboratory activities

6.3.5 Where there is need to carry laboratory activities at sites or facilities outside the laboratory permanent control, the laboratory ensure that the standard requirements 6.3.1 to 6.3.4 related to the facilities and environmental conditions are met.

6.4 Equipment

6.4.1 The laboratory has sample preparations, measurement and test equipment for the correct performance of the laboratory activities and that can affect the validity of results. The laboratory also has ancillary equipment for processing samples and for processing data.

6.4.2 When the laboratory uses equipment outside its permanent control, it ensures that the requirements of the standard for the equipment are met.

6.4.3. The laboratory has implemented a procedure [SOP-GE-03-Equipment](#) in order to ensure the proper functioning and to prevent contamination or deterioration of the equipment,

6.4.4 The laboratory verifies that the equipment conforms to specified requirements before being placed or retuned into service by conducting performance checks as detailed in respective equipment's work instructions.

6.4.5 The laboratory ensure that equipment used for measurement are capable of achieving the measurement accuracy and/or measurement uncertainty required to provide a valid result.

6.4.6 Measuring equipment are calibrated when:

- the measurement accuracy or measurement uncertainty affects the validity of the reported results, and/or
- calibration of the equipment is required to establish the metrological traceability of the reported results.

6.4.7 In planning of calibrations, the laboratory has developed a calibration programme schedule [CAL/EQT/01](#). The schedule is reviewed and adjusted as necessary in order to maintain confidence in the status of calibration.

6.4.8 All equipment requiring calibration or which has a defined period of validity is labelled, coded or otherwise identified to allow the user of the equipment to readily identify the status of calibration or period of validity.

6.4.9 Equipment that has been subjected to overloading or mishandling gives questionable results, or has been shown to be defective or outside specified requirements, is taken out of service. It is isolated to prevent its use and clearly labelled or marked as being out of service until it has been verified to perform correctly. The laboratory examines the effect of the defect or deviation from

specified requirements and initiates the management of nonconforming work procedure as per [SOP-GE/04-Control of non-conforming work](#).

6.4.10 When intermediate checks are necessary to maintain confidence in the performance of the equipment, these checks are carried out according to a procedure [SOP-GE/03 Equipment](#).

6.4.11 When calibration and reference material data include reference values or correction factors, the laboratory ensures the reference values and correction factors are updated and implemented, as appropriate, to meet specified requirements.

6.4.12 The laboratory takes practicable measures to prevent unintended adjustments of equipment from invalidating results. These measures include authorisations to operate equipments, access controls and equipment logs.

6.4.13 The laboratory retains records for equipment which can influence laboratory activities. The records include the following, where applicable and are found in each equipment file.:

- a) the identity of equipment, including software and firmware version;
- b) the manufacturer's name, type identification, and serial number or other unique identification;
- c) evidence of verification that equipment conforms with specified requirements;
- d) the current location;
- e) calibration dates, results of calibrations, adjustments, acceptance criteria, and the due date of the next calibration or the calibration interval;
- f) documentation of reference materials, results, acceptance criteria, relevant dates and the period of validity;
- g) the maintenance plan and maintenance carried out to date, where relevant to the performance of the equipment;
- h) details of any damage, malfunction, modification to, or repair of, the equipment,

6.5 Metrological traceability

6.5.1 The laboratory has established and maintained metrological traceability of its measurement results by means of a documented unbroken chain of calibrations, each contributing to the measurement uncertainty, linking them to an appropriate reference. Contracting metrologists providing calibration services to QPHL laboratories are to provide evidence of measurement traceability of own measurement standards and measuring instruments. This details are retained in the Equipment Calibration file ([EQPT/MAINT/01](#)). 6.5.2 The laboratory ensures that measuring results are traceable to the SI units through:-

- a) calibration provided by a competent laboratory; or

- b) certified values of certified reference materials provided by a competent producer with stated metrological traceability to the SI; or
- c) direct realization of the SI units ensured by comparison, directly or indirectly, with national or international standards.

6.5.3 When metrological traceability to the SI units is not technically possible, the laboratory demonstrates metrological traceability to an appropriate reference, e.g.:

a)

Where reference materials are used in laboratory activities, such materials shall be obtained from competent provider. A list of reference materials shall be maintained in a database with details on specific name of the organism, origin, provider name and date of purchase.

- b) results of reference measurement procedures, specified methods or consensus standards that are clearly described and accepted as providing measurement results fit for their intended use and ensured by suitable comparison.

6.6 Externally provided products and services

6.6.1 The laboratory ensure that only suitable externally provided products and services that affect laboratory activities are used, when such products and services:

- a) are intended for incorporation into the laboratory's own activities;
- b) are provided, in part or in full, directly to the customer by the laboratory, as received from the external provider;
- c) are used to support the operation of the laboratory.

6.6.2 The laboratory has implemented a procedure [SOP GE/05- Requests, tenders and contracts](#) and retained records for:

- a) defining, reviewing and approving the laboratory's requirements for externally provided products and services;
- b) defining the criteria for evaluation, selection, monitoring of performance and re-evaluation of the external providers;
- c) ensuring that externally provided products and services conform to the laboratory's established requirements, or when applicable, to the relevant requirements of this document, before they are used or directly provided to the customer;
- d) taking any actions arising from evaluations, monitoring of performance and re-evaluations of the external providers.

6.6.3 Once the requirements have been identified, the laboratory communicates this requirement to external providers for:

- a) the products and services to be provided;
- b) the acceptance criteria;
- c) competence, including any required qualification of personnel;
- d) activities that the laboratory, or its customer, intends to perform at the external provider's premises.

7 Process requirements

7.1 Review of requests, tenders and contracts

7.1.1 The procedure [SOP GE/05 Requests, tenders and contracts](#) guide the laboratory on review of requests, tenders and contracts. The procedure ensures that:

- a) the requirements are adequately defined, documented and understood;
- b) the laboratory has the capability and resources to meet the requirements;
- c) where external providers are used, the requirements of 6.6 are applied and the laboratory advises the customer of the specific laboratory activities to be performed by the external provider and gains the customer's approval;
- d) the appropriate methods or procedures are selected and are capable of meeting the customers' requirements.

