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MANUAL OF INSPECTION PROCEDURES FOR PLANT HEALTH

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Definition of terms

Note: These definitions are drawn from the glossary of phytosanitary terms in ISMP No. 5.

Commodity – A type of plant, plant product or other article being moved for trade or other purpose.

Consignment – A quantity of plants, plant products and/or other articles being moved from one country to another and covered, when required, by a single phytosanitary certificate. A consignment may be composed of one or more commodities or lots.

Inspector – A person authorized by a national plant protection organization to discharge its functions.

Pest – Any species, strain or biotype of plant, animal or pathogenic agent injurious to plants or plant products.

Phytosanitary measure – Any legislation, regulation or official procedure having the purpose to prevent the introduction and/or spread of quarantine pests, or to limit the economic impact of regulated non-quarantine pests.

Plant import permit – Official document authorizing importation of a commodity in accordance with specified phytosanitary import requirements.

Quarantine pest – A pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled.

Regulated article – Any plant, plant product, storage place, packaging, conveyance, container, soil and any other organism, object or material capable of harbouring or spreading pests deemed to require phytosanitary measures, particularly where international transportation is involved.

Regulated non-quarantine pest – A non-quarantine pest whose presence in plants for planting affects the intended use of those plants with an economically unacceptable impact and which is therefore regulated within the territory of the importing contracting party.

Regulated pest – A quarantine pest or a regulated non-quarantine pest.

Acronyms

CABI	Centre for Agriculture and Biosciences International
CPM	Commission on Phytosanitary Measures
EAC	East African Community
EAS	East African Standards
EU	European Union
FAO	Food and Agriculture Organization
IAF	International Accreditation Forum
ICPM	International Convention for Phytosanitary Measures
IEC	International Electro-technical Commission
ILAC	International Laboratory Accreditation Cooperation
ILO	International Labour Organizations
IPPC	International Plant Protection Convention
ISO	International Standards Organization
ISPM	International Standard for Phytosanitary Measures
ISTA	International Seed Testing Association
NPPO	national plant protection organization
OECD	Organisation for Economic Co-operation and Development
SOP	Standard Operating Procedure
SPS	Sanitary and Phytosanitary Measures
USAID	United States Agency for International Development

I. Introduction

I.1 Overview

Cross-border and regional agricultural trade has considerable potential for the East African Community (EAC) member states. The current population offers a large regional export market for consumers who are not well supplied by their own domestic agricultural sector. The increasing integration within EAC provides access to this market, and trade is likely to flow from the lowest cost producer to member states with comparatively higher costs of production. Nevertheless, it is well recognized that successful export trade depends as much on competitive advantage as it does on comparative advantage. In a number of instances exports do occur amongst member states despite high basic production costs in the country of origin, because of specific trade linkages, market segmentation, or branding.

Addressing sanitary and phytosanitary (SPS) issues has been singled out as key in the promotion of food and nutritional security in the EAC region. In an effort to improve regional and intraregional trade, EAC has approved the SPS protocol as a legal basis for resolving intraregional SPS trade constraints. Trade barriers occur as a result of the application of unfavourable product standards, technical regulations and conformity assessment procedures that constitute technical barriers to trade.

Trade among the five EAC Partner States grew by 96% between 2004 and 2009 mainly attributed to the establishment of the customs union. However, intra-EAC trade remains low and currently stands at 13% of the total trade volume. This compares poorly with regional trade arrangements elsewhere such as the European Union (EU) and the North America Free Trade Agreement, where intraregional trade accounts for 60% and 48%, respectively, of the total trade portfolios. Trade in agricultural commodities forms the bulk of intra-EAC trade, with foodstuff such as cereals, live animals and their products, processed beverages, tobacco and inedible crude materials dominating.

EAC member countries apply numerous certification and conformity assessments to ensure compliance to technical quality standards in intra-EAC trade. However, there are differences in product standards and in the methods used by the agencies that are accredited to undertake standardization procedures. Some agencies accredited to conduct standardization in one country may not be recognized in another country, a problem that adds to the cost of conducting business.

Plant health inspection is a key area in capacity building and is envisioned to improve inspection operations to conform with the requirements highlighted in ISO 17020. The rationale for developing this manual is to create a resource that is tailored for use by phytosanitary practitioners in EAC with the aims of improving their inspection skills and the quality of inspections and increasing trade within EAC Partner States and with other countries in the global market. This manual will help to overcome the non-tariff barriers to trade, to provide and enhance good regulatory practice, and to create harmonization of standards among and between trading partners.

Scope

The topics covered in this manual include:

- human resource requirements in terms of knowledge and skills
- physical capacity requirements (equipment, facilities)
- sampling and inspection procedures for priority commodities
- documenting and reporting of inspection results
- quality management systems

Goal

The goal of this manual is to facilitate the enhancement of plant health inspection skills among EAC plant health inspectors and to enable them to apply those skills in the organization and institutional

framework within which they operate, in order to harmonize the technical capacity of competent authorities in inspection and to increase intraregional trade within EAC and beyond.

Target trainees

The trainees will comprise staff in competent authorities involved in inspection of plant and plant products, professionals from the private sector who are involved in or who have work experience in SPS in plant health, and staff within the ministry of trade, among others.

Training sessions

The training will be facilitated by experts in SPS in plant health. For the purpose of this manual, training sessions are planned into nine parts to be covered in three days, but this may be extended beyond that time.

Resource materials

A large number of resources were used in the development of this manual. They are IPPC sections that are relevant to ISPMs on inspection, manuals developed for competent authorities under the United States Department of Agriculture (USDA), EAC SPS documents, the Kenyan Seed Act, and documents from agencies implementing ISO 17020 standard, as indicated in the reference section.

Time allocation

The content of this manual has been grouped to be covered under three broad areas:

- Day one: General principles of inspections
- Day two: Inspection for identified plant health commodities
- Day three: Implementation of ISO 17020 in inspection

Manual and training evaluation

This manual will be shared with the trainees before the training for reading and comments for its improvement. After the training the participants will carry out an evaluation of the training and make suggestions on how it could be improved.

2. Principles of inspection based on ISO 17020 Standard

2.1 What are ISO and ISO 17020?

The International Organization for Standardization (ISO) is an international standard-setting body composed of representatives from various national standards organizations. Founded on 23 February 1947, the organization promotes the worldwide application of proprietary, industrial and commercial standards.

ISO 17020 is an international standard whose key objective is to promote confidence in entities that perform inspection. This standard takes into account the activities of inspection bodies whose work can include the examination of materials, products, installations, plants, processes, and work procedures and services, and the determination of their conformity with requirements, as well as the subsequent reporting of the results of these activities to clients and, when required, to authorities. Inspection can concern all the stages during the lifetime of these items, including the design stage. Such work normally requires the exercise of professional judgment in performing inspection, in particular when assessing conformity with the general requirements.

2.1.2 Purpose

National plant protection organizations (NPPOs) conduct inspections on behalf of their parent authorities, with the objective of providing information about the conformity of the inspected items with regulations, specifications and inspection schemes. Inspection parameters include matters of plant health for the purpose of preventing the introduction and or spread of a plant health risk. The ISO 17020 standard harmonizes the general requirements with which inspection bodies are required to comply in order that their services are in harmony with the international standards.

2.1.3 Scope

This manual attempts to align the inspection operations for commodities commonly traded in EAC including maize, rice, beans and maize seeds to the ISO 17020 requirements of the competence bodies performing inspection. This manual applies to any stage of inspection, including the design stage, type examination, initial inspection and in-service inspection or surveillance, in order to build impartiality and consistency in inspection activities.

2.1.4 Terms and their definition

For purposes of this document, the terms and definitions given in ISO/IEC 17000 and the following apply.

Appeal – A request by the provider of the item that is the subject of the inspection to the inspection body for reconsideration by that body of a decision it has made relating to that item

Complaint – Expression of dissatisfaction other than by an appeal by any person or organization to an inspection body, relating to the activities of that body, where a response is expected.

Impartiality – Presence of objectivity. This means that conflicts of interest do not exist or are resolved so as not to adversely influence subsequent activities of the inspection body. Other terms denoting impartiality are independence, freedom from conflict of interest, freedom from bias, lack of prejudice, neutrality, fairness, open-mindedness, even-handedness, detachment, and balance.

Inspection – Examination of a product, process, service or installation or their design and determination of its conformity with specific requirements or, on the basis of professional judgment, with general requirements. The following should be noted:

- Inspection of processes can cover personnel, facilities, technology or methodology;
- Inspection procedures or schemes can restrict inspection to examination only;
- The term “item” as used in the ISO 17020 standard includes product, process, service or installation, as appropriate.

(adapted from ISO/IEC 17000:2004, definition 4.3).

Inspection body – A body that performs inspection. An inspection body can be an organization or part of an organization.

Inspection scheme – An inspection system to which the same specified requirements, specific rules and procedures apply. Inspection schemes can be operated at international, regional, national or subnational level. Schemes are sometimes also referred to as programmes.

Inspection system – Rules, procedures and management processes for carrying out inspection. An inspection system can be operated at international, regional, national or subnational level.

Process – A set of interrelated or interacting activities that transforms inputs into outputs.

Product – A result of a process. Many products comprise elements belonging to different generic product categories. Whether the product is then called a service, software, hardware or processed material depends on the dominant element. Products include results of natural processes, for example plants and plant products.

Service – Results of at least one activity necessarily performed at the interface between the supplier and the customer that is generally intangible.

2.2 General requirements

The general requirements in inspection include impartiality, independence and confidentiality.

2.2.1 Independence, impartiality and integrity

- Impartiality shall be exercised in all inspection activities.
- Commercial, financial or any other pressure shall not be used as a means to compromise the inspection body thus causing it to be partial in its

A relationship that threatens the impartiality of the inspection body can be based on its ownership, governance, management, personnel, shared resources, finances, contracts, marketing (including branding), and payment of a sales commission or other inducement for the referral of new clients, etc.

- activities or in the outcomes of its inspections. The identification of risks to the impartiality of the inspection body shall be conducted on an ongoing basis and shall include those risks that arise from its activities, its relationships or the relationships of its personnel. These relationships do not necessarily present an inspection body with a risk to impartiality.
- The inspection body shall be in a position to show how it deals with any risks arising from impartiality.
- The top management of the inspection body shall independently show its full support for impartiality, based on the conditions the inspection body conducts its operations.

2.2.2 Confidentiality

- The inspection body shall be responsible, through being party to legally enforceable commitments, for the management of all information obtained or created during the performance of inspection activities. The client shall be informed in advance of any information that the inspection body intends to share in the public domain. All information pertaining to the client will remain confidential except for the

Legally enforceable, commitments can be, for example, contractual agreements.

information that the client will make publicly available or when this is agreed between the inspection body and the client, e.g. for the purpose of responding to complaints.

- When the inspection body is required by law or authorized by contractual commitments to release confidential information, the client or individual concerned shall, unless prohibited by law, be notified of the information provided.
- Information about the client obtained from sources other than the client, e.g. a complainant or regulators shall be treated as confidential.

2.3 Structural requirements for an NPPO

2.3.1 Administrative requirements

Roles and responsibilities

- The inspection body can be held legally responsible for all its inspection activities by virtue of it being a legal entity or defined as part of a legal entity.

Note: A governmental inspection body is deemed to be a legal entity on the basis of its governmental status.

- An inspection body that is part of a legal entity involved in activities other than inspection shall be identifiable within that entity.
- There shall be documentation/legal framework stipulating the activities that the inspection body is competent for; entry/exit points inspections, inspections support laboratory diagnostics, quarantine facilities, including legal frameworks that enable inspectors to carry out their duties such as inspection of passenger luggage, confiscation and appropriate destruction of live plant materials and by-products that may pose high plant health risk.
- The inspection body shall make appropriate arrangements (e.g. organizing for insurance cover or reserves) to cover liabilities arising from its operations.

Note: The liability can be assumed by the state in accordance with national laws, or by the organization of which the inspection body forms a part.

- There shall be documentation within the inspection body that spells out the contractual conditions under which it provides inspection, except when it provides inspection services to the legal entity of which it is a part.

Organization and management

- To safeguard against partiality, the inspection body shall be structured and managed in a way that ensures its capacity to perform inspection activities with impartiality.
- The inspection body shall be organized and managed so as to enable it to maintain its capability to perform its inspection activities.

Note: Inspection schemes can require that the inspection body participate in the exchange of technical experience with other inspection bodies in order to maintain this capability.

- The responsibilities and reporting structure of the organization shall be clearly defined and documented.
- In some instances, the inspection body may, as part of a legal entity, perform other activities alongside inspection activities. Where this occurs, the relationship between the activities shall be defined.
- The overall responsibility of ensuring that the inspection activities are carried out in accordance with ISO 17020 shall be that of the technical manager(s).

Note: The person fulfilling this function does not always have the title of technical manager.

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- The technical manager(s) shall be technically competent and experienced in the operation of the inspection body and their specific responsibilities shall be defined and documented.
 - In the absence of a technical manager, the inspection body shall assign one or more persons who will deputize and be responsible for ensuring that inspection activities are going on.
 - Each position category within the inspection body involved in inspection activities shall have a job description or other documentation.

2.4 Resource requirements for an NPPO

2.4.1 Personnel

- All personnel involved in inspection activities in the inspection body shall have their competence requirements defined and documented, including requirements for education, training, technical knowledge, skills and experience. The competence requirements can be part the job description or other documentation.
- A sufficient number of persons with the required competencies shall be employed or contracted by the inspection body. Competencies of these persons will include but will not be limited to the ability to make professional judgment and to perform the type, range and volume of its inspection activities.
- Inspection personnel shall have appropriate qualifications, training, experience and satisfactory knowledge of the requirements of the inspections to be carried out.
- The inspection body shall make clear to each person their duties, responsibilities and authority and shall have documented procedures for selecting, training, formally authorizing, and monitoring inspectors and other personnel involved in inspection activities.
- The documented procedures for training shall address the following stages:
 - an induction period;
 - a mentored working period with experienced inspectors;
 - continuous training to keep pace with developing technology and inspection methods.
- The training required shall depend upon the ability, qualifications and experience of each inspector and other personnel involved in inspection activities, and upon the results of monitoring, which shall be used as a means of identifying training needs.
- Personnel or a manager familiar with the inspection methods and procedures shall monitor all inspectors and other personnel involved in inspection activities for satisfactory performance.