7.1.2 when the method requested by the customer is considered to be inappropriate or out of date, the laboratory will inform the customer.

7.1.3 When the customer requests a statement of conformity to a specification or standard for the test or calibration (e.g. pass/fail, in-tolerance/out-of-tolerance], the specification or standard and the decision rule will be clearly defined. Unless inherent in the requested specification or standard, the decision rule selected will be communicated to, and agreed with, the customer.

7.1.4 Any differences between the request or tender and the contract shall be resolved before laboratory activities commence. Each contract shall be acceptable both to the laboratory and the customer. The laboratory shall ensure that deviations requested by the customer shall not impact the integrity of the laboratory or the validity of the results.

7.1.5 The customer shall be informed of any deviation from the contract through an email.

7.1.6 If a contract is amended after work has commenced, the contract review will be repeated and any amendments will be communicated to all affected personnel.

7.1.7 The laboratory endeavors to cooperate with customers or their representatives in clarifying the customer's request and in monitoring the laboratory's performance in relation to the work performed on;-

- a) providing reasonable access to relevant areas of the laboratory to witness customer-specific laboratory activities;
- b) preparation, packaging, and dispatch of items needed by the customer for verification purposes.

7.1.8 Records of reviews, including any significant changes, will be retained by the laboratory. Records are also retained of pertinent discussions with a customer relating to the customer's requirements or the results of the laboratory activities in emails or minutes.

7.2 Selection, verification and validation of methods

7.2.1 Selection and verification of methods

7.2.1.1 The laboratory has developed appropriate test methods and procedures for all laboratory activities and, where appropriate, for evaluation of the measurement uncertainty as well as statistical techniques for analysis of data. The procedure [SOP-GE/06 Measurement of uncertainty](#) describes steps of carrying out un-certainty of measurements.

7.2.1.2 All methods, procedures and supporting documentation, such as instructions, standards, manuals and reference data relevant to the laboratory activities, are kept up to date and are made readily available to personnel.

7.2.1.3 The laboratory ensures that it uses the latest valid version of a method unless it is not appropriate or possible to do so. When necessary, the application of the method is supplemented with additional details to ensure consistent application.

7.2.1.4 When the customer does not specify the method to be used, the laboratory will select an appropriate method and inform the customer of the method chosen. These may include methods published either in international, regional or national standards, or by reputable technical organizations, or in relevant scientific texts or journals, or as specified by the manufacturer of the equipment. Laboratory-developed or modified methods can also be used.

7.2.1.5 The laboratory verifies that it can properly perform methods before introducing them by ensuring that it can achieve the required performance. Records of the verification are retained. If the method is revised by the issuing body, verification shall be repeated to the extent necessary.

7.2.1.6 When method development is required, the laboratory plans the activity with roles assigned to competent personnel equipped with adequate resources. As method development proceeds, periodic review is carried out to confirm that the needs of the customer are still being fulfilled. Any modifications to the development plan are approved and authorized.

7.2.1.7 Deviations from methods for all laboratory activities shall occur only if the deviation has been documented, technically justified, authorized, and accepted by the customer.

7.2.2 Validation of methods

7.2.2.1 The laboratory undertakes validation of non-standard methods, laboratory-developed methods and standard methods used outside their intended scope or otherwise modified. The validation is done extensively as is necessary to meet the needs of the given application or field of application and takes into account the following;-

- a) calibration or evaluation of bias and precision using reference standards or reference materials;
- b) systematic assessment of the factors influencing the result;
- c) testing method robustness through variation of controlled parameters, such as incubator temperature, volume dispensed;
- d) comparison of results achieved with other validated methods;
- e) interlaboratory comparisons;
- f) evaluation of measurement uncertainty of the results based on an understanding of the theoretical principles of the method and practical experience of the performance of the sampling or test method.

7.2.2.2 When the laboratory makes changes to a validated method, the influence of such changes is determined and where they are found to affect the original validation, a new method validation is performed as outlined in SOP-GE/07 Method validation

7.2.2.3 The laboratory ensures that the performance characteristics of validated methods, as assessed for the intended use, are relevant to the customers' needs and consistent with specified requirements.

7.2.2.4 The laboratory retains the following records of validation;

- a) the validation procedure used according to the [SOP-GE/07 Method validation](#);
- b) specification of the requirements;
- c) determination of the performance characteristics of the method;
- d) results obtained;
- e) a statement on the validity of the method, detailing its fitness for the intended use.

7.3 Sampling

7.3.1 The laboratory implements a sampling of substances for subsequent test activities. Sampling plans and methods are developed for each testing activity and are specific and documented in individual test methods. The sampling method addresses the factors to be controlled to ensure the validity of subsequent testing or calibration results. The sampling plan and method is

availed at the site where sampling is undertaken. Sampling plans are, whenever reasonable, based on statistical methods.

7.3.2 The sampling method describes:

- a) the selection of samples or sites;
- b) the sampling plan;
- c) the preparation and treatment of sample(s) from a substance, material or product to yield the required item for subsequent testing or calibration.

7.3.3 The laboratory retains records of sampling data that forms part of the testing or calibration that is undertaken. These records include, where relevant:

- a) reference to the sampling method used;
- b) date and time of sampling;
- c) data to identify and describe the sample (e.g. number, amount, name);
- d) identification of the personnel performing sampling;
- e) identification of the equipment used;
- f) environmental or transport conditions;
- g) diagrams or other equivalent means to identify the sampling location, when appropriate;
- h) deviations, additions to or exclusions from the sampling method and sampling plan.

7.4 Handling of test or calibration items

7.4.1 The transportation, receipt, handling, protection, storage, retention, and disposal or return of test, including all provisions necessary to protect the integrity of the test or calibration item, and to protect the interests of the laboratory and the customer is contained in the [SOP-GE/08 Sample handling](#). The laboratory takes precautions to avoid deterioration, contamination, loss or damage to the item during handling, transporting, storing/waiting, and preparation for testing or calibration. Handling instructions provided with the item are followed. The laboratory does not receive requests for calibration.