Note: Monitoring can include a combination of techniques, such as on-site observations, report reviews, interviews, simulated inspections and other techniques to assess performance, and will depend on the nature of inspection activities.
- Each inspector shall be observed at work unless there is sufficient supporting evidence that the inspector is continuing to perform competently. On-site observations will be conducted in a way that minimizes the disturbance of the inspections, especially from the client's viewpoint.
- Records of monitoring, education, training, technical knowledge, skills, experience and authorization of each inspector shall be maintained by the inspection body.
- Inspectors' remuneration will not be determined in a way that influences the results or outcomes of inspections.
- All personnel of the inspection body, whether internal or external, who could influence the inspection activities, shall act impartially.
- All personnel of the inspection body, including subcontractors, personnel of external bodies and individuals acting on the inspection body's behalf, shall keep confidential all information obtained or created during the performance of the inspection activities, except as required by law.

2.4.2 Facilities and equipment

- The inspection body shall have available suitable and adequate facilities and equipment to permit all activities associated with the inspection activities to be carried out in a competent and safe manner.

Note: The inspection body need not be the owner of the facilities or equipment that it uses. Facilities and equipment can be borrowed, rented, hired, leased or provided by another party (e.g. the manufacturer or installer of the equipment). However, the responsibility for the suitability and the calibration status of the equipment used in inspection, whether owned by the inspection body or not, lies solely with the inspection body.

- The inspection body shall have rules for the access to, and the use of, the specified facilities and equipment used to perform inspections.
- The inspection body shall ensure the continued suitability of the facilities and equipment for their intended use.
- All equipment having a significant influence on the results of the inspection shall be defined and, where appropriate, uniquely identified.
- All equipment shall be maintained in accordance with documented procedures and instructions.
- Where appropriate, measurement equipment having a significant influence on the results of the inspection shall be calibrated before being put into service, and thereafter calibrated according to an established programme.
- The overall programme of calibration of equipment shall be designed and operated so as to ensure that, wherever applicable, measurements made by the inspection body are traceable to national or international standards of measurement, where available. Where traceability to national or international standards of measurement is not applicable, the inspection body shall maintain evidence of correlation or accuracy of inspection results.
- Reference standards of measurement held by the inspection body shall be used for calibration only and for no other purpose. Reference standards of measurement shall be calibrated providing traceability to a national or international standard of measurement.
- Where relevant, equipment shall be subjected to in-service checks between regular recalibrations.
- Reference materials shall, where possible, be traceable to national or international reference materials, where they exist.
- Where relevant for the outcome of inspection activities, the inspection body shall have procedures for the following:
 - selection and approval of suppliers;
 - verification of incoming goods and services;
 - ensuring appropriate storage facilities.
- Where applicable, the condition of stored items shall be assessed at appropriate intervals to detect deterioration.
- If the inspection body uses computers or automated equipment in connection with inspections, it shall ensure that:
 - computer software is adequate for use.

Note: This can be done by the following:

 - validation of calculations before use;
 - periodic revalidation of related hardware and software;
 - revalidation whenever changes are made to related hardware or software;
 - software updates are implemented as required ;
 - procedures are established and implemented for protecting the integrity and security of data;
 - computer and automated equipment are maintained in order to ensure proper functioning.

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- The inspection body shall have documented procedures for dealing with defective equipment. Defective equipment shall be removed from service by segregation, prominent labeling or marking, and where the effect of defects on previous inspections are found, appropriate corrective action shall be taken.
 - Relevant information on the equipment, including software, shall be recorded and shall include identification and, where appropriate, information on calibration and maintenance.

2.4.3 Subcontracting

- It is the sole responsibility of the inspection body to perform the inspections that it contracts to undertake. However, where an inspection body subcontracts any part of the inspection, it shall ensure and be able to demonstrate that the subcontractor is competent to perform the activities in question and, where applicable, complies with the relevant requirements stipulated in ISO 17020 or in other relevant conformity assessment standards.

Note 1: The reasons to subcontract inspection work can include the following:

- an unforeseen or abnormal overload
- key inspection staff members being incapacitated
- key facilities or items of equipment being temporarily unfit for use
- part of the contract from the client for inspection not being covered by the inspection body's scope or being beyond the capability or resources of the inspection body.

Note 2: The terms “subcontracting” and “outsourcing” are considered to be synonyms.

Note 3: Where the inspection body engages individuals or employees of other organizations to provide additional resources or expertise, these individuals are not considered to be subcontractors provided they are formally contracted to operate under the inspection body's management system.

- The inspection body shall inform the client of its intention to subcontract any part of the inspection.
- Whenever subcontractors carry out work that forms part of an inspection, the responsibility for any determination of conformity of the inspected item with the requirements shall remain with the inspection body.
- The inspection body shall record and retain details of its investigation of the competence of its subcontractors and of their conformity with the applicable requirements of ISO 17020 or other relevant conformity assessment standards. The inspection body shall maintain a register of all its subcontractors.

2.5 Process requirements for an NPPO

2.5.1 Inspection methods and procedures

- The inspection body shall use the methods and procedures for inspection that are defined in the requirements against which inspection is to be performed. Where these are not defined, the inspection body shall develop specific methods and procedures to be used and shall inform the client if the inspection method proposed by the client is considered to be inappropriate.

Note: The requirements against which the inspection is performed are normally specified in regulations, standards or specifications, inspection schemes or contracts. Specifications can include client or in-house requirements.

- The inspection body shall have and shall use adequate documented instructions on inspection planning and on sampling and inspection techniques, where the absence of such instructions could jeopardize the effectiveness of the inspection process. Where applicable, the inspection body shall have sufficient knowledge of statistical techniques to ensure statistically sound sampling procedures and correct processing and interpretation of results.

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- In the event that the inspection body has to use inspection methods or procedures that are non-standard, these shall be appropriate and fully documented.

Note: A standard inspection method is one that has been published, for example, in international, regional or national standards, or by reputable technical organizations, or by cooperation of several inspection bodies, or in relevant scientific text or journals. Methods that are therefore developed by any other means, including by the inspection body itself or by the client, are considered to be non-standard methods.

- All instructions, standards or written procedures, worksheets, checklists and reference data relevant to the work of the inspection body shall be maintained up to date and be readily available to the personnel.
- The inspection body shall have a contract or work order control system that ensures that:
 - Work to be undertaken is within its expertise and that the organization has adequate resources to meet the requirements;

Note: Resources can include, but are not limited to, facilities, equipment, reference documentation, procedures and human resources.

- The requirements of those seeking the inspection body's services are adequately defined and that special conditions are understood, so that clear and well-understood instructions can be issued to personnel performing the duties to be required;
 - Work being undertaken is controlled by regular review and corrective action;
 - The requirements of the contract or work order have been met.
- The integrity of information supplied by any other party as part of the inspection process and used by the inspection body shall be verified.
- Observations made or data obtained in the course of inspections shall be recorded in a timely manner so as to prevent loss of relevant information.
- Calculations and data transfers shall be subject to appropriate checks.

Note: Data can include textual material, digital data and anything else that is transferred from one location to another where errors could be introduced.
- The inspection body shall have documented instructions for carrying out inspection in a manner that is considered to be safe.

2.5.2 Handling inspection items and samples

- Items and samples to be inspected shall be uniquely identified in order to avoid confusion regarding their identity.
- The inspection body shall establish whether the item to be inspected has been prepared/is ready for the inspector to conduct inspection.
- Any apparent abnormalities notified to, or noticed by, the inspector shall be recorded. Where there is any doubt as to the item's suitability for the inspection to be carried out, or where the item does not conform to the description provided, the inspection body shall contact the client before proceeding.
- The inspection body shall have documented procedures and appropriate facilities to avoid deterioration or damage to inspection items while under its responsibility.

2.5.3 Inspection records

- A record system shall be maintained by the inspection body to demonstrate the effective fulfillment of the inspection procedures and to enable an evaluation of the inspection.
- As such, inspectors must generate a report stating the decision of the inspection as acceptable or not acceptable, intercepted, rejected, prohibited etc.

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- Following inspection, it will be ensured that the inspection report or certificate shall be internally traceable to the inspector(s) who performed the inspection.

2.5.4 Inspection reports and certificates

- The work carried out by the inspection body shall be covered by a retrievable inspection report or inspection certificate, which shall include all of the following:
 - identification of the issuing body;
 - unique identification and date of issue;
 - date(s) of inspection;
 - identification of the item(s) inspected;
 - signature or other indication of approval by authorized personnel;
 - a statement of conformity where applicable;
 - the inspection results.
- An inspection body shall issue an inspection certificate that does not include the inspection results only when the inspection body can also produce an inspection report containing the inspection results, and when both the inspection certificate and inspection report are traceable to each other.
- All information in the inspection report/certificate shall be reported correctly, accurately, and clearly. Where the inspection report or inspection certificate contains results supplied by subcontractors, these results shall be clearly identified.
- Corrections or additions to an inspection report or inspection certificate after issue shall be recorded in accordance with the relevant requirements. An amended report or certificate shall uniquely identify the report or certificate replaced.

2.5.5 Complaints and appeals procedure

- The procedure for handling complaints and appeals shall include at least the following elements and methods:
 - A description of the process for receiving, validating and investigating the complaint or appeal, and deciding what actions are to be taken in response to it;
 - Tracking and recording of complaints and appeals, including actions undertaken to resolve them;
 - Ensuring that any appropriate action is taken.
- The inspection body receiving the complaint or appeal shall be responsible for gathering and verifying all necessary information to validate the complaint or appeal and whenever possible, the inspection body shall acknowledge receipt of the complaint or appeal, and shall provide the complainant or appellant with progress reports and the outcome.
- The decision to be communicated to the complainant or appellant shall be made by, or reviewed and approved by, individual(s) not involved in the original inspection activities in question.
- Whenever possible, the inspection body shall give formal notice of the end of the complaint and appeals handling process to the complainant or appellant.

2.6 Management system requirements for an NPPO

2.6.1 General

- The inspection body shall establish and maintain a management system that is capable of achieving the consistent fulfillment of the requirements of ISO 17020 in accordance with either Option A or Option B.

Option A

- The management system of the inspection body shall address the following:
 - management system documentation (e.g. manual, policies, definition of responsibilities);
 - control of documents;

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- control of records;
 - management review;
 - internal audit;
 - corrective actions;
 - preventive actions;
 - complaints and appeals.

Option B

- An inspection body that has established and maintains a management system in accordance with the requirements of ISO 9001 and that is capable of supporting and demonstrating the consistent fulfillment of the requirements of ISO 17020 fulfils the management system clause requirements.

2.6.2 General management system for documentation

- The inspection body's top management shall establish, document, and maintain policies and objectives for fulfillment of ISO 17020 and shall ensure the policies and objectives are acknowledged and implemented at all levels of the inspection body's organization.
- The top management shall provide evidence of its commitment to the development and implementation of the management system and its effectiveness in achieving consistent fulfillment of ISO 17020.
- The inspection body's top management shall appoint a member of management who, irrespective of other responsibilities, shall have responsibility and authority that include the following:
 - ensuring that processes and procedures needed for the management system are established, implemented and maintained;
 - reporting to top management on the performance of the management system and any need for improvement.
- All documentation, processes, systems, records, etc. related to the fulfillment of the requirements of ISO 17020 shall be included, referenced or linked to documentation of the management system.
- All personnel involved in inspection activities shall have access to the parts of the management system documentation and related information that are applicable to their responsibilities.

2.7 Conditions for accreditation

2.7.1 Control of documents

- The inspection body shall establish procedures to control internal and external documents that relate to the fulfillment of ISO 17020.
- The procedures shall define the controls needed to:
 - approve documents for adequacy prior to issue;
 - review and update (as necessary) and re-approve documents;
 - ensure that changes and the current revision status of documents are identified;
 - ensure that relevant versions of applicable documents are available at points of use;
 - ensure that documents remain legible and readily identifiable;
 - ensure that documents of external origin are identified and their distribution controlled;
 - prevent the unintended use of obsolete documents, and apply suitable identification to them if they are retained for any purpose.

Note: Documentation can be in any form or type of medium, and includes proprietary and in-house developed software.

2.7.2 Control of records

- Procedures shall be established by the inspection body to define the controls needed for the identification, storage, protection, retrieval, retention time and disposition of its records related to

the fulfillment of ISO 17020.

- The inspection body shall establish procedures for retaining records for a period consistent with its contractual and legal obligations. Access to these records shall be consistent with the confidentiality arrangements.

2.7.3 Management review

- Procedures to review the inspection body's management system at planned intervals shall be established by the top management. This will be for purposes of ensuring the inspection body's continuing suitability, adequacy and effectiveness, including in regard to the stated policies and objectives related to the fulfillment of ISO 17020.
- Reviews shall be conducted at least once a year or alternatively completed within a 12-month time frame (as a rolling review).
- Records of reviews shall be maintained (review inputs; review outputs).

2.7.4 Internal audits

- Procedures for internal audits shall be established for purposes of verifying that the inspection body fulfils the requirements of this 17020 and that the management system is effectively implemented and maintained.

Note: ISO 19011 provides guidelines for conducting internal audits.

- An audit programme shall be planned, taking into consideration the importance of the processes and areas to be audited, as well as the results of previous audits.
- The inspection body shall conduct periodic internal audits covering all procedures in a planned and systematic manner, in order to verify that the management system is implemented and is effective.
- Internal audits shall be performed at least once every 12 months; the frequency may be adjusted depending on the demonstrable effectiveness of the management system and its proven stability.
- The inspection body shall ensure that:
 - internal audits are conducted by qualified personnel knowledgeable in inspection, auditing and the requirements of ISO 17020;
 - auditors do not audit their own work;
 - personnel responsible for the area audited are informed of the outcome of the audit;
 - any actions resulting from internal audits are taken in a timely and appropriate manner;
 - any opportunities for improvement are identified;
 - the results of the audit are documented.

2.7.5 Corrective action

- The inspection body shall establish procedures for identification and management of nonconformities in its operations and, where necessary, take actions to eliminate the causes of nonconformities in order to prevent recurrence.
- Corrective actions shall be appropriate to the impact of the problems encountered.
- The procedures shall define requirements for the following:
 - identifying nonconformities;
 - determining the causes of nonconformity;
 - correcting nonconformities;
 - evaluating the need for actions to ensure that nonconformities do not recur;
 - determining the actions needed and implementing them in a timely manner;
 - recording the results of actions taken;
 - reviewing the effectiveness of corrective actions.

2.7.6 Preventive actions

- The inspection body shall establish procedures for taking preventive actions to eliminate the causes of potential nonconformities. These shall be appropriate to the probable impact of the potential problems.
 - The procedures for preventive actions shall define the requirements for the following:
 - identifying potential nonconformities and their causes;
 - evaluating the need for action to prevent the occurrence of nonconformities;
 - determining and implementing the action needed;
 - recording the results of actions taken;
 - reviewing the effectiveness of the preventive actions taken.

Note: The procedures for corrective and preventive actions do not necessarily have to be separate.

2.7.7 Cooperation

Contracting parties should cooperate with one another to achieve the objectives of IPPC. In particular, they shall cooperate with one another to the fullest practicable extent in achieving the aims of the Convention. Contracting parties should also actively participate in bodies established under IPPC. Inspection bodies are encouraged to exchange knowledge, subject to commercial sensitivities and confidentiality, and learn from each other to improve the general standard and consistency of accredited inspection results.

3. Inspection procedures for plant health risks at border control points

This manual focuses on the inspection of four plant commodities traded within the EAC region as examples to demonstrate the conduct of plant inspection. Participants are encouraged to expand the list to other commodities. These commodities are maize grain, maize seed, beans and rice for consumption.

NPPOs have the responsibility for “the inspection of consignments of plants and plant products moving in international traffic and, where appropriate, the inspection of other regulated articles, particularly with the object of preventing the introduction and/or spread of pests” (Article IV.2(c) of the IPPC). Figure 1 provides a description on the flow of inspection procedures.

An export inspection is used to ensure that the consignment meets the phytosanitary import requirements of the importing country at the time of inspection. An export inspection of a consignment may result in the issuance of a phytosanitary certificate for the consignment in question. Inspection at import is used to verify compliance with phytosanitary import requirements. Inspection may also be carried out generally for the detection of organisms for which the phytosanitary risk has not yet been determined. The collection of samples for laboratory testing or the verification of pest identity may be combined with the inspection procedure. Inspection can be used as a risk management procedure.

NPPOs should conduct periodic reviews of import and export inspection systems to validate the appropriateness of their design and to determine any course of adjustments needed to ensure that they are technically sound. Audits should be conducted in order to review the validity of the inspection systems. An additional inspection may be a component of the audit.

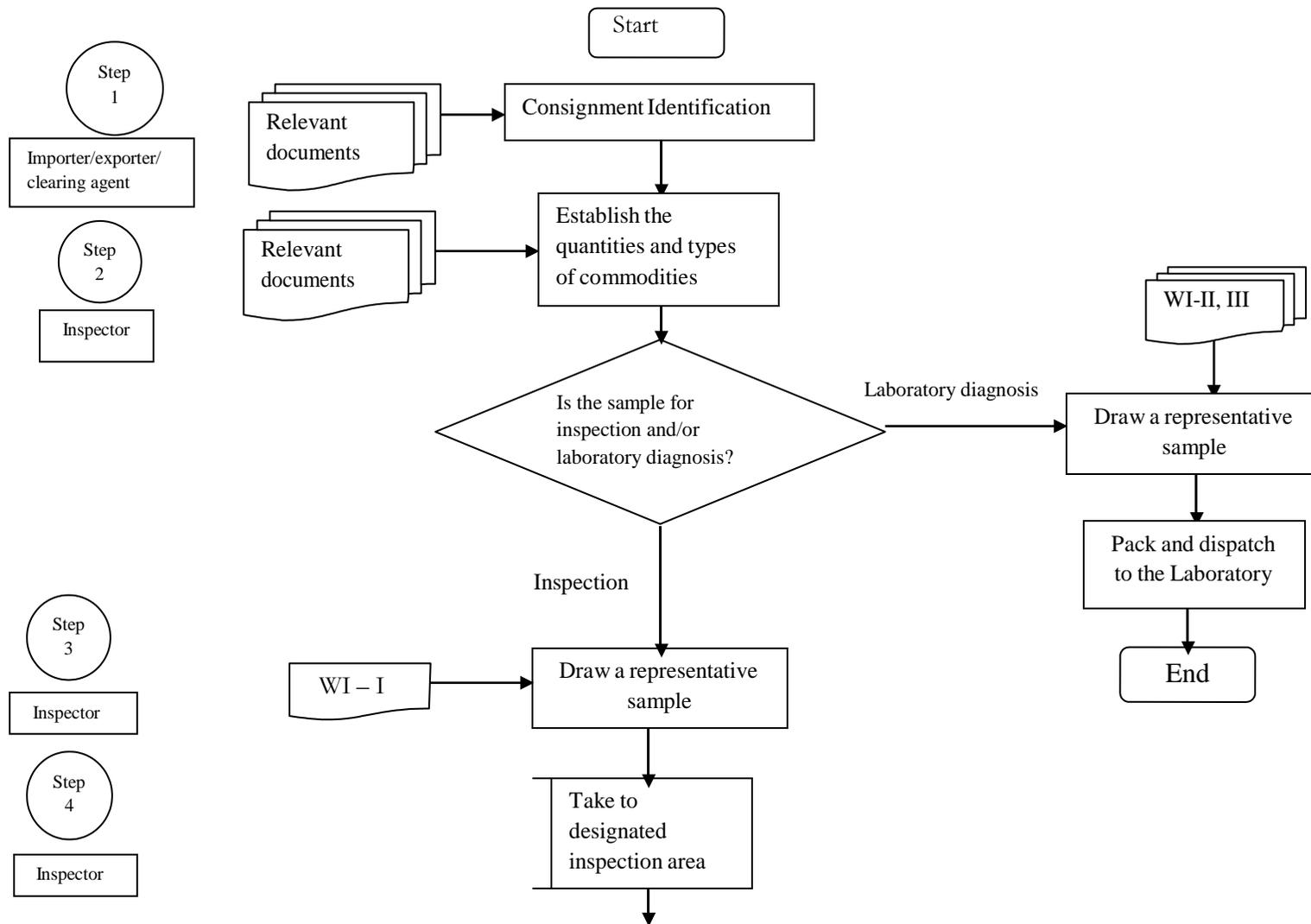


Figure I: Procedure for conduction an inspection

Inspectors determine the compliance of consignments to phytosanitary regulations based on visual examination for the detection of pests and regulated articles, document check, and integrity checks. The result of an inspection should allow an inspector to decide whether to accept, detain or reject the consignment, or whether further analysis, tests or inspection is required.

NPPOs may determine that consignments should be sampled during inspection. The sampling methodology used should depend on the specific inspection objectives.

According to IPPC guidelines for inspection systems, the objective of inspection of consignments is to confirm compliance with import or export requirements relating to quarantine pests or regulated non-quarantine pests. It often serves to verify the effectiveness of other phytosanitary measures taken at a previous stage in time.

3.1 Purpose of seed and grain inspections

Crop inspection is conducted with the main purpose of providing a third party with unbiased inspection and a complete report on the isolation, condition and purity of the crop. The inspector is tasked with the responsibility of describing the crop as observed at the time of inspection. Field inspections are therefore completed by the exporting country and mainly check for the following:

- The previous cropping history of the field should be such that the risk of undesirable volunteer plants of the same or related species contaminating the seed crop is reduced to minimum;
- Isolation from other crops of the same species to reduce the risk of contamination with undesirable pollen;
- Physical isolation to prevent mechanical admixtures at harvest;
- Isolation from source of seed-borne diseases;
- Freedom from weeds and other crop species especially those whose seeds may be difficult to separate from the seed crop during seed processing;
- Freedom from seed-borne diseases
- Trueness to type – There should not be more off-type plants present than the varietal purity standards allowed;
- Excessively weedy or severely lodged crops may lead to the crop rejection as a seed crop;
- During random counts an inspector should not spot an off-type/disease plant outside their counting matrix and try to include it in the count. In all cases any factor with nil tolerance is taken into account at any time it is spotted;
- As a general practice, seed fields shall be entirely uniform. If a field is not uniform in growth or has not matured evenly due to environmental factors, it shall be separated so that fields of even maturity are registered as a crop and are kept apart from the other crops by a clear path that is 2 meters wide.

3.2 Basic procedures for inspection

3.2.1 Verification of consignment identity and integrity

To ensure that the consignment is accurately described in its documents, its verification is the first process of inspection. The identity check verifies whether the type of plant or plant product or species is in accordance with the details in the phytosanitary certificate received or to be issued. The integrity check verifies if the consignment is clearly identifiable and the quantity and status is as declared in the phytosanitary certificate received or to be issued. This may require a physical examination of the consignment, including checking for seals, safety condition and other relevant physical aspects of the

shipment that may be of phytosanitary concern. The actions taken based on the result will depend on the extent and nature of the problem encountered.

3.2.2 Visual examination for pests and other phytosanitary requirements

Certain aspects of inspection depend on its purpose, such as if the inspection is for import or export, verification or risk management purposes. Visual examination will mainly focus on pest detection and verifying compliance with phytosanitary regulations.

Pests

A sample is taken from consignments or lots to determine if a pest is present or if it exceeds a specified tolerance level. The ability to detect in a consistent manner the presence of a regulated pest with the desired confidence level requires practical and statistical considerations, such as the probability of detecting the pest, the number of units making up the lot, the desired confidence level, and the sample size (i.e. the intensity of inspection) (refer to ISPM 31 (Methodologies for Sampling of Consignments)).

If the objective of inspection is the detection of specified regulated pests to meet phytosanitary import requirements, then the sampling method should be based on a probability of detecting the pest that satisfies the corresponding phytosanitary requirements.

If the objective of the inspection is verification of the general phytosanitary condition of a consignment or lot, such as when no regulated pests have been specified, no tolerance level has been specified for regulated pests and the aim is to detect pests when there has been a failure of a phytosanitary measure, then the sampling methodology should reflect this. The sampling method adopted should be based on transparent technical and operational criteria and should be consistently applied (refer to ISPM 20).

3.2.3 Compliance with phytosanitary regulations

Inspection can be used to verify the compliance with some phytosanitary regulations. Examples include:

- treatment
- degree of processing
- freedom from contaminants (e.g. leaves, soil)
- required growth stage, variety, colour, age, degree of maturity etc.
- absence of unauthorized plants, plant products or other regulated articles
- consignment packaging and shipping requirements
- origin of consignment or lots
- point of entry

3.3 Inspection and sampling procedures for maize grain in trade

3.3.1 Grades and grade requirements

Maize may be divided into three classes based on its colour as yellow, white or mixed. Each class is divided into different numerical grades and sample grades. Special grades may be provided to emphasize special qualities or conditions affecting the value and are added as part of the grade designation. They do not affect the numerical or sample grade designation.

Maize grains also are graded into three grades on the basis of the tolerable limits established in EAC maize grain specifications, which are an addition to the general requirements set out in this manual.

3.3.2 Terms and their definition

Blemished/damaged grains – Grains that are insect or vermin damaged, stained, diseased, discoloured, germinated, frost damaged, or otherwise materially damaged.

Broken kernels – Pieces of maize that can pass through a 4.50 mm metal sieve.

Defective grains – Pest-damaged, discoloured, diseased, germinated, mouldy, immature or shrivelled grains, or otherwise materially damaged grains that, specifically, do not include broken grains.

Discoloured kernels – Kernels materially discoloured by excessive heat, including heat caused by excessive respiration (heat damage), and dried damaged kernels. Kernels may appear darkened, wrinkled, blistered, puffed or swollen, often with discoloured, damaged germs. The seed coat may be peeling or may have peeled off completely, giving the kernels a checked appearance.

Diseased grains – Grains made unsafe for human consumption due to decay, moulding or bacterial decomposition, or other causes that may be noticed without having to cut the grains to examine them.

Filth – Impurities of animal origin.

Foreign matter – All organic and inorganic material such as sand, soil and glass other than maize, broken kernels or other grains.

Frost damaged kernels – Kernels that appear bleached or blistered with a seed coat that may be peeling and germs that may appear dead or discoloured.

Germinated kernels – Kernels showing visible signs of sprouting such as cracked seed coats through which a sprout has emerged or is just beginning to merge.

Immature/shrivelled grains – Maize grains that are underdeveloped, thin and papery in appearance.

Insect or vermin damaged grains – Kernels with obvious weevil-bored holes or that have evidence of boring or tunneling, indicating the presence of insects, insect webbing or insect refuse, or degermed grains chewed in one or more than one part of the kernel that exhibit evident traces of an attack by vermin.

Maize is defined as the shelled grains of the species *Zea mays indentata* L. (dent maize) and/or *Zea mays indurata* L. (flint maize) or their hybrids (as defined by the EAC standards on maize).

Mouldy kernels – Maize grains with visible mycelial growth on its tip or surface.

Other grains – Edible, whole or identifiable broken grains other than maize, i.e. cereals, pulses and other edible legumes.

Stained kernels – Kernels whose natural colour has been altered by external factors. This includes ground-, soil- or weather-damaged kernels, which may have dark stains or discolouration with a rough external appearance.

3.3.3 General requirements

1. Maize grain may be presented as yellow, white or a mixture of these colours. Yellow maize may contain no more than 5% by weight of maize of other colours. Maize grains that are yellow and/or light red in colour are considered to be yellow maize. Yellow maize also means maize grains that are yellow and dark red in colour, provided the dark red colour covers less than 50% of the surface of the grain.
2. White maize may contain no more than 2% by weight of maize of other colours. Maize grains that are white and/or light pink in colour are considered to be white maize. White maize also means maize grains that are white and pink in colour, provided the pink colour covers less than 50% of the surface of the grain.
3. Mixed maize includes maize not falling into the classes of white, yellow or their mixture, as defined in 1–2 above.
4. Maize also may be presented as flint or dent or their hybrids or their mixtures.
5. Flint maize includes maize of any colour that consists of 95% or more by weight of grains of flint maize.
6. Dent maize includes maize of any colour that consists of 95% or more by weight of grains of dent maize.

7. Flint and dent maize includes maize of any colour that consists of more than 0.5% but less than 95% of flint maize.
8. Maize should be free from foreign odours, moulds, live pests, rat droppings, toxic or noxious weed seeds and other injurious contaminants.
9. Maize shall be of a reasonably uniform colour according to type, be whole and clean.