7.4.2 The laboratory has implemented a LIMS system for the unambiguous identification of test or calibration items. The identification is retained while the item is under the responsibility of the laboratory. The system ensures that items are not confused physically or when referred to in records or other documents. The system , accommodate a sub-division of an item or groups of items and the transfer of items.

7.4.3 Upon receipt of the test item, deviations from specified conditions are recorded. When there is doubt about the suitability of an item, for test, or when an item does not conform to the description provided, the laboratory consults the customer for further instructions before proceeding and records the results of

this consultation. When the customer requires the item to be tested acknowledging a deviation from specified conditions, the laboratory includes a disclaimer in the report indicating which results may be affected by the deviation.

7.4.4 When items need to be stored or conditioned under specified environmental conditions, these conditions are maintained, monitored and recorded.

7.5 Technical records

7.5.1 The laboratory ensures that technical records for each laboratory activity contain the results, report and sufficient information to facilitate, if possible, identification of factors affecting the measurement result and its associated measurement uncertainty and enable the repetition of the laboratory activity under conditions as close as possible to the original. The technical records include the date and the identity of personnel responsible for each laboratory activity and for checking data and results. Original observations, data and calculations are recorded at the time they are made and are identifiable with the specific task.

7.5.2 The laboratory ensures that amendments to technical records can be tracked to previous versions or to original observations. Both the original and amended data and files are retained, including the date of alteration, an indication of the altered aspects and the personnel responsible for the alterations.

7.6 Evaluation of measurement uncertainty

7.6.1 QPHL laboratory identifies the contributions to measurement uncertainty and evaluates all contributions that are of significance, including those arising from sampling, using appropriate methods of analysis.

7.6.2 Evaluation of the measurement uncertainty is done for all tests and internal calibrations.

7.6.3 Where the test method precludes rigorous evaluation of measurement uncertainty, estimation is made based on an understanding of the theoretical principles or practical experience of the performance of the method.

7.7 Ensuring the validity of results

7.7.1 The laboratory has developed a procedure [SOP-GE/09 Ensuring Validity of results](#) for monitoring the validity of results. The resulting is recorded in such a way that trends are detectable and, where practicable, statistical techniques be applied to review the results. This monitoring is planned and reviewed and includes, where appropriate, but not be limited to:

- a] use of reference materials or quality control materials;
- b) use of alternative instrumentation that has been calibrated to provide traceable results;
- c) functional check(s) of measuring and testing equipment;
- d) use of check or working standards with control charts, where applicable;
- e) intermediate checks on measuring equipment;

- f) replicate tests or calibrations using the same or different methods;
- g) retesting or recalibration of retained items;
- h) correlation of results for different characteristics of an item;
- i) review of reported results;
- j) intralaboratory comparisons;
- k) testing of blind sample(s).

7.7.2 The laboratory monitors its performance by comparison of its results with results of other laboratories, where available and appropriate. This monitoring is planned and reviewed and include, but not be limited to, either or both of the following;

- a) participation in proficiency testing;
- b) participation in interlaboratory comparisons other than proficiency testing.

7.7.3 Data from monitoring activities is subjected to analysis and used to control and, where applicable improve the laboratory's activities. If the results of the analysis of data from monitoring activities are found to be outside pre-defined criteria, appropriate action is taken to prevent incorrect results from being reported.

7.8 Reporting of results

7.8.1 General

7.8.1.1 Test reports from laboratory activities are reviewed for completeness and signed prior to release. The review is done by the section head or the laboratory manager. The Deputy Director-PQBS is the authorizer of all test reports.

7.8.1.2 The results should be clearly written and in terms with the requirements of the standard and the customer. The original report is sent to the customer and copies retained at the test location.

7.8.1.3 All reports shall be in the format described in SOP-GE-15 Reports. Where information related to the test activity is not captured in the report, the laboratory shall retain this information.

All reports will include a statement specifying that the report not be reproduced except in full without approval of the laboratory.

7.8.2.2 The laboratory is responsible for all the information provided in the report, except when information is provided by the customer. Data provided by a customer be clearly identified. In addition, a disclaimer be put on the report when the information is supplied by the customer and can affect the validity of results. Where the laboratory has not been responsible for the sampling stage

(e.g. the sample has been provided by the customer), it state in the report that the results apply to the sample as received.

7.8.5 Reporting sampling - specific requirements

Where the laboratory has carried out a sampling activity, in addition to the requirements listed in 7.8.2. Reports shall include the following, where necessary for the interpretation of results:

- a) the date of sampling;
- b) unique identification of the item or material sampled (including the name of the manufacturer, the model or type of designation and serial numbers, as appropriate);
- c) the location of sampling, including any diagrams, sketches or photographs;
- d) a reference to the sampling plan and sampling method;
- e) details of any environmental conditions during sampling that affect the interpretation of the results;
- f) information required to evaluate measurement uncertainty for subsequent testing or calibration.

7.8.6 Reporting statements of conformity

7.8.6.1 When a statement of conformity to a specification or standard is required the laboratory will document the decision rule employed, taking into account the level of risk (such as false accept and false reject and statistical assumptions) associated with the decision rule employed, and apply the decision rule.

7.8.6.2 The laboratory shall report on the statement of conformity, such that the statement clearly identifies;

- a) to which results the statement of conformity applies;
- b) which specifications, standards or parts thereof are met or not met;
- c) the decision rule applied (unless it is inherent in the requested specification or standard).

7.8.7 Reporting opinions and interpretations

7.8.7.1 When opinions and interpretations are expressed, the laboratory ensures that only authorized personnel for the expression of opinions and interpretations release the respective statement. The laboratory documents the basis upon which the opinions and interpretations have been made.

7.8.7.2 The opinions and interpretations expressed in reports are based on the results obtained from the tested or calibrated item and are clearly identified as such.

7.8.7.3 When opinions and interpretations are directly communicated by dialogue with the customer, a record of the dialogue is retained.

7.8.8 Amendments to reports

7.8.8.1 When an issued report needs to be changed, amended or re-issued, any change of information is clearly identified and, where appropriate, the reason for the change included in the report.