Basis of determination

Sampling

Normally, a visual appraisal of the sample is sufficient to determine if it meets the definition of maize. However, if an analysis is necessary, make the determination on a portion of 250 g before the removal of broken maize and foreign material. If the sample does not meet the definition of maize, examine it further to determine if it is another grain for which standards have been established or not standardized grain. The plant inspector will confirm the type and color of maize grain (flint, dent), (white, yellow, white with pink tint), variety, grade and quantity of the imported as specified on the plant import permit. No further inspection/analysis is necessary on a sample designated as not maize grain unless a specific factor test is requested.

3.3.4 Specific requirements for maize grain during inspection

Grading

Maize grains should be either graded into one of the three grades on the basis of the tolerable limits established by the EAC maize grain specifications or ungraded maize grains that do not fall within the requirements for the grades in the EAC maize grain specifications, or rejected maize grains. Rejected maize grains cannot satisfy the conditions of ungraded maize grains and shall be graded as reject maize grains and be regarded as unfit for human consumption.

Rejected maize will comprise maize grains that have objectionable odour, off flavour, living insects or that do not possess the quality characteristics specified in Table 1. Note that for Tanzania and Burundi this requirement shall not apply.

Table 1: Specific requirements for maize grains

Characteristics	Maximum limits			Method test
	Grade 1	Grade 2	Grade 3	
Foreign matter, % m/m	0.5	1.0	1.5	ISO 605
Inorganic matter, % m/m	0.25	0.5	0.75	
Broken kernels, % m/m	2.0	4.0	6.0	
Pest damaged grains, % m/m	1.0	3.0	5.0	
Rotten & diseased grains, % m/m	2.0	4.0	5.0	
Discoloured grains, % m/m	0.5	1.0	1.5	
Moisture, % m/m	13.0	13.0	13.0	EAS 285/ISO 711/712
Immature/shrivelled grains, % m/m	1.0	2.0	3.0	ISO 605
Filth, % m/m	0.1	0.1	0.1	
Total aflatoxins, ppb	10			ISO 16050
Aflatoxin B1, ppb	5			
Fumonisin, ppm	2			
Total Defective Grains, % m/m.	4.0	5.0	7.0	ISO 605

Source: EAC (maize grain specifications) (2011)

Other aspects to be considered

These other parameters are not directly related to plant health but can present plant health issues or be SPS issues and therefore cannot be neglected while inspecting for grains:

- **Toxic metals** – Maize grains shall comply with those maximum limits for heavy metals established by the Codex Alimentarius Commission for this commodity.
- **Pesticide residues** – Maize grains shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for this commodity.

Note: Where the use of certain pesticides is prohibited by some Partner States, then it shall be notified to all Partner States accordingly.

- **Contaminants (mycotoxin limits)** – Maize grains shall comply with those maximum mycotoxin limits established by the Codex Alimentarius Commission for this commodity. In particular, total aflatoxin levels in maize grains for human consumption shall not exceed 10 µg/kg (ppb) with B1 not exceeding 5 µg/kg (ppb) when tested according to ISO 16050.
- **Hygiene** – Maize grains shall be produced, prepared and handled in accordance with the provisions of appropriate sections of EAS 39. When tested by appropriate standards of sampling and examination listed in Clause 2, the products:
 - Shall be free from microorganisms in amounts that may represent a hazard to health and shall not exceed the limits stipulated in Table 2;
 - Shall be free from parasites that may represent a hazard to health;
 - Shall not contain any substance originating from microorganisms, in amounts that may represent a hazard to health.

Table 2: Microbiological contaminants

	Type of micro-organism	Limits	Test method
i)	Yeasts and moulds, max. per g	104	EAS 217
ii)	<i>Staphylococcus aureus</i> per 25 g	Not detectable	
iii)	<i>Escherichia Coli</i> , max. per g	Not detectable	
iv)	<i>Salmonella</i> , max. per 25 g	Not detectable	

Source: EAS 217 (2011)

- **Packaging**
 - Maize grains shall be packed in suitable packages that shall be clean, sound, free from insects and fungal infestation, and the packing material shall be of food grade quality.
 - Maize grains shall be packed in containers that will safeguard the hygienic, nutritional and organoleptic qualities of the products.
 - The containers, including packaging material, shall be made of substances that are safe and suitable for their intended use. They shall not impart any toxic substance or undesirable odour or flavour to the product.
 - Each package shall contain maize grains of the same type and of the same grade designation.
 - If maize grains are presented in bags, the bags shall also be free of pests and contaminants.
 - Each package shall be securely closed and sealed.
- **Marking or labeling** – Each package shall be legibly and indelibly marked with the following:
 - product name as “white maize grains”, “yellow maize grains”, or “mixed maize grains”
 - grade (1, 2, 3)
 - name, address and physical location of the producer/packer/importer;
 - lot/batch/code number
 - net weight, in kilograms
 - the declaration “food for human consumption”
 - storage instructions such as “store in a cool dry place away from contaminants”
 - crop year
 - packing date
 - instructions on disposal of used package

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- country of origin
 - a declaration on whether the maize was genetically modified, where applicable.

3.3.5 Grain inspection procedures

1. Verification of accompanying documents for importation requirements – Identify the shipments, labels and any other accompanying documents and any treatment. Inspection will be used to detect the presence or absence of plant health risk (pests) and determine the level of the pest infestation level if present in order to make a phytosanitary decision. The assumptions during inspection are:
 - The pests of concern or the signs or symptoms of infestation are visually detectable
 - Inspection is practically possible
 - The probability of pests being undetected is recognized
 - The inspector conducting the process checks for the following requirements using the relevant SOP for inspection after drawing a representative sample of the consignment: (Annex 4)
 - Check for compliance and conformity with phytosanitary requirements and standards
 - Check for pests - insects and disease (all live or dead and all stages)
 - Check for pests and identify if any, such as *Tribolium* spp., moth, *Sitophilus zeamais*, larger grain borer and all observed pests entered in an inspection report/record.
 - If the inspector is not able to identify any of the live or dead pests, samples must be collected and submitted to the specialists/the laboratories for proper identification. In the meantime hold consignment awaiting the confirmatory results. Once confirmed, reject the consignment and supervise its destruction in accordance with laid down procedures. All these must be recorded in the inspection report/record.
 - If not, recommend for fumigation produce and then re-inspect it
 - All produce found to have quarantine pests must be rejected
 - Check for weed
 - chaff
 - any weed seed
 - determine whether the weed is noxious and reject the produce if the weed is noxious
 - Check for quality standards to confirm if the maize is fit for human consumption:
 - Presence of odd smell/odour and determine the cause if any
 - Check for rot and mould
 - Check for abnormal colour
 - Check for the presence of soil and other foreign matter
 - Check for admixtures and contaminants
 - Complete any other phytosanitary requirement
2. If produce is suspected to be nonconforming in moisture content and contaminants, a sample should be drawn from the consignment for laboratory tests. The tests shall be carried out by a laboratory analyst as per work instructions.
3. A sample should also be prepared and submitted for molecular analysis for GMOs where appropriate.
4. The consignment will be rejected/refused, intercepted, recommended for fumigation or released based on the findings of the inspecting officer.
5. All noncompliant maize consignments are recorded and reported in the rejection notice.
6. A compliant consignment is released by endorsing the right documents, recording that information in the import register and issuing a certificate of inspection for produce release.
7. The same conditions apply for exported maize consignments. If the importing country requirements are fulfilled a phytosanitary certificate is issued.

3.3.6 Inspection tools and equipment

- hand lenses (magnification of 10 and 20)
- Nobbe trier, sleeve and stick trier
- sample bag
- sieve (4 cm)

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- portable moisture meter
 - appropriate safety equipment/protective gear
 - tape measure
 - stationery
 - one-meter rule
 - tally counter

3.3.7 Grain sampling and testing

- bulk grain sampling
- bagged/containerized grain sampling (refer to ISPM 31)
- grain testing:
 - moisture content compliance
 - aflatoxin
 - GMO presence

4. Inspection procedures for seed maize

4.1 Inspection for seed crop

Note: For seed for planting refer to the ISTA manual, rules and procedures.

- The certification of seed maize starts with the seed crop.
- The inspection of seed crops shall be done in accordance with the relevant Organisation for Economic Co-operation and Development (OECD) seed schemes. If the field is found to be in conformity with the standards stated and is approved, the harvested seed shall be identified, transported, stored and processed for commercialization and or export.
- The minimum information for an application for certification of a seed maize crop shall include the name, address and contact details of the applicant; the crop and variety to be sown; the location, area and reference number of the field, and its cropping history for the past two cropping seasons; the class of seed to be produced and the registration number of the grower.
- Information and records related to the previous cropping history, origin of seed planted, and field inspections shall be kept and used for certification to ensure full traceability of quality, genetic identity and purity of the seed harvested. The previous cropping history of the field should be such that the risk of undesirable volunteer plants of the same or related species contaminating the seed crop is reduced to minimum.
- The application forms for field registration should be submitted to the inspection body not later than four (4) weeks after planting, duly filled and accompanied by:
 - labels to indicate proof of origin of the seed sown
 - inspection fees
- The seed lot shall be sampled and tested in an official or authorized laboratory. The sampling and testing of seed lots shall be done in accordance with the relevant procedures described in the International Seed Testing Association (ISTA) rules.
- A seed lot that conforms to the standards set out shall be given a certificate and a unique reference number to confirm its status under the certification scheme. One part of the seed sample shall be retained for sowing in a post-control plot in the following season or earlier if that can be achieved using irrigation.

4.2 Seed classes

For the purpose of this inspection manual, the following classes of seed shall apply:

- pre-basic seed

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- basic seed
 - certified seed

4.3 Plant health requirements for seed maize

Seed-borne diseases

- Inspection of maize seed shall cover these diseases:
 - head smut (*Sphacelotheca reiliana* (Kuhn) clint)
 - common smut (*Ustilago maydis* (D.C.) corda)
 - maize lethal necrosis disease (MLND)
- Any field having more than two (2) plants with head smut or common smut per hectare shall be rejected at the final inspection.
- In the case of maize lethal necrosis disease (MLND), any crop having more than 1% of the disease at the final inspection shall be rejected.

Weeds and pests

- Weed control as well as control of harmful pests shall be carried out adequately so as to enable easy access for the inspector.
- If the field is inaccessible on account of weeds, the crop shall be rejected.

4.4 Cob inspection and sampling

- Cobs from the maize seed fields will be inspected for conformity with the descriptor at the farm and factory.
- The harvests from the approved fields shall be transported only by the designated lorries that are authorized, registered and supervised.
- A representative cob sample per crop shall be taken by the inspector for purposes of comparison with those of the crop planted in post control plots.
- A representative sample shall be taken by the inspector for MLND testing before processing.

4.5 Seed inspection for export

1. The harvested seed from the field approved for certification shall be kept as an identified unit until processing. After processing, samples shall be submitted to laboratory for testing where the conformed sample shall be given a certificate with a unique lot number for the purpose of tracking and sampling.
 2. The maximum size of a seed lot for certification purposes is 40 kg; lots larger than this shall be divided and given separate lot numbers.
 3. An inspector shall draw a representative composite sample from each lot according to ISTA Rules (Chapter 2).
 4. The composite sample shall be divided into three sub-samples, one for testing in the laboratory, one to be stored for reference purposes in case re-testing is necessary, and one for the post-control test. The samples must be labelled and securely sealed and shall be stored in cool and dry conditions to prevent contamination and loss of germination ability.
 5. Laboratories authorized by the national seed certification authority to conduct seed testing for certification shall follow the methodology established in the ISTA rules for maize seed.
 6. Additional testing methods can be used for varietal identity and purity, such as Iso-enzymes and ultrathin-layer Iso-electric focusing, as described in ISTA rules.
 7. The seed lots shall comply with the laboratory standards specified.
- The test certificate shall be issued and be valid for six to twelve months depending on storage conditions.

4.6 Treatment, packaging and labelling

1. All classes of seed that have been certified shall be packaged in new containers printed with the company logo and have the official certified seed label of the national authority.
2. The labels for each class are identified by the following colours:
 - pre-basic seed: violet band on white
 - basic seed: white
 - certified seed 1st generation: blue
 - certified seed 2nd generation: red
3. If seeds are treated with any chemical or product harmful for human or animal consumption, the container must carry a label stating the material used and warning of the health risks.
4. The labels must be prominent, indelible, and legible and fixed to the containers by an authorized person in such a way that they cannot be destroyed or easily removed. The minimum information that must be included in the national labels is shown below: The language shall be English. Any additional language may be used.
 - Front of label
 - name of the crop, “maize seed”
 - species (Latin name)
 - variety denomination
 - seed lot number
 - test certificate number
 - date of test
 - date of sealing
 - net weight
 - seed treatment declaration (if applicable)
 - Back of label
 - logo of the national certification authority
 - name and address of certifying authority
 - seed class
 - year and country of production
 - statement of repackaging and relabeling (if applicable)
5. All containers/must be closed either by hand or by machine stitching and must be sealed in such a way that if they are opened illegally, that violation can be detected.
6. Repackaging and relabeling are authorized in the following cases:
 - Carryover seed shall be resampled and retested for germination. If the test result complies with the minimum standard, new labels will be re-issued for the seed lot.
 - The seed certification authority may authorize the repackaging and relabeling of a particular seed lot that is produced in another country, but shall retain the original label information of the producing country.
 - Blending of a seed lot with other lots of the same variety is allowable if all seed lots of the blend have met the field and laboratory requirements for certification prior to blending. The new labels will contain the numbers of all seed lots and will show the proportion of each component.

4.7 Certificates

The certificate of conformity of a seed lot is issued by the national seed certification authority and signed by the director or an authorized representative and shall include all information generated during the inspection process.

4.8 Inspection procedure for seed maize for import

1. Importer notifies the NPPPO of arrival of seeds at the entry point through presentation of relevant documents.
2. Verification of the following import documents, which must accompany the seed:
 - original plant import permit
 - original phytosanitary certificate
 - original notice to import - SR14
 - original ISTA orange certificate
 - original certificate of analysis
 - OECD labels where necessary
 - customs' entry
 - packing list
7. If the documents are compliant, inspect the consignment.
8. For noncompliant documents, reject the shipment or do not inspect it.
9. The consignment should be organized in a manner as to allow easy access and view of all the seed packages.
10. Probe some seed packets or bags to confirm the commodity's identity, purity and dressing.
11. Sample the seeds for testing in accordance with ISTA rules and procedures
12. Prepare the sample by completing the sample letter (SR 9), sealing the sample and sending it to the testing laboratory.
13. Fill the seed dispatch form.
14. File the copy of the seed dispatch form.
15. Take the sampler's reference sample to the seed store, fill out the sample register and label the sample adequately.
16. Carefully place the sample in the store shelf in sequence.

Per ISTA rules, in poor weather conditions the sampler's reference seed sample is sent to the seed testing laboratory for storage for a year. A small sample is put in the sample border control store and recorded in the register.

Refer to Annex 4 for an example of an SOP for maize seed inspection.

4.9 Post-control tests

The post-control tests shall be carried out in accordance with OECD guidelines for post-control tests. In principal, the inspector at the entry/exit point fulfils post certification requirements by:

- Establishing that the correct documentation accompanies the seeds:
 - ISTA certificate from the country of origin
 - phytosanitary certificate from the country of origin
 - import permit from importing country
 - certificate of analysis on certain declarations from the import permit
- Visually examining a portion of the seed drawn from the official sample for the following:
 - impurities
 - weed seeds
 - evidence of seed treatment
 - insect infestation
 - disease infestations
- Conducting a germination test and or other tests as may be required by the importing country.

5. Inspection procedures for dry beans

These procedures may be used at the border point.

5.1 Terms and their definition

Badly damaged beans – Badly damaged beans shall be beans and pieces of beans that are materially damaged or discoloured by frost, weather, disease, weevils or other insects, or other causes so as to materially affect the appearance and quality of the beans.

Beans – Beans shall be dry threshed field and garden beans, whole, broken and split, commonly used for edible purposes.

Blistered beans – Blistered beans shall be sound beans with badly blistered or burst seed coats.

Broken beans – Broken beans shall be sound beans with some but less than one-fourth of each bean broken off or with one-fourth or more of the seed coat removed.

Classes – Beans shall be divided into classes, each of which, except for mixed beans, may contain not more than 2% of beans of contrasting classes and not more than 15% of beans of other classes that blend.

Classes that blend – Classes that blend shall be sound beans of other classes that are similar in colour, size and shape to the beans of the class designated, and shall include white beans in the class yellow eye, which are similar in size and shape to the yellow eye beans.

Clean-cut weevil-bored beans – Clean-cut weevil-bored beans shall be beans from which weevils have emerged, leaving a clean-cut open cavity free from larvae, webbing, refuse, mould or stain.

Contrasting classes – Contrasting classes shall be beans of other classes that are of a different colour, size, or shape from the beans of the class designated.

Damaged beans – Damaged beans shall be beans and pieces of beans that are damaged by frost, weather, disease, weevils or other insects, or other causes.

Defects – Defects for the classes baby lima and miscellaneous lima beans shall be damaged beans, contrasting classes, and foreign material. Defects for all other classes of beans shall be splits, damaged beans, contrasting classes and foreign material.

Foreign material – Foreign material shall be stones, dirt, weed seeds, cereal grains, lentils, peas and all matter other than beans.

Grades – Grades shall be the numerical grades, substandard grades, sample grades, and special grades provided for following agreement by trading partners.

Reject grade dry beans – These are dry beans that are mouldy or pest damaged; have objectionable odour; contain insect webbing or filth, any unknown foreign substance, broken glass, or metal fragments; or that are otherwise of distinctly low quality and cannot be treated or sorted out to meet the standards of any of the bean grades.

Sound beans – Sound beans shall be beans that are free from defects.

Splits – Splits shall be pieces of beans that are not damaged, each of which consists of three-fourths or less of the whole bean, and shall include any sound bean the halves of which are held together loosely.

Stones – Stones shall be concreted earthy or mineral matter and other substances of similar hardness that do not disintegrate readily in water.

Weevily beans – Weevily beans shall be beans that are infested with live weevils or other insects injurious to stored beans or that contain weevil-bored beans.

Well screened – Well screened, as applied to the general appearance of beans, shall mean that the beans are uniform in size and are practically free from such small, shrivelled, underdeveloped beans, splits, broken beans, large beans, and foreign material that can be removed readily by the ordinary process of milling or screening through the proper use of sieves.

Wrinkled beans – Wrinkled beans shall be sound beans that have deeply wrinkled seed coats and/or are badly warped or misshapen.

5.2 Standard inspection requirements

5.2.1 General requirements

- Dry beans shall meet the following general requirements:
 - be the dried mature seeds of *Phaseolus vulgaris* Linn.
 - be well filled, clean, wholesome and uniform in size and shape
 - be free from substances that render them unfit for human or animal consumption or processing into or utilization thereof as food or feed
 - be free from abnormal flavours; musty, sour or other undesirable odour; obnoxious smell and discolouration;
 - be free from microorganisms and substances originating from microorganisms, fungi or other poisonous or deleterious substances in amounts that may constitute a hazard to human health.

5.2.2 Specific requirements

Dry bean grades

Dry beans shall be classified as grades 1, 2 or 3, according to the limits indicated as in Table 3.

Table 3: Specific requirements for dry beans

Characteristics	Maximum limits			Method of test
	Grade 1	Grade 2	Grade 3	
Foreign matter, % m/m	0.5	0.75	1	ISO 605
Inorganic matter, % m/m	0.1	0.2	0.3	
Other edible grains, % m/m	0.1	0.2	0.5	
Pest damaged grains, % m/m	1	2	3	
Heat damaged grains, % m/m	0.1	0.2	0.5	
Contrasting varieties %m/m	0.5	1	1.5	
Broken/split % m/m	1	2	3	
Discoloured %m/m	1	1	1	
Total defectives grains % m/m	2	3.5	5.5	
Filth, % m/m	0.1	0.1	0.1	
Moisture, % m/m	13.0	13.0	13.0	ISO 24557
Total aflatoxin (AFB1+AFB2+AFG1+AFG2), ppb max	10			ISO 16050
Aflatoxin B1 only, ppb max	5			
Fumonisin ppm max 2	2			

Source: ESA 46: 2011

5.3 Sampling for inspection

Formal grading methods are not always practical or accessible in the field. This is because farmers or traders may lack the equipment needed to grade the grain based on standard test methods. The tests below are useful for obtaining a rough estimate of the grade of dry beans. However, their results may differ significantly from those obtained using standard test methods. Official results should be those that have been reached using standard test methods.

The standards for edible grains, pest damaged grains, heat damaged grain, contrasting varieties, broken/split beans, and discoloured beans can be estimated using the procedure below. For example, in analyzing edible grains:

1. Take a representative sample of the beans to be evaluated.
2. Mix and subdivide the sample using a divider or the quartering method.
3. Pour the beans onto a bench.
4. Count the number of grains (Count_1).
5. Select all other edible grains.
6. Count the selected “other edible grains” (Count_2).
7. Express the percentage of other edible grains as $(\text{Count}_2/\text{Count}_1 \times 100)$

Use the same method from step (6) above to estimate pest-damaged grain, heat-damaged grain, contrasting varieties, broken/split beans, or discoloured beans.

5.3.1 Standard inspection parameter for beans

Inspecting for presence of plant health risks

1. Obtain a representative sample.
2. Spread about 100 g of the sample on a warm plate (40 °C).
3. Cover the plate with a glass jar (bell glass jar if possible) to prevent the insects from escaping.
4. After 15 minutes, sieve the grain through an appropriate sieve, e.g. a 4.5-mm sound sieve.
5. Check for living insects, dead insects and insect larvae (bruchids).
6. Using a scalpel, cut through bean kernels that are insect-damaged to check for live or dead insects (primary pests) harbouring in the grain.
7. Reject the grain if it has one or more live insects.

Determination of other properties should also be conducted. These include foreign matter, other edible grains, pest-damaged grains, heat-damaged grains, contrasting varieties, broken/split beans, discoloured beans, total defective grains, and filth level.

Determination of moisture content

EAS 2:2013 requires that the moisture content of clean, dry beans should not exceed 14% m/m, determined by representative samples in accordance with ISO 711 and ISO 712. However, this requires expensive equipment, including a grinding mill and a constant-temperature oven that is heated electrically. To determine the moisture content:

1. Obtain a representative sample.
2. Mix the sample properly using a sample divider.
3. Extract the sample required and measure the moisture following the manufacturer’s instructions.

Testing for foreign odour

General test for foreign odour

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1. Obtain a representative sample.
 2. Spread out the sample on a flat surface and smell it.
 3. If no odour is detected, return the sample into the container and seal it.
 4. Leave the sealed container for 24 hours and re-examine the sample.
 5. The smell should be typical of beans without other odours such as chemical, mouldy, earthy, rotten or musty smells, etc.

Rapid test for foreign odour

1. Obtain a representative sample.
2. Put a small quantity of ground or unground bean kernels in a container.
3. Pour some warm water (60–70 °C) into the beans and cover the container.
4. After 2–3 minutes decant the water and note whether a foreign odour is present.
5. Any grain with objectionable odour should be rejected.

Determination of aflatoxin level

The presence of aflatoxins may be tested using thin layer chromatography, high performance liquid chromatography or absorbance meters e.g. enzyme-linked immunosorbent assay (ELISA) readers. Representative samples have to be taken to a laboratory that is capable of carrying out aflatoxin testing. Reject grains are generally unfit for human consumption. Dry beans that contain chemicals such as pesticide residues, mycotoxins above a certain level, or any other harmful substance fall in this category.

Contaminants

Heavy metals

Dry beans shall be free from heavy metals, or if present, these chemicals shall be in amounts within the limits of Codex Alimentarius Commission. Such contaminants include:

- arsenic (0.1 mg/kg)
- cadmium (0.1 mg/kg)
- lead (0.2 mg/kg)
- mercury (0.1 mg/kg)
- tin (0.1 mg/kg)

Note: 1 mg/kg is equivalent to 1 part per million (ppm)

It is not feasible to determine the presence of these heavy metals in the field and the representative sample has to be taken to laboratory.

Hygiene

Dry beans shall be prepared, packed, stored, transported and distributed under hygienic conditions. This implies that maximum care must be taken to ensure that they are packaged in clean containers by personnel.

The storage space for dry beans should be clean and should meet hygiene standards. These stores should be free from pests such as rats, cockroaches, weevils and other vermin. The modes of transport for the beans should also be clean.

When tested by appropriate methods of sampling and examination the dry beans shall be free from pathogenic microorganisms, substances originating from microorganisms and other poisonous or deleterious substances of amounts that may constitute a health hazard.

Pathogenic microorganisms are those minute living microbes that may cause diseases. They are commonly referred to as germs. They include various harmful bacteria, yeasts and moulds. A quick test for these harmful bacteria is the determination of coliforms. This is done by incubating a weighed sample in specific media at specified temperature for a period of 48 hours. It is not feasible to do this test in the field, hence appropriate laboratories need to be identified for that.

Packaging

Dry beans, when not handled in bulk, shall be packed in new bags with a maximum of 50 kg net weight,

or similar acceptable protective containers, which will safeguard the hygienic and other qualities of the beans. For dry beans consignments to comply with the requirements of EAS 46: 2013 new bags must be used for packaging. The package shall be securely closed and sealed.

The containers, including packaging material, shall be made of only substances that are safe and suitable for the intended use. These materials should be food grade, and in the event of the need for verification, a certificate from the supplier should be available to demonstrate that the materials have been declared safe for use for foods and foodstuffs.

Labelling

The following information shall be provided in order to comply with the requirements of EAS 38 and EAS 46.

- The name of the product should be declared on the bags as “dry beans”. The variety of the beans and their grade should also be indicated.
- The name, address and physical location of the producer/packer/importer should be indicated on the bags.
- The bags should have a lot/batch/code number for traceability.
- The net weight in kilograms should be shown on the package. EAC Partner States are signatories to the International Labour Organization (ILO) agreements that require the maximum package weight to be 50 kg where human loading and offloading is involved.
- The packages should have the declaration that the food is for human consumption.
- The packages should also have the storage instructions “Store in a cool dry place away from any contaminants”.
- The package should indicate the crop year and the packaging date.
- The package should have instructions on the disposal of used packages.
- The country of origin should be indicated.
- A declaration on whether the dry beans were genetically modified or not should be included.
- Refer to Annex 5 for a sample bean inspection SOP.

6. Inspection procedures for locally produced rice

These sampling and inspection procedures for rice and rice products may be used at border inspection; however, inspection for SPS compliance in trade should apply to the full value chain. This manual focuses on only border inspection.

6.1 Milled rice grain characteristics

Based on EAS 128:2013, the milled rice specifications passed by EAC and adopted by member countries for implementation in their respective countries, rice grain quality represents a summary of the commodity’s physical and chemical characteristics that may be genetic or acquired properties. The genetic properties include:

- chemical characteristics (gelatinization temperature, apparent amylase content, gel consistency, alkali spreading value and aroma)
- shape
- size
- colour of grain
- chalkiness
- bulk density
- thermal conductivity
- equilibrium moisture content
- flowability

The acquired properties or environmental factors are either additional to the normal complement of genetic qualities or are the consequence of the loss or modification of certain genetic qualities. The important acquired properties are:

- moisture content

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- grain purity
 - physical and pest damage, cracked grains
 - presence of immature grains
 - milling-related characteristics (milling and head rice recoveries, grain dimensions, whiteness, milling degree and chalkiness) will be included.

Milling-related characteristics are relevant measures of value because they are the main concern for consumers. Quality characteristics of paddy and milled rice can be considered separately based on the factors above.

6.2 Categories of rice

Aromatic milled rice – Special varieties of rice (*Oryza sativa* L. scented) that have a distinctive and characteristic aroma. Varieties of aromatic rice include basmati, jasmine, texmati, tulaipanji, wehani and wild pecan rice.

Glutinous rice – Glutinous rice is a variety of rice (*Oryza sativa* var. *glutinosa*) also called sticky rice, sweet rice or waxy rice. It has opaque grains, very low amylose content and is especially sticky when cooked. It is called glutinous in the sense of being glue-like or sticky, and not in the sense of containing gluten. Cultivars of glutinous rice include japonica, indica and tropical japonica strains. Rice is considered glutinous milled rice if it contains more than 50% of chalky kernels.

6.3 Rice grain classification

There are four classes of milled rice, depending on the percentage of whole kernels and types of rice:

- long grain milled rice
- medium grain milled rice
- short grain milled rice
- mixed milled rice

6.4 Rice products

Bran – A by-product of milling consisting of the outer (pericarp) layers of the kernel with a part of the germ.

Brown rice – Whole or broken kernels of paddy rice from which the hulls have been removed.