7.8.8.2 Amendments to a report after issue is made only in the form of a further document, or data transfer, which includes the statement "Amendment to Report, serial number... [Or as otherwise identified]", or an equivalent form of wording.

Such amendments meet all the requirements of the standard.

7.8.8.3 When it is necessary to issue a complete new report, the report is uniquely identified and contains a reference to the original that it replaces.

7.9 Complaints

7.9.1 The laboratory has a documented process to receive, evaluate and make decisions on complaints. This is addressed in the [SOP-GE/14 Customer complaints](#).

7.9.2 A description of the handling process for complaints is available to any interested party on request. Upon receipt of a complaint, the laboratory confirms whether the complaint relates to laboratory activities that it is responsible for and, if so, deals with it. The laboratory is responsible for all decisions at all levels of the handling process for complaints.

7.9.3 The process for handling complaints include at least the following elements and methods:

- a) description of the process for receiving, validating, investigating the complaint, and deciding what actions are to be taken in response to it;
- b) tracking and recording complaints, including actions undertaken to resolve them;
- c) ensuring that any appropriate action is taken.

7.9.4 The laboratory receiving the complaint is responsible for gathering and verifying all necessary information to validate the complaint.

7.9.5 Whenever possible, the laboratory acknowledges receipt of the complaint, and provides the complainant with progress reports and the outcome.

7.9.6 The outcomes to be communicated to the complainant is made by the quality manager, or reviewed and approved by the Deputy Director-PQBS, Personnel involved in the original laboratory activities in question are not allowed to communicate on the outcome to the client in question.

7.9.7 The laboratory give formal notice of the end of the complaint handling to the complainant.

7.10 Nonconforming work

7.10.1 The laboratory has a procedure [SOP-GE/04 Control of non-conforming work](#)-that is implemented when any aspect of its laboratory activities or results of its work do not conform to its own procedures or the agreed requirements of the customer (e.g. equipment or environmental conditions are out of specified limits, results of monitoring fail to meet specified criteria). The procedure ensures that:

- a] the responsibilities and authorities for the management of nonconforming work are defined;
- b] actions (including halting or repeating of work and withholding of reports, as necessary) are based upon the risk levels established by the laboratory;
- c] an evaluation is made of the significance of the nonconforming work, including an impact analysis on previous results;
- d] a decision is taken on the acceptability of the nonconforming work;
- e] where necessary, the customer is notified and work is recalled;
- f] the responsibility for authorizing the resumption of work is defined.

7.10.2The laboratory retains records of nonconforming work and actions as specified in 7.10.1. bullets b) to f).

7.10.3 Where the evaluation indicates that the nonconforming work could recur, or that there is doubt about the conformity of the laboratory's operations with its own management system, the laboratory implements corrective action.

7.11 Control of data and information management

7.11.1 The laboratory has access to the data and information needed to perform laboratory activities.

7.11.2 The laboratory information management system(s) used for the collection, processing, recording, reporting, storage or retrieval of data be validated for functionality, including the proper functioning of interfaces within the laboratory information management system(s) by the laboratory before introduction. Whenever there are any changes, including laboratory software configuration or modifications to commercial off-the-shelf software, they be authorized, documented and validated before implementation.

7.11.3The laboratory information management system is:

- a) protected from unauthorized access;
- b) safeguarded against tampering and loss;

- c) operated in an environment that complies with provider or laboratory specifications or, in the case of non-computerized systems, provides conditions which safeguard the accuracy of manual recording and transcription;
- d) maintained in a manner that ensures the integrity of the data and information;
- e) includes recording system failures and the appropriate immediate and corrective actions,

7.11.4 QPHL LIMs system is not managed offsite.

7.11.5 The laboratory ensures that instructions, manuals and reference data relevant to the laboratory information management system(s) is readily available to personnel.

7.11.6 Calculations and data transfers are checked in an appropriate and systematic manner.

8 Management system requirements

8.1 Options

The laboratory implements its management system according to Option A of the IEC/ISO 17025:2017 Standard.

8.1.2 Option A

As a minimum, the management system of the laboratory address the following:-

8.2 Management system documentation (Option A)

8.2.1 The QPHL Laboratory management has established, documented, and maintained policies and objectives for the fulfilment of the purposes of this ISO17025:2017 standard and ensures that the policies and objectives are acknowledged and implemented at all levels of the laboratory organization,

8.2.2 The policies and objectives address the competence, impartiality and consistent operation of the laboratory as addressed in Section 2.2 of this manual (Quarantine plant health laboratory policy on competence, impartiality and consistent operation of the laboratory).

8.2.3 Laboratory management has provided evidence of commitment to the development and implementation of the management system and to continually improving its effectiveness. This is addressed in the statement of commitment.

8.2.4 All documentation, processes, systems, records, related to the fulfilment of the requirements of this document are included in, referenced from, or linked to the management system.

8.2.5 The QPHL ensures that all personnel involved in laboratory activities have access to the parts of the management system documentation and related information that are applicable to their responsibilities.

8.3 Control of management system documents

8.3.1 The laboratory has implemented a procedure [SOP-GE/10 Control of documents](#) (internal and external) that relate to the fulfilment of ISO17025:2017.

8.3.2 This SOP ensures that ;

- a) documents are approved for adequacy prior to issue by authorized personnel;
- b) documents are periodically reviewed, and updated as necessary;
- c) changes and the current revision status of documents are identified;
- d) relevant versions of applicable documents are available at points of use and, where necessary, their distribution is controlled;
- e) documents are uniquely identified;
- f) the unintended use of obsolete documents is prevented, and suitable identification is applied to them if they are retained for any purpose,

8.4 Control of records

8.4.1 The laboratory has continually established and retained legible records to demonstrate fulfilment of the requirements of the standard as described in the [SOP-GE/11 Control of records](#).

8.4.2 The laboratory has implemented the controls needed for the identification, storage, protection, back-up, archive, retrieval, retention time, and disposal of its records. The laboratory retain records for a period consistent with its contractual obligations. Access to these records are consistent with the confidentiality commitments, and records are made readily available.