Granulated brewers milled rice – Milled rice that has been crushed or granulated so that 95% or more of it will pass through a 5 sieve, 70% or more will pass through a 4 sieve, and not more than 15% will pass through a 2 1/2 sieve.

Milled rice – Whole or broken kernels of rice from which the hull and at least the outer bran layers have been removed.

Paddy kernels – Whole or broken unhulled kernels of rice, whole or broken kernels of brown rice, or whole or broken kernels of milled rice with a portion or portions of the hull remaining and covering 12.5% or more of the whole or broken kernel.

Parboiled milled rice – Milled rice in which the starch has been gelatinized by soaking, steaming and drying.

6.5 Milling degree

Milling degree is one of several inspection criteria used to determine the quality of milled rice. The degree of milling is a measure of the percentage of bran removed from the brown rice kernel. Milling degree affects milling recovery and influences consumer acceptance. Apart from the amount of white rice recovered, milling degree influences the colour and also the cooking behaviour of rice. Unmilled brown

rice absorbs water poorly and does not cook as quickly as milled rice.

Extra-well-milled rice – Rice obtained by milling husked rice in such a way that all of the bran and almost the entire embryo have been removed.

Under-milled rice – Under-milled rice grain is rice from which the hull, a part of the germ and all or part of the outer bran layers but not the inner bran layers have been removed.

Well-milled kernels – Whole or broken kernels of rice from which the hulls and practically all of the germ and the bran layers have been removed.

6.6 Rice grain defects

Broken kernels – Pieces of rice that are less than three-quarters of a whole kernel and include grains of rice in which part of the endosperm is exposed, or rice without a germ. If the piece is more than three-quarters of a kernel, it is considered whole.

- Large broken kernel – Part of kernel with a length less than three-quarters but greater than a half of the average length of the test sample kernels.
- Medium broken kernel – Part of kernel with a length less than or equal to a half but greater than a quarter of the average length of the test sample kernels.
- Small Broken kernels – Fragment of kernel the length of which is less than or equal to a quarter of the average length of the corresponding whole kernel but which does not pass through a metal sieve with round perforations of 1.4 mm in diameter.

Chalky kernels – Head rice or broken kernel of non-parboiled rice, except wax rice, whose whole surface has an opaque and floury appearance.

Chip – The part of a rice kernel that passes through a metal sieve with round perforations of 1.4 mm in diameter.

Damaged kernels/defective kernels – Kernels, pieces of rice kernels or other grains that are badly ground damaged, badly weather damaged, diseased, frost damaged, germ damaged, heat damaged, injured by heat, insect bored, damaged by field fungi, skinned, mould damaged, shot or sprout damaged, dark tipped, pink stained, over dried, bin burnt, storage mould affected or rotted, smut damaged, stained or otherwise materially damaged.

Foreign matter – All organic and inorganic material other than white rice, broken kernels, other grains or filth.

Head rice – Whole kernel or part of the kernel with a length greater than or equal to three-quarters of the average length of the test sample kernels.

Heat-damaged kernels – Whole or broken kernels of rice that are materially discoloured and damaged as a result of heating, or parboiled kernels in non-parboiled rice that are as dark as or darker in colour than the interpretive line for heat-damaged kernels.

Immature kernel/malformed kernel – Head rice or broken kernel that is unripe and/or badly developed.

Insect/pest damaged – Grains eaten in part by stored grain insects and any field pests of grains including *Heliothis* spp. Grains may have a hole (commonly referred to as bored) or a chewed appearance on any part.

Partly gelatinized kernel – This is a head rice kernel or whole kernel of parboiled rice that is not fully gelatinized and shows a distinct white opaque area.

Peck – Head rice or broken kernel of parboiled rice of which more than 25% of the surface is dark brown or black in colour due to the parboiling process.

Poisonous, toxic and/or harmful seeds – Any seed that if present in quantities above permissible limits may have damaging or dangerous effects on health, organoleptic properties or technological performance such as Jimson weed – datura (*D. fastuosa* Linn and *D. stramonium* Linn.), corn cokle (*Agrostemma githago* L., *Machai Lallium remulenum* Linn.), Akra (*Vicia* species), *Argemone mexicana*, khesari and other seeds that are commonly recognized as harmful to health.

Un-gelatinized kernels – These are whole or broken kernels of parboiled rice with distinct white or chalky areas due to incomplete gelatinization of the starch.

Red milled rice – Head rice or broken kernel having red bran covering more than 25% of its surface.

Red-streaked kernel – Head rice or broken kernel with red bran streaks of length greater than or equal to 50% of that whole kernel, but where the surface covered by these red streaks is less than 25% of the total surface.

Rotten kernels – Kernels that are discoloured, swollen and soft as a result of decomposition by fungi or bacteria. They may feel spongy under pressure. There is a single tolerance for the total of binburnt, severely mildewed, mouldy and rotten kernels.

Whole kernels – Whole kernels are unbroken kernels and broken kernels of rice which are at least three-fourths of the length of an unbroken kernel.

6.7 Inspection requirements

6.7.1 General requirements:

White (milled) rice shall meet the following general quality requirements:

- Shall be the dried mature grains of edible *Oryza* spp.
- Shall be clean, wholesome and uniform in size, colour and shape
- Shall be safe and suitable for human consumption
- Shall be free from abnormal flavours; musty, sour or other undesirable or obnoxious smell; and discolouration
- Shall be free from microorganisms and substances originating from microorganisms, fungi or other poisonous or deleterious substances in amounts that may constitute a hazard to human health.

6.7.2 Specific requirements

Grades

Milled rice grains for human consumption shall be graded into three grades on the basis of the tolerable limits, which shall be additional to the general requirements set out in the relevant standard (ISO 605; ISO 711/ISO 712; ISO 16050; AOAC 2001.04) as shown in Table 4.

Table 4: Specific requirements for rice

Characteristics	Specification			Method of test
	Grade 1	Grade 2	Grade 3	
Broken, %	5	15	25	ISO 605
Heat Damaged Rice, %	1.0	1.5	2.0	
Damaged Rice, %	1.5	2.0	3.0	
Chalky, %	2	4	10	
Red or Red Streaked, %	2	6	12	
Immature Grains, %	1	1.5	2	
Other Contrasting Varieties, %	1	2	3	
Organic Matter, %	0.1	0.2	0.5	

Characteristics	Specification			Method of test
	Grade 1	Grade 2	Grade 3	
Inorganic Matter, %	0.1	0.1	0.1	
Paddy Grains,%	0.3	0.3	0.3	
Live Weevils/Kg	Nil	Nil	Nil	
Filth, %, m/m	0.1	0.1	0.1	
Moisture Contents, %	14.0	14.0	14.0	ISO 711/ISO 712
Total Aflatoxin (AFB1+AFB2+AFG1+AFG2)), ppb max	10			ISO 16050
Aflatoxin B1 only, ppb max	5			
Fumonisin ppm max	2			AOAC 2001.04

Source: EAC (2013).

Contaminants

- **Heavy metals** – Milled rice shall comply with those maximum limits for heavy metals established by the Codex Alimentarius Commission for this commodity.
- **Pesticide residues** – Milled rice shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for this commodity.

Where the use of certain pesticides is prohibited by some Partner States, then it shall be notified to all Partner States accordingly.

Hygiene

Milled rice shall be produced, prepared and handled in accordance with the provisions of appropriate sections of EAS 39. When tested by appropriate standards of sampling and examination, the products:

- Shall be free from microorganisms (yeasts and moulds, *S. aureus*, *E. Coli*, *Salmonella*) of amounts that may represent a hazard to health, and shall not exceed the limits stipulated in EAS 217.
- Shall be free from parasites that may represent a hazard to health.
- Shall not contain any substance originating from microorganisms in amounts that may represent a hazard to health. Specific microbial limits for milled rice are shown in Table 5.

Table 5: Rice microbiological limits

Type of micro-organism limits test methods	Limits	Test methods
i) Yeasts and moulds, max. per g	10 ⁴	EAS 217
ii) <i>S. aureus</i> per 25 g	Not detectable	
iii) <i>E. Coli</i> , max. per g	Not detectable	
iv) <i>Salmonella</i> , max. per 25 g	Not detectable	

Source: EAC (2013)

I. Port inspection procedure for grain rice

- Document verification (PIP, PCs, fumigation certificates, packing lists)
- Presentation of the consignment for inspection
- Sampling for inspection (determine the sampling methods, sampling size). Refer to NPPOs sampling procedures.
- Using simple random sampling , pick sample by using statistical table below

Table 6: Rice random sampling

Quantity milled rice (bags)	Sample size
1–10	60 g from each bag
11–100	Pick 10 bags by using of random numbers and samples 60 g from each
Above 100	Take square root of the total amount of bags.

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- i. Conduct physical inspection of the samples (visual inspection using naked eye or lens, sieving, warming the sample in the plate depending on the pest of interests (refer to standard inspection parameter for rice in Table 4).
 - ii. Based the results of inspections, and if pests are detected, determine if its quarantine or not. If quarantine pest, take samples for further analysis in the laboratory (refer to procedure on taking samples for lab analysis).
 - iii. Hold the consignment awaiting confirmatory results
 - iv. If lab results confirms positive identity of quarantine pests, destroy the consignment with NPPO supervision in accordance to laid down procedures
 - v. If no quarantine pest detected, release, or treat or re-export the consignment based on results from the regulatory status of pests observed.
 - vi. Record noncompliant consignments and issue rejection notice.

2. Laboratory inspection of grain rice for SPS parameters

Sampling – Obtain a 1,500 g sample using an appropriate sampling procedure.

Preparation of test sample

- i. Carefully mix the laboratory sample to make it as uniform as possible.
- ii. Reduce it using a divider or quartering method to obtain three test portions of 100 g and test for moisture content as indicated in the procedure.
- iii. Reduce the remaining using a divider or quartering method to obtain 800 g.
- iv. Divide the sample into equal test portions of about 400 g using the divider.

3. General inspection – Note if an odour, particularly foreign to rice, is detected in the sample, as well as the presence of abnormalities. Verify the presence of living and dead insects as follows:

4. Inspection of live insect pests

White rice may have live insect pests and this may lead to rejection. To test for live infestation:

- i. Obtain a representative sample.
- ii. Mix and subdivide the sample to obtain 100 g.
- iii. Spread the 100 g of the sample on a warm plate (at 40 °C).
- iv. Cover the plate with a glass jar (bell glass jar if possible) to prevent the insects from escaping.
- v. After 15 minutes, sieve the grain through an appropriate sieve, e.g. 1.4 mm sound sieve.
- vi. Check for living insects, dead insects and insect larvae of *Sitophilus*, *Coleoptoresis*, rice weevil *Cryptolestes*, Lesser grain borer and *Tribolium* spp. among others.
- vii. Based the results of inspections, and if pests are detected, determine if its quarantine or not. If quarantine pest, take samples for further analysis in the laboratory (refer to procedure on taking samples for lab analysis).
- viii. Hold the consignment awaiting confirmatory results
- ix. If lab results confirm positive identity of quarantine pests, destroy the consignment with NPPO supervision in accordance to laid down procedures.
- x. If no quarantine pest detected, release, or treat or re-export the consignment based on results from the regulatory status of pests observed.
- xi. Record noncompliant consignments and issue rejection notice.

Inspection of other parameters

Average length

On one of the two test portions:

- i. Separate two sets of 100 kernels without any broken part, by random sampling.
- ii. Measure the length of the kernels using a micrometre and calculate the arithmetic means of the length of both sets of kernels L1 and L2.
- iii. Calculate the average length of the two sets of kernels.

Moisture content

Mix and subdivide the sample to obtain as uniform sample as possible. To obtain the required sample, use one of the following methods:

- air oven method

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- moisture meters – in the field moisture meters can be used for the estimation of moisture; just follow the manufacturers' instructions.

Foreign matter

This may be done by use of typical laboratory sieve of 1.4 mm round hole.

- i. Place a clean basin in place to receive any materials that may go through the sieve.
- ii. Weigh 100 g of rice sample (Weight1)
- iii. Put the white rice grains in the 1.4 mm round-hole sieve.
- iv. Shake the sieve horizontally 40 times.
- v. Collect all the foreign matter that has passed through the sieve.
- vi. Hand-pick all the foreign matter left on the sieve.
- vii. Separate the organic and inorganic foreign matter
- viii. Weigh organic matter separately (Weight2)
- ix. Weigh inorganic matter separately (Weight2)
- x. Calculate the percentage weight
- xi. Other parameters to be assessed include paddy grains; heat damaged grains; chalky grains; damaged grains; contrasting varieties; immature/ shrivelled grains; red or red-streaked grains; broken white rice grains; filth.

Aflatoxins

Aflatoxins are a group of chemicals produced by certain mould fungi. These fungi, *Aspergillus flavus* and *Aspergillus parasiticus*, can be recognized by their yellow-green or grey-green or pink colours. The presence of aflatoxins is tested by thin layer chromatography, high performance liquid chromatography or absorbance meters e.g. ELISA readers. Representative samples have to be taken to a laboratory that is capable of carrying out aflatoxin test.

Packaging

- Milled rice shall be packed in suitable packages that shall be clean, sound and free from insect and fungal infestation, and the packing material shall be of food grade quality.
- Milled rice shall be packed in containers that will safeguard the hygienic, nutritional, technological and organoleptic qualities of the products.

EAC Partner States are signatory to the International Labour Organizations (ILO) for maximum package weight of 50 kg where human loading and offloading is involved.
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- The containers, including packaging material, shall be made of substances that are safe and suitable for their intended use. They shall not impart any toxic substance or undesirable odour or flavours to the product.
 - Each package shall contain rice of the same type and of the same grade designation.
 - If milled rice is presented in bags, the bags shall also be free of pests and contaminants.
 - Each package shall be securely closed and sealed.

Labelling

In addition to the requirements in EAS 38, each package shall be legibly and indelibly marked with the following:

- Product name as “Milled Rice”;
 - Variety
 - long grain milled rice
 - medium grain milled rice
 - short grain milled rice
 - mixed milled rice
 - Grade
 - Name, address and physical location of the manufacturer/packer/importer
 - Lot/batch/code number
 - Net weight in kg
 - The declaration “Food for Human Consumption”
 - Storage instruction as “Store in a cool dry place away from any contaminants”
 - Crop year
 - Packing date

 - Instructions on disposal of used package
 - Country of origin
 - A declaration on whether the milled rice was genetically modified or not.
- **Rejected rice** – This comprises noncompliant milled rice that has undesirable smell, off flavours or living insects, or which does not possess the desired quality characteristics. It cannot satisfy the conditions of ungraded milled rice and should be graded as rejected milled rice and shall be regarded as unfit for human consumption.

7. Documentation and reporting of inspection results

7.1 Verification of inspections

The technical requirements for inspection involve three distinct procedures that should be designed with a view to ensuring technical correctness while also considering operational practicality in the inspection process. These procedures are:

- **Examination of documents associated with a consignment** – Import and or export documents are examined to ensure that they are:
 - complete
 - consistent
 - accurate
 - valid and not fraudulent (refer to ISPM 12 (Phytosanitary certificates)).

Examples of documents that may be associated with import or export certification include:

- phytosanitary certificate or phytosanitary certificate for re-export
- manifest (including bills of lading, invoice)
- import permit
- treatment documents or certificates, marks (such as provided for in ISPM 15 (Regulation of Wood Packaging Material in International Trade) or other indicators of treatment
- certificate of origin
- field inspection certificates or reports
- producer or packing records
- certification programme documents (e.g. seed potato certification programmes, pest free area documentation)
- inspection reports
- commercial invoices
- laboratory reports
- rejection/interception report

Problems encountered with either import or export documents should, where appropriate, be investigated first with the parties providing the documents before further action is taken.

7.2 Inspection reporting format

The result of an inspection contributes to the decision to be made as to whether the consignment meets phytosanitary regulations:

1. If phytosanitary regulations are met, consignments for exports may be provided with appropriate certification, e.g. phytosanitary certificates, and consignments for import should be released.
2. If phytosanitary regulations are not met, further actions can be taken. These actions may be determined by the nature of the findings, considering the regulated pest or other inspection objectives, and the circumstances. Actions for noncompliance are described in detail in ISPM 20.
3. In many cases, pests or signs of pests that have been detected may require identification or specialized analysis in a laboratory or by a specialist. It may be decided that emergency measures are needed where new or previously unknown pests are found. A system for properly documenting and maintaining samples or specimens should be in place to ensure trace back to the relevant consignment and to facilitate later review of the results if necessary.
4. In cases of repeated noncompliance, amongst other actions, the intensity and frequency of inspections for certain consignments may be increased.

Where a pest is detected in an import, the inspection report should be sufficiently detailed to allow for notifications of noncompliance in accordance with ISPM 13 (Guidelines for the Notification of Noncompliance and Emergency Action). Certain other record-keeping requirements may also rely on the availability of adequately completed inspection reports, e.g. as described in Articles VII and VIII of the IPPC, ISPM 8 (Determination of Pest Status in an Area) and ISPM 20.

7.3 Review of inspection systems

NPPOs should conduct periodic reviews of import and export inspection systems to validate the appropriateness of their design and to determine any course of adjustments needed to ensure that they are technically sound.

Audits should be conducted in order to review the validity of the inspection systems. Any additional inspection may be considered as a component of the audit.

7.3.1 Transparency

As part of the inspection process, information concerning inspection procedures for a commodity should be documented and made available on request to the parties concerned, in the application of the transparency principle (ISPM 1, Phytosanitary Principles for the Protection of Plants and the Application of Phytosanitary Measures in International Trade). This information may be part of bilateral arrangements covering the phytosanitary aspects of a commodity in trade.

- Reports are detailed descriptions of the inspection and its results, whereas certificates are generally short formal statements of conformity with requirements, issued, for example, in connection with mandatory inspection.
- Where the inspection body issues an inspection certificate, it may not be possible to cover in the certificate itself all of the work carried out by the inspection body. In those circumstances it would be acceptable to maintain separate documentation to demonstrate the work carried out by the inspection body, provided such documentation can be traceable to the correct inspection certificate. Thus, an inspection report is necessary.
- The fact that the client does not require a detailed report does not remove the requirement for detailed inspection records to be kept.
- The content of an inspection report or inspection certificate may vary depending on the type of inspection and legal requirements. Where inspection is for legal purposes, national authorities may place special requirements on the reporting of inspection results.
- Under its accreditation the inspection body may issue inspection reports or certificates indicating the accreditation status for inspection activities described in generic terms in the accreditation, provided that such reports or certificates are issued for a defined type of inspection using a defined technical procedure and that they are referring to a defined field of inspection.
- In all cases, it must be possible to identify the person accepting responsibility for the verification and release of the inspection report or certificate.
- An example of an “otherwise approved” inspection report or inspection certificate is one approved by secure electronic authorization or by seal. In such cases the inspection body must be able to demonstrate that authorization is secure and access to the electronic storage medium is strictly controlled.
- To avoid ambiguity between a report or certificate with an error and the corresponding corrected report. This is most commonly avoided by issuing a replacement report or certificate with words such as “this report/certificate replaces report/certificate No. XYZ”.
- It is necessary to make the reports and records available to the stakeholders on request.

7.4 Phytosanitary inspection and e-phytosanitary certificates

7.4.1 Purpose of phytosanitary certificates

Phytosanitary certificates are issued to attest that plants, plant products or other regulated articles meet the phytosanitary import requirements of importing countries and are in conformity with the certifying entity. Phytosanitary certificates may also be issued to support re-export certification to other countries. Phytosanitary certificates should be issued only for these purposes.

7.4.2 Types and forms of phytosanitary certificates

In the Annex to the IPPC, there are two types of certificates: a phytosanitary certificate for export purposes (see Annex 1 of this manual) and a phytosanitary certificate for re-export (see Annex 2 of this manual) for re-export purposes.

A phytosanitary certificate for export is usually issued by the NPPO of the country of origin. A phytosanitary certificate for export describes the consignment and, through a certifying statement, additional declarations and treatment records, declares that the consignment meets phytosanitary import requirements. A phytosanitary certificate for export may also be issued in certain re-export situations for plants, plant products and other regulated articles originating in countries other than the country of re-export if compliance with the phytosanitary import requirements can be attested to by the country of re-export (e.g. by inspection).

A phytosanitary certificate for re-export may be issued by the NPPO of the re-exporting country in the case where the commodity in the consignment was not grown or processed to change its nature in that country and only where an original phytosanitary certificate for export or a certified copy is available.

The phytosanitary certificate for re-export provides the link to a phytosanitary certificate issued in a country of export and takes into account any changes in phytosanitary status that may have occurred in the country of re-export. Procedures for managing the issuance of the two types of phytosanitary certificates and the systems that ensure their legitimacy are the same.

According to Article V.2 (b) of IPPC, the IPPC model phytosanitary certificates provide standardized wording that should be followed for the preparation of phytosanitary certificates. The standardization of the phytosanitary certificates is necessary to ensure consistency, that they are easily recognized, and that essential information is reported. NPPOs are encouraged to use a single format for their phytosanitary certificates for export and a single format for phytosanitary certificates for re-export and to place a sample of the phytosanitary certificates' format on the International Phytosanitary Portal (IPP) (<https://www.ippc.int>) in a manner that prevents falsification.

Phytosanitary certificates can be in paper form or, where it is accepted by the NPPO of the importing country, in electronic form. Electronic phytosanitary certificates are the electronic equivalent of the wording and data of phytosanitary certificates in paper form, including the certifying statement, transmitted by authenticated and secure electronic means from the NPPO of the exporting country to the NPPO of the importing country. Electronic phytosanitary certification does not constitute text processing or other electronic generation of paper forms, which are then distributed non-electronically. Nor is it the transfer of an electronic version of the paper certificate (e.g. through e-mail).

NPPOs should apply safeguards against falsification of paper phytosanitary certificates, for example special paper, watermarks or special printing. When electronic certification is used, appropriate safeguards should also be applied.

Phytosanitary certificates are not valid until all requirements have been met, and they are dated, signed and stamped, sealed, marked or completed electronically by the NPPO of the exporting or re-exporting country.

8. Quality management systems

Quality management is an element of competence of an NPPO. It applies to both the personnel and organization as an entity. The quality management systems will cover but will not be limited to the following.

8.1 Inspector monitoring

8.1.1 Monitoring of inspectors and ensuring the quality of inspections

- The requirements and institutional arrangements relating to the structure and composition of an inspection authority's human resources should be suitable for the competent performance of inspection services.
- An up-to-date organizational chart should be maintained showing clearly the functions and lines of authority of staff within the NPPO and the relationship between the inspection function and other activities of the organization.
- For each position in the organization, details on responsibility should be included in the quality system documentation.

8.1.2 Human resource capacity

- The inspection NPPO should demonstrate that their staffs performing inspections are familiar with the objectives of the inspections, the inspection methods and procedures being used, and the assessments of the inspection results. This should take into account the qualifications, experience, training and technical knowledge of the inspectors.
- Where more than one person acts in different roles the specific responsibilities of each activity must be defined and documented.
- Positions that could affect the quality of inspection services must be catered for and may include managerial, clerical and other staff roles, as well as inspectors.

8.1.3 Audits

- Monitoring of the performance of inspections should be undertaken by sufficiently independent and objective personnel. This may include on-site witnessing of inspections being carried out by technically competent staff.
- The process of monitoring inspectors should be designed so that a representative sample of inspectors is included. As a minimum, every inspector should be observed performing each field of inspection for which he or she is authorised by the NPPO at least once during the normal accreditation cycle (3–4 years). Records of the inspection monitoring should be kept.
- Supervision of inspection personnel may extend to their examination of their inspection reports to ensure that they are in accordance with the relevant legislation and procedures and as necessary.

8.2 NPPO monitoring

8.2.1 Organizational audits

ISO 17020 accreditation calls for organizational audits. The responsibility for these lies with the staff identified as the quality manager. The quality manager should be free from any influences or conflicts of interest that may affect the quality of his or her work. The areas for monitoring will be:

- documents control
- records management
- management review

Organizational audits must take account of any relevant information, such as reports from supervisory and managerial staff, the outcome of internal quality audits and external assessments, complaints from clients, changes needed in the quality system, the adequacy of human and equipment resources, future plans, estimates for new work, and additional human resource needs, as well as the need for training of both new and existing staff. The NPPO should determine the frequency of management reviews, taking into account the results from internal audits and previous reviews and reports from an accreditation body. The frequency of these audits should be once in a year.

8.2.2 Internal audits

Internal audits are routine audits undertaken during normal operations to verify adherence to the documented operational procedures of inspection. The quality manager normally plans and organizes the quality audits and ensures that they are carried out in accordance with a predetermined schedule.

9. Accreditation to ISO/IEC 17020 conformity assessment

The international standard ISO/IEC 17020 sets out the general criteria for the operation of various types of bodies performing inspection. This standard is identical to EN 45004. If inspection bodies are to be accredited in a harmonised manner as complying with ISO/IEC 17020, some guidance on the standard is necessary. These notes provide that guidance. One aim is to enable accreditation bodies to harmonise their application of the standard against which they are bound to assess inspection bodies. This is an important step towards mutual recognition of accreditation. It is hoped that this guidance will also be useful to inspection bodies themselves and to those whose decisions are guided by their inspection reports and certificates.

This guidance will form the basis for mutual recognition arrangements between accreditation bodies, and is considered necessary for the consistent application of ISO/IEC 17020.

Members of the ILAC/IAF Multilateral Mutual Recognition Arrangement and applicants for its membership will assess each other's implementation of ISO/IEC 17020, and all of this guidance is expected to be adopted by accreditation bodies as part of their general rules of operation. It is important to indicate that some provisions of ISO/IEC 17020 are mandatory and others are provided by ILAC/IAF as a recognized means of meeting the requirements. Inspection bodies whose systems do not follow the ILAC/IAF guidance in any respect will only be eligible for accreditation if they can demonstrate to the accreditation body that their solutions meet the relevant clause of ISO/IEC 17020 in an equivalent way.

An accreditation body shall at all times maintain its impartiality as required by ISO/IEC TR 17010, clause 4.2. Nevertheless, it should be prepared to discuss this guidance and its interpretation with an applicant body and, where appropriate, to respond to enquiries.

Administrative requirements

An organizational diagram is a useful means of illustrating the position of the inspection body in relation to a larger organization. Diagrams showing relationships with related companies or organizations and relationships between departments within the same organization are useful support for claims of independence.

Accreditation bodies present the scope of activity for which accreditation of inspection bodies is granted in a formal statement, called, for example, the accreditation schedule that accompanies the accreditation certificate. The accreditation schedule is produced by the accreditation body in consultation with the assessor(s) involved in the assessment of the inspection body.

Inspection bodies should pay particular attention to insurance cover when undertaking inspection work in another country, where legal requirements may differ from those in the body's home country.
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It is based on the information provided by the inspection body in connection with the application for accreditation and the demonstrated and verified competence of the inspection body. The accreditation certificate and schedule should indicate the type of body as defined in sub-clause 4.2 of ISO/IEC 17020.

The scope of accreditation should be defined in the schedule in sufficiently precise terms so that potential clients may establish accurately and unambiguously the general field of inspection, the type and range of inspection and, where applicable, the regulations, standards or specifications containing the requirements against which the inspection will be performed.

Contracts or work orders for inspection should ensure that there is a clear and demonstrable understanding between the inspection body and its customer of the scope of the inspection work to be undertaken by the inspection body. In many inspection areas (e.g. in-service inspection based on national regulations) individual contracts are not signed with clients. In these cases the work order must be contained in some underlying documentation, e.g. regulations issued by regulatory authorities.

The inspection body is expected to be able to show what factors have been taken into account when determining the necessary level of the contracted insurance. One key consideration is the risks associated with the performance of inspection activities.

Accreditation bodies are not mandated to approve the level of insurance cover held by their clients, neither is it their role to judge the adequacy of the financial accounts. The types of liability covered by insurance may include, but are not limited to, employers' liability, public liability and professional indemnity.

References

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- EAS 2: Maize grains specification. 2011.
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- FAO, ISMP. No 11. Pest risk analysis for quarantine pests including analysis of environmental. 2016.
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- Phytosanitary Certificates, 2014. ISPM 12, FAO, Rome.
- Phytosanitary Certification System, 2011. ISPM 7, FAO, Rome.
- risks and living modified organisms. 2004.
- United States Standards for Beans. United States Department of Agriculture; Grain Inspection, Packers and Stockyards Administration, Federal Grain Inspection Service. 1 August 2017.