8.5 Actions to address risks and opportunities

8.5.1 The laboratory gives considerations to the risks and opportunities associated with the laboratory activities. The risks are identified in an ongoing basis, are analyzed and treatment options proposed based on impact on the validity of test results. Risks are documented in a risk Register Risk/01. Results of the actions implemented are evaluated for effectiveness.

8.6 Improvement

8.6.1 To further improve its management system, QPHL laboratory identifies opportunities on an ongoing basis. Actions are proposed inline with the ability of laboratory to implement them. Such opportunities may arise from internal or external feedback on service delivery. Feedback is sought as described in the SOP-GE-14 Customer Feedback.

8.7.1 When a nonconformity occurs, the laboratory shall investigate the nonconformity, evaluate need for action and implement actions and preventive measures to control the non-conformity and to avoid recurrence. Effectiveness of these measures is evaluated by the laboratory management on an ongoing basis. Changes to the management system may be proposed after the analysis. This process is documented in the SOP-GE-04 Control of nonconforming service and records retained in the Form GE-04/01(Process nonconformance report). Risks and opportunities emanating from the nonconformity are identified and the risk register updated where necessary.

8.8 Internal audits

8.8.1 The laboratory has established a procedure [SOP-GE/12 Internal audits](#) to guide in conducting internal audits at planned intervals to provide information on whether the management system:

- a) conforms to:
 - the laboratory's own requirements for its management system, including the laboratory activities;
 - the requirements of the standard;
- b) is effectively implemented and maintained.

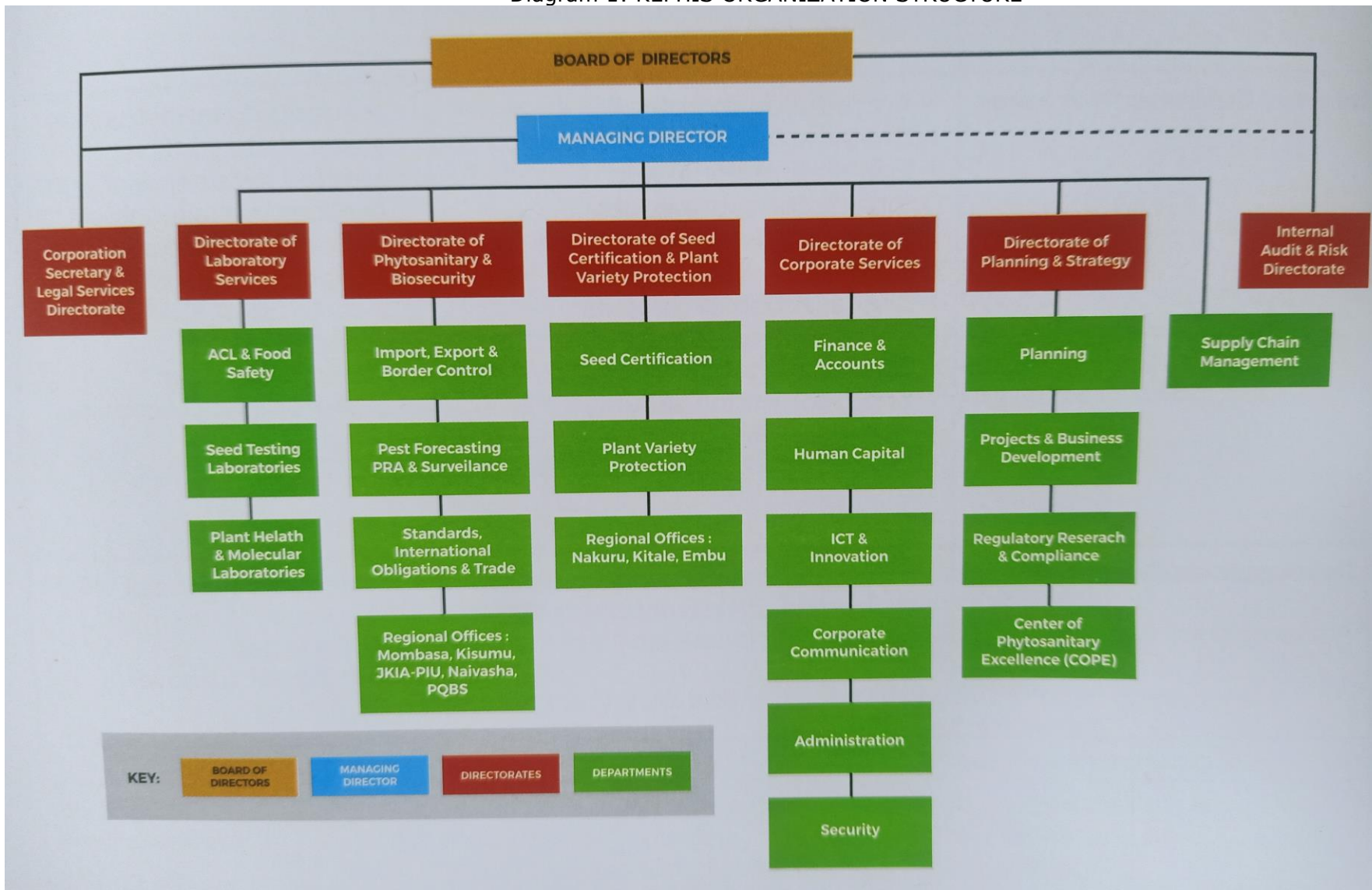
8Records of implementation of the audit program and results are maintained on site.