Annexes

Annex I: Model phytosanitary certificate for export

[Original annexed to the IPPC]

No. _____

Plant Protection Organization of _____

To: Plant Protection Organization(s) of _____

I. Description of Consignment

Name and address of exporter: _____

Declared name and address of consignee: _____

Number and description of packages: _____

Distinguishing marks: _____

Place of origin: _____

Declared means of conveyance: _____

Declared point of entry: _____

Name of produce and quantity declared: _____

Botanical name of plants: _____

This is to certify that the plants, plant products or other regulated articles described herein have been inspected and/or tested according to appropriate official procedures and are considered to be free from the quarantine pests specified by the importing contracting party and to conform with the current phytosanitary requirements of the importing contracting party, including those for regulated non-quarantine pests. They are deemed to be practically free from other pests.*

II. Additional Declaration

[Enter text here]

III. Disinfestation and/or Disinfection Treatment

Date _____ Treatment _____ Chemical (active ingredient) _____

Duration and temperature _____

Concentration _____

Additional information _____

Place of issue _____

(Stamp of Organization) Name of authorized officer _____

Date _____

(Signature) _____

No financial liability with respect to this certificate shall attach to _____ (name of Plant Protection Organization) or to any of its officers or representatives.*

*Optional clause

Annex 2: Model phytosanitary certificate for re-export

[Original annexed to the IPPC]

No. _____

Plant Protection Organization of _____ (contracting party of re-export)

To: Plant Protection Organization(s) of _____ (contracting party(ies) of import)

I. Description of Consignment

Name and address of exporter: _____

Declared name and address of consignee: _____

Number and description of packages: _____

Distinguishing marks: _____

Place of origin: _____

Declared means of conveyance: _____

Declared point of entry: _____

Name of produce and quantity declared: _____

Botanical name of plants: _____

This is to certify that the plants, plant products or other regulated articles described above _____ were imported into (contracting party of re-export) _____ from _____ (contracting party of origin) covered by Phytosanitary certificate No. _____, *original certified true copy of which is attached to this certificate; that they are packed repacked in original *new containers, that based on the original phytosanitary certificate and additional inspection , they are considered to conform with the current phytosanitary requirements of the importing contracting party, and that during storage in _____ (contracting party of re-export), the consignment has not been subjected to the risk of infestation or infection.

*Insert tick in appropriate boxes

II. Additional Declaration

[Enter text here]

III. Disinfestation and/or Disinfection Treatment

Date _____ Treatment _____ Chemical (active ingredient) _____

Duration and temperature _____

Concentration _____

Additional information _____

Place of issue _____

(Stamp of Organization) Name of authorized officer: _____

Date _____

(Signature) _____

No financial liability with respect to this certificate shall attach to _____ (name of Plant Protection Organization) or to any of its officers or representatives.**

**Optional clause

Annex 3: Standard operational procedures for inspection and certification of maize grains

EAC	DOC No. SOP/EAC/2018	
Section: Plant Health Protection	Issue No.	Rev. No.
SOP for exit/entry point Inspection for dry beans	Issue by	Signed
	Name:	Date
	Approved by:	Signed
	Name:	Date:

Purpose

The purpose of this standard operational procedure (SOP) is to describe the steps for the inspection and certification of Maize grains during movement within EAC.

Scope

The SOP outlines the steps taken by inspectors to ensure compliance to the requirements of the importing countries on Maize grains at the exit/entry points.

Responsibility

Responsible officers to carry out inspection activities Inspector:

- Carry out of inspection and verification of documents
- Verify the declared volume/quantity of consignment
- Witness and sign for rejection or acceptance of consignment

Security officer:

- Maintain security at inspection area

Importer/Clearing Agent:

- Present relevant documents
- Witness inspection process
- Payment of inspection fees

Applicable legislation (national laws and regulations)

The Plant and Seed Act, 2006

The Plant Protection and Health Act, 2015

Tanzania Plant protection Act 1997 and its Regulation

1999 Plant Protection Act, Cap 324

Plant Health Protection Act, 2016

Plant Protection of Burundi, Law no-01/033/1993

References

ISPM) No. 23, 2005. *Guidelines for Inspection Rome IPPC, FAO*

ISPM No. 7, Export

certification

EAS 217

Acronyms

FAO: Food and Agricultural Organization of the United Nations

ISPM: International Standards for Phytosanitary Measures

IPPC: Intentional Plant Protection Convention

Definitions

Inspector: Person authorized by the NPPO to discharge its functions.

Consignment means a quantity of maize grains described or to be described in one phytosanitary certificate by a single consignee.

Requirements

Maize grains must meet the requirements described in section 3.3.3 and 3.3.4 and in Table I

Inspection facilities and equipment

The inspection area shall have the necessary inspection facilities and equipment: –

-
- a. Adequate space for inspection.
 - b. Protective /safety equipment/ gear for the inspector
 - c. Inspection bench or table in an area protected from adverse weather conditions which is:
 - constructed of stable, rigid and durable material i.e. steel, timber or plastic;
 - of a reasonable size and height; painted in a light colour or covered in a durable light coloured material; and placed in a well-lit and ventilated area on a flat surface
 - d. Storage/holding place;
 - e. Inspection kits/sampling tools described in section 3.3.6 and a warm plate;
 - f. Reference illustrations and photographs for identification of maize grain pests
 - g. Cameras;
 - h. Sealable plastic bags for collecting specimens of infested produce;
 - i. Sealable specimen bottles for suspect moths and other live stages; labels to uniquely number specimen bottles when multiple specimens are collected;
 - j. Preservative material, i.e 70% ethanol for preserving samples for identification; and
 - k. A pocket knife or similar item for cutting grains to further investigate for the presence of moth larvae.

Procedure

- Document verification (PIP, PCs, fumigation certificates, packing lists)
- Presentation of the consignment for inspection
- Sampling for inspection (determine the sampling methods, sampling size). Refer to internal work instruction for sampling as may be determined by NPPO.
- Using simple random procedure ,sample maize grains as in the below table when the consignment is bagged

Quantity/ number of bags	Sample size
1–10	60 g from each bag
11–100	Pick 10 bags using random numbers and samples 60 g from each
Above 100	Take square root of the total amount of bags.

- Conduct physical inspection of the samples (visual inspection using naked eye or lens, sieving, warming the sample in the plate depending on the pest of interests (refer to standard inspection parameter for maize grains).
- Based on the results of inspections, take samples for further analysis in the laboratory (refer to procedure on taking samples for lab analysis).
- Release, reject, treat or re-export the consignment based on results from the physical inspection and laboratory.
- Record noncompliant consignments and issue rejection notice.

Annex 4: Standard operating procedure for maize seed inspection (export/import)

Contents

1. Purpose
2. Scope
3. Reference
4. Procedures

Purpose

- To ensure consistency in inspection for exports/imports of certified maize seed.

Scope

- This procedure describes steps and requirements for exports/imports inspection of certified maize seed from the point of request for inspection to issuance of a relevant document such as phytosanitary certificates, conformity certificates among others.

Reference

- National Plant Protection Acts
- EAITH manual of inspection procedures for plant health
- National Seed Acts
- International Standards for Phytosanitary Measures – ISPMs ie ISPM No.6, 7 and 31
- The Quality Management System Manual ISO -I 7020
- OECD seed Schemes.
- EAC Certification standards for Maize Seed

2. MAIZE SEED FOR EXPORT

Procedure

a) Seed certification:

- i. Registration of seed merchant, seed growers and registration of field crop.
- ii. The inspections of seed crops shall be done in accordance with the relevant OECD seed schemes. If the field is found to be in conformity with the OECD seed schemes and is approved, the harvested seed shall be identified, transported, stored and processed.
- iii. The minimum information for an application for certification of a seed maize crop shall include the name, address and contact details of the applicant; the crop and variety to be sown, the location, area and reference number of the field and cropping history for the last two cropping seasons, the seed class and the registration number of the grower.
- iv. The application forms for field registration should be submitted to the inspection body not later than 4 weeks after planting, duly filled and accompanied by labels to indicate proof of origin of the seed sown and inspection fees.
- v. The national certification authority shall prepare the schedule to carry out the inspections by inspectors based on seed inspection manual.
- vi. At final inspection, seed from approved fields shall be packed in containers having been cleared and secured, identifiable by grower (certification) number, field crop number, packing unit, variety name and status prior to leaving the field.

b) Recognised seed classes

The following classes are recognised:

- Breeder seed
- Pre-basic seed
- Basic seed
- Certified seed

c) Plant health requirements for seed maize

Seed borne diseases

Inspection of maize seed shall cover these diseases:

- Head smut (*Sphacelotheca reiliana*)
- Common smut (*Ustilago maydis*)
- Maize lethal necrosis disease

Any field having more than 2 plants per hectare of head or common smut shall be rejected at final inspection. In the case of MLND, any crop having more than 1% at final inspection shall be rejected.

d) Seed sampling and laboratory standards

The harvested seed from the field approved for certification shall be kept as an identified unit until processing. After processing, samples shall be submitted to a laboratory for testing, where conforming samples shall be given a certificate with a unique lot number for the purpose of tracking and sampling.

-
- The seed lot shall be sampled and tested in an official/ authorised laboratory. The sampling and testing of seed lots shall be done in accordance with relevant procedures described in the ISTA rules.
 - The seed lots shall comply with the laboratory standards specified.
 - The test certificate shall be issued and be valid for 6-12 months depending on storage conditions.
 - The certificate of conformity of a seed lot is issued by the National Seed Certification Authority.
 - At the exit point the documents like phytosanitary certificate, ISTA certificate, export permit and the import permit accompanying the seed lot must be verified before a consignment is cleared.

Note: Active growth and inspection reports will be presented to the border inspector.

3. MAIZE SEED FOR IMPORT

Procedure

1. The NPPO receives requests for imports inspection and enters the details of the request in the imports register and then forwards the documents to the assigned inspector.
2. Verification of documents
 - The inspector receives and verifies the documents for compliance with import requirements, which include the original import permit, original phytosanitary certificate, original ISTA certificate, original notice to import, original certificate of analysis, custom's entry and packing list.
3. If the documents are compliant the inspector proceeds to inspect the produce and retains the relevant documents, including the PIP and the phytosanitary certificate.
4. In case of noncompliant documents, reject/no inspection.
5. Consignment should be placed in such a way to allow easy access and view of all seed packages.
6. Sample seed packets to confirm its identity, purity and dressing.
7. Sample seeds according to ISTA seed testing rules rules
8. Prepare the sample by filling a sample letter, seal and send to the seed testing Lab.
9. Fill the seed dispatch form.
10. Take sampler's reference sample to seed store, fill sample register and label the sample adequately.
11. Seed tests in the laboratory in accordance to laboratory procedures.
12. Release if confirmed to meet the permit requirements.

Annex 5: Standard operational procedures for inspection and certification of dry beans

EAC	DOC No. SOP/EAC/2018	
Section: Plant Health Protection	Issue No.	Rev. No.
SOP for exit/entry point Inspection for dry beans	Issue by	Signed
	Name:	Date
	Approved by:	Signed
	Name:	Date:

Purpose

The purpose of this standard operational procedure (SOP) is to describe the steps for the inspection and certification of dry beans regulated by the EAC.

Scope

The SOP outlines the steps taken by inspectors to ensure compliance to the requirements of the importing countries on dry beans at the exit/entry point.

Responsibility

Responsible officers to carry out inspection activities

Inspector:

- Carry out of inspection and verification of documents

Custom officer:

- Verify the declared volume/quantity of consignment
- Witness and sign for rejection or acceptance of consignment

Security officer:

- Maintain security at inspection area

Importer/Clearing Agent:

- Witness inspection process
- Payment of inspection fees
- Present relevant documents

Applicable legislation (national laws and regulations)

The Plant and Seed Act, 2006

The Plant Protection and Health Act, 2015

Tanzania Plant protection Act 1997 and its Regulation 1999

Plant Protection Act, Cap 324

Plant Health Protection Act, 2016

Plant Protection of Burundi, Law no-01/033/1993

References

ISPM) No. 23, 2005. *Guidelines for Inspection Rome IPPC, FAO*

ISPM No. 7, Export

ESA 46

certification IPPC, FAO

Acronyms

FAO: Food and Agricultural Organization of the United Nations

ISPM: International Standards for Phytosanitary Measures

IPPC: Intentional Plant Protection Convention

Definitions

Inspector: Person authorized by the NPPO to discharge its functions.

Consignment means a quantity of dry beans described or to be described on one phytosanitary certificate by a single consignee.

Requirements

Dry beans must be matured, well filled, clean, and uniform in size and shapes

Free from harmful microorganism, abnormal flavors, musty

Inspection facilities and equipment

The inspection area shall have the following inspection facilities and equipment:

-
- a. Adequate space for inspection
 - b. Protective /safety equipment/ gear for the inspector
 - c. Inspection bench or table in an area protected from adverse weather conditions which is:
 - constructed of stable, rigid and durable material i.e. steel, timber or plastic;
 - of a reasonable size and height; painted in a light colour or covered in a durable light coloured material; and placed in a well-lit and ventilated area on a flat surface
 - d. Storage/holding place;
 - e. Inspection kits/sampling tools and a warm plate;
 - f. Reference illustrations and photographs for identification of dry bean pests and common moths attacking beans;
 - g. Cameras;
 - h. Sealable plastic bags for collecting specimens of infested produce;
 - i. Sealable specimen bottles for suspect moths and other live stages; labels to uniquely number specimen bottles when multiple specimens are collected;
 - j. Preservative material, i.e. 70% ethanol for preserving samples for identification; and
 - k. A pocket knife or similar item for cutting to further investigate for the presence of moth larvae.

Procedure

- Document verification (PIP, PCs, fumigation certificates, packing lists)
- Presentation of the consignment for inspection
- Sampling for inspection (determine the sampling methods, sampling size). Refer to work instruction for sampling.
- Using simple random sampling , pick sample by using statistical table below

Quantity of dry beans (bags)	Sample size
1–10	60 g from each bag
11–100	Pick 10 bags using of random numbers and samples 60 g from each
Above 100	Take square root of the total amount of bags.

- Conduct physical inspection of the samples (visual inspection using naked eye or lens, sieving, warming the sample in the plate depending on the pest of interests (refer to standard inspection parameter for beans).
- Based the results of inspections, take samples for further analysis in the laboratory (refer to procedure on taking samples for lab analysis).
- Release, reject, treat or re-export the consignment based on results from the laboratory.
- Record noncompliant consignments and issue rejection notice.