8.9 Management reviews

8.9.1 The laboratory management reviews its management system at planned intervals, in order to ensure its continuing suitability, adequacy and effectiveness, including the stated policies and objectives related to the fulfilment of this document. This is done in accordance to the procedure [SOP-GE/13 Management reviews. Records of the management review are retained.](#)

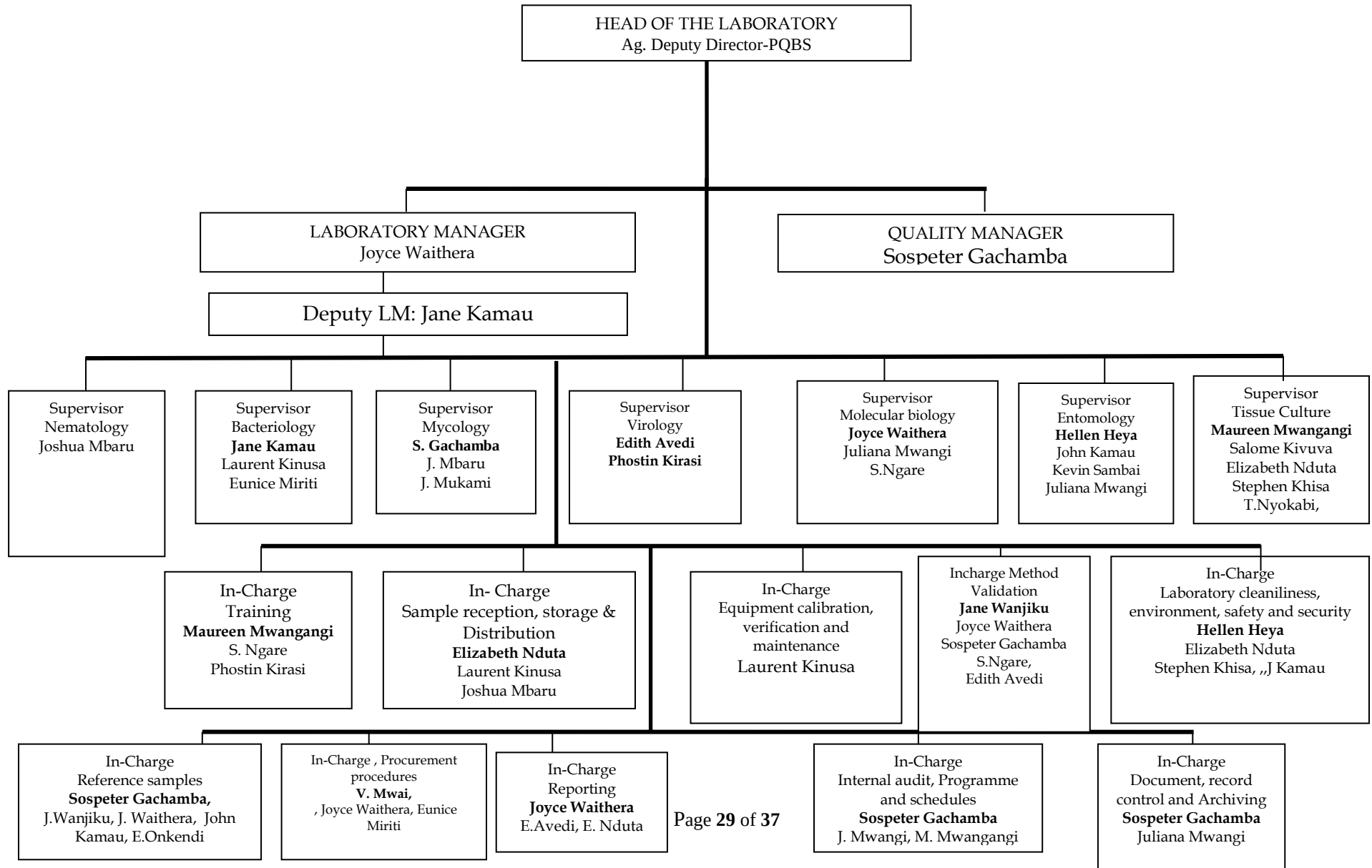
- a. [Diagram 2.](#)

Diagram 1: KEPHIS ORGANIZATION STRUCTURE



KENYA PLANT HEALTH INSPECTORATE SERVICE
Quality Control Manual of KEPHIS Quarantine Plant Health Laboratory

Diagram 2: Quarantine Plant Health Laboratory Organogram



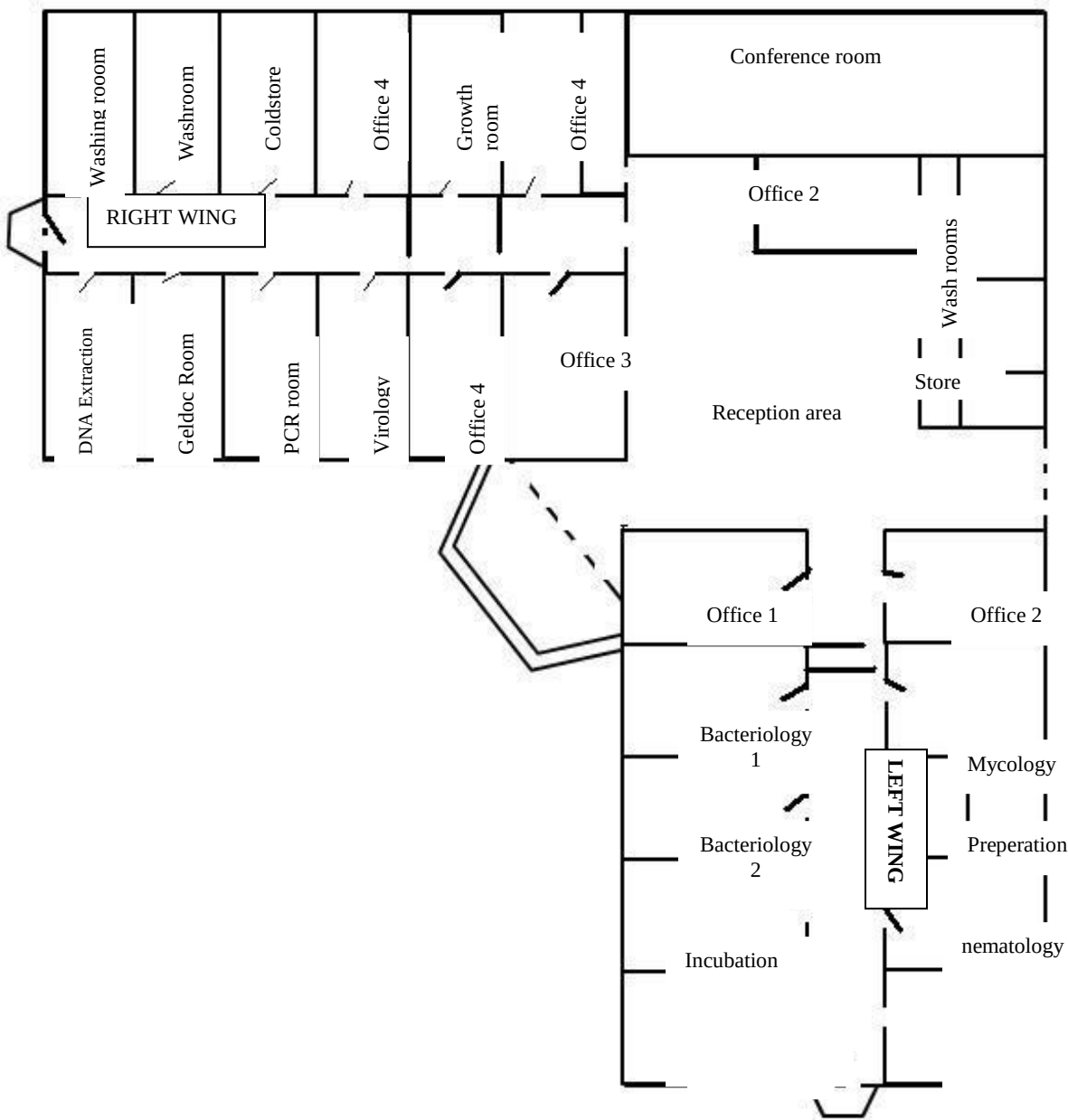
46.0 References:

- KEPHIS Career progression guidelines.
- Personnel files.
- ISO/IEC 17025:2017.
- Procurement Manual.
- Human Resource Manual.

7.0 Revision list

Revision number	Effective Date	Reviewers name	Reason for review
01	1 st February 2019	Sospeter Gachamba	i. New standard requirements ISO17025:2017
02	2 nd February 2020	Sospeter Gachamba	ii. Inclusion of KENAS comments on documents review Clause 5.7, 6.3,7.8.
03	2 nd August 2021	Sospeter Gachamba	iii. Updating organogram to include new staff
04	2 nd May 2022	Sospeter Gachamba	iv. Correct referencing of policies in section 8.2.2
05	2 nd January 2024	Sospeter Gachamba	v. Aligning with new organizational structure
06	2nd January 2024	Sospeter Gachamba	i. Updating new roles (head of laboratory and laboratory manager)

Annex 1: Laboratory layout



Annex 2: PERSONNEL

Competence and Job description of Inspectors, Technologists and Technicians

INSPECTORS

Designation

1. Inspector II
2. Inspector I
3. Senior Inspector
4. Chief Inspector
5. Principal Inspector
6. Senior principal Inspector
7. Chief principal Inspector

Job and appointment specifications

I. INSPECTOR II

Duties and Responsibilities

This is the basic entry into the Inspector cadre. The Inspector II will be regarded as being on the job training at the relevant field of specialization and undertake specific technical assignments under the supervision of an experienced Inspector in the Quality Control Division.

Requirements for Appointment

Direct Appointment

For appointment to the grade of Inspector II, a candidate must have at least a Bachelor of Science (B.Sc.) degree in Agriculture, Horticulture, Molecular biology or any other related program from a recognized university.

II. INSPECTOR I

Duties and Responsibilities

A Inspector I will normally perform duties similar to those of a Inspector II but with higher responsibility reflected by assignment of duties of a more specialized nature requiring little or no supervision. These include:

- (i) Sampling for analysis within provided guidelines
- (ii) Routine analysis and data reporting. However this data should be cross checked and interpreted by a senior Inspector.

Requirements for Appointment

Direct Appointment

For direct appointment to the grade of Inspector I; an officer must have an M.Sc degree In Plant Pathology, Entomology, Nematology, or any other relevant qualification and a basic knowledge of instrumentation.

Promotion

For promotion to the grade of Inspector I; an officer must:

- (i) Have served in the grade of Inspector II for at least three (3) years
- (ii) Have been confirmed in appointment and have acquired experience in the specific technical field of deployment, and have demonstrated ability, initiative, and competence in discharging duties.

III. SENIOR INSPECTOR

Duties and Responsibilities

The Senior Inspector should be specialized in Plant Pathology, Entomology, Molecular Biology or any other relevant field. At this grade, the officer should demonstrate a high level of expertise in the field of work.

An officer of this level will be deployed as a subject matter specialist in the area of specialization in Quality control division.

- i) Data analysis
- ii) Report writing
- iii) Methods validation
- iv) Supervision of sampling protocols
- v) Supervision of data by staff
- vi) Planning of work schedules
- vii) Ensuring the right equipments, Reagents and accessories are procured and properly maintained
- viii) Overseeing daily performance of equipment
- ix) Training junior staff under him
- x) Any other duty as may be assigned by the Chief Inspector.

Requirements for appointment

Direct Appointment

For appointment to the grade of Senior Inspector, an officer must have an M.Sc or a PhD degree relevant field of Plant Pathology, Entomology, Molecular Biology Chemistry and a minimum of three years experience in a related field.

Promotion

For promotion to this grade, an officer must:

- (a) Have completed at least three (3) years at the level of Inspector I,
- (b) Have demonstrated merit and ability in work performance.

IV. CHIEF INSPECTOR

Chief Inspector will normally perform duties similar to those performed by Senior Inspector, but with higher responsibilities reflected by assignment of duties of a more specialized nature and requiring minimum supervision. Specifically, duties at this level involve:

- (i) Decision making on sampling protocols
- (ii) Data analysis
- (iii) Cross checking and interpreting data obtained by staff under him/her
- (iv) Report writing
- (v) Methods validation
- (vi) Overseeing the procurement of appropriate reagents and accessories for laboratory
- (vii) Providing specifications for equipment and other working tools

- (viii) Planning of work schedules
- (ix) Assisting in general management and daily running of the laboratory
- (x) Overseeing the day-to-day performance of the equipment
- (xi) Representing the laboratory in inter and intra institutional matters; quality assurance and quality control matters, and
- (xii) Training junior staff in the laboratory.

Requirements for Appointment

For appointment, an officer must:

- (i) have served in the grade of Senior Inspector for at least three (3) years and possess an M.Sc. degree or a PhD in Plant Pathology, Entomology, Molecular Biology or any other relevant field including basic knowledge of instrumentation.
- (ii) Have been confirmed in appointment and have acquired reasonable experience in the specific technical field of deployment and have demonstrated ability initiative and competence in discharging duties.

LABORATORY TECHNICIANS

Designation

1. Laboratory Technician III
2. Laboratory Technician II
3. Laboratory Technician I
4. Senior Laboratory Technician

JOB AND APPOINTMENT SPECIFICATIONS

1. LABORATORY TECHNICIAN III

Duties and responsibilities

This is the basic entry grade into the cadre. The laboratory Technician III will be involved in basic analytical work, cultures maintenance, keeping of laboratory records and storage of glass-ware, samples and chemicals. The officer will be involved in general laboratory routine work e.g. sterilization and solution making or any other laboratory duties as may be assigned by a Laboratory Technologist or a Senior Laboratory Technician.

Requirements for Appointment

For appointment to the grade of Laboratory Technician III, the officer must;

- (i) Have attained KCSE mean grade C- with at least a C in chemistry, Biology or Physical Sciences; and
- (ii) Have a Laboratory Technicians Certificate from a recognized institution

II. LABORATORY TECHNICIAN II

Duties and responsibilities

Work at this level involves diagnostic procedure under supervision and guidance of a senior officer. The duties basically are simple analytical work, cultures maintenance, keeping laboratory records, storage of glassware, samples and chemicals etc. The officer will also be involved in general laboratory routine work e.g. sterilization and solution making.

Requirements for appointment

For appointment to the grade of Laboratory Technician II, the officer must:

- (i) have completed at least three (3) years satisfactory service as a Laboratory Technician III; and
- (ii) have demonstrated ability, initiative and competence in organizing, discharging duties and responsibilities.

III. LABORATORY TECHNICIAN I

Requirements for appointment

For appointment to the grade of Laboratory Technician I, the officer must:

- (i) Have completed at least three (3) years satisfactory service as a Laboratory Technician II and
- (ii) Have demonstrated ability, initiative and competence in organizing, directing discharging duties and responsibilities.

IV. SENIOR LABORATORY TECHNICIAN

Duties and Responsibilities

Duties at this level will include performance and supervision of analytical work, media preparation, maintenance of laboratory records, storage, collection and preparation samples and specimens, elementary diagnostic work, maintenance of cultures of insect, bacteria, fungi, etc and other laboratory duties as may be assigned.

Requirements for Appointment

For appointment to the grade of Senior Laboratory Technician, an officer must:

- (i) have completed at least three (3) years of satisfactory service as a laboratory Technician I, and
- (ii) have acquired reasonable experience in basic laboratory procedures and have demonstrated ability, initiative and competence in laboratory work.

LABORATORY TECHNOLOGIST

Designation

1. Laboratory Technologist III
2. Laboratory Technologist II
3. Laboratory Technologist I
4. Senior Laboratory Technologist

LABORATORY TECHNOLOGIST III

Duties and Responsibilities

This is the entry grade into the Laboratory Technologist cadre. Work at this level is of limited scope and complexity and is performed under the guidance of senior Officers. The laboratory Technologist III is expected to be conversant with the basic principles of laboratory work and should assist senior officers in accomplishing specific assignments. At this level, duties will include simple analytical work and media maintenance.

Requirements for Appointment

Direct appointment

For appointment to the grade of Laboratory Technologist III, candidates must:

- (i) Be in possession of at least the Kenya Certificate of Secondary education mean grade C with at least a C in the relevant science subjects or an approved equivalent qualification and
- (ii) Have successfully completed a prescribed three (3) years course and have been awarded the Ordinary Diploma in Applied Sciences by the Kenya national Examinations Council or be in possession of other recognized equivalent qualification(s).

II. LABORATORY TECHNOLOGIST II

Duties and Responsibilities

Laboratory Technologist II will normally perform duties similar to those performed by Laboratory Technologist III but with higher responsibilities reflected by assignment of a more specialized nature and requiring little supervision. Work at this level may in addition involve training and supervision of junior staff.

Requirements for appointment

Have successfully completed a prescribed three (3) years course and have been awarded the Ordinary Diploma in Applied Sciences by the Kenya national Examinations Council or be in possession of other recognized equivalent qualification(s).

Promotion

For promotion to the grade of Laboratory Technologist II, a candidate must:

- (i) At least have a higher national diploma in applied sciences
- (ii) Have served satisfactorily in the grade of laboratory technologist III for at least three (3) years: and
- (iii) Have demonstrated initiative and competence in discharging assignments of more specialized nature, including supervision of junior officers.

III. LABORATORY TECHNOLOGIST I

Duties and Responsibilities

Work at this level will normally involve planning, supervision, evaluation and coordination of laboratory work in a field of specialization. In addition, the officer will be expected to order and maintain records of supplies and also to supervise, train and develop junior staff.

Requirements for appointment

Promotion

For promotion to the grade of Laboratory Technologist I, an officer must:

- (i) have completed at least three (3) years satisfactory service as laboratory technologist II and
- (ii) have demonstrated ability and competence to plan, organize, direct and co-ordinate specialized laboratory work.

IV. SENIOR LABORATORY TECHNOLOGIST

Duties and Responsibilities

Work at this level will involve the management of laboratory services within KEPHIS large units in the field at the Regional offices. Specific duties include coordination of provision of laboratory services as well as allocation of duties and distribution of staff various units. In addition, the officer will be expected to do the actual work in his area of specialization; ensure availability of laboratory supplies and maintenance of laboratory equipment; and train and supervise staff working under him.

Requirements for appointment

For appointment to the grade of senior Laboratory Technologist, an officer must:

- (i) have completed at least three (3) years satisfactory service as a laboratory technologist I; and
- (ii) Have shown considerable capabilities and efficiency in management of laboratory work.

Individual professional and competence requirements to the nature of work can be found in the [KEPHIS HR Career Guideline](#).