THE REPUBLIC OF UGANDA

INSPECTION AND CERTIFICATION MANUAL FOR VEGETATIVELY PROPAGATED PLANTING MATERIALS AND SEEDLINGS

MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES

DEPARTMENT OF CROP INSPECTION AND CERTIFICATION
JULY 2012

Table of Contents

Page

LIST OF ACRONYMS

DSIP - Development Strategy and Investment Plan
DUS - Distinctness, Uniformity and Stability
MAAIF - Ministry of Agriculture, Animal Industry and Fisheries
NDP - National Development Plan
NPT - National Performance Trials
VRC - Variety Release Committee
NSCS

DEFINITIONS AND EXPLANATIONS

Unless specified, the following definitions shall apply: (Generally we need to get standard definitions to avoid mix-up and include more where necessary)

"**Agricultural Value**" means the economic benefit expected from the production of a given crop or item.

"Approved variety" means variety whose pedigree source is known and whose standards are known

"**Breeder Seed**" means seed of the first generation of seed multiplication produced under the supervision/direct control of the breeder and/his assigned representative.

"**Certification of a Nursery Stock/lot**" means the certified nursery stock/lot has been visually inspected and random samples indexed/tested and found to be free of all systemic infection and in compliance with the applicable standards.

"**Certification**" means the issuance of a certificate verifying that a particular quantity or lot of vegetative planting materials has been grown or propagated and meets the set standards. (we need to be clear on the actual definition, to me this does sound like the right definition.

"**Certified Block**" means a planting of any nursery stock/lot or vegetative planting materials that are first year propagation from Foundation Stock.

"**Certified Material**" means propagating material from the last stage of propagation stock satisfying the commended certification standards and certified for sale. In the case of plants which are sold grafted onto rootstocks, the rootstocks must also be at least of the last stage of propagation stock and the plants must be held under approved conditions between grafting and sale. Certified material may according to the plant concerned be referred to more specifically as for example, certified plants, certified cuttings and certified bulbs, etc.(content under this section is more than a definition)

"**Certified Seed**" means seed produced from multiplication of foundation seed under the control of a certification programe.

"**Certified Stock**" means a class of any nursery stock/lot or plants that are first year or second year propagation from foundation stock or first year propagation from first year Certified Stock.

"**Classification Scheme**" means system for the production of vegetatively propagated plants for planting, intended for further propagation or for sale obtained from selected candidate material after one or several propagation stages under conditions ensuring that stated health standards are met. Different classes may be defined according to the inspections and tests used, the tolerance levels applied and precautions taken. The filiation of classified materials is not considered.

"**Commercial Seed**" means any seed or planting material offered for sale, sold, advertised or entered into marketing channels.

"Compulsory certification" means mandatory issuance of a certificate for any of the species in the regulations under the Seed and Plant Act (2006).
nurseries or mother gardens with crops listed under the Compulsory Certification Scheme.
"**Distinctiveness**" the new variety should possess characteristics that are distinctly different from existing varieties.
"**Field Inspection**" means inspection of the growing plants in the field by a qualified inspector following specific procedures for the purpose of determining the varietal purity of a seed crop, plants affected by pests and diseases, presence of undesirable plants and general condition of the seed crop.
"**Field**" means the entire area occupied by one variety and one seed source and which is covered by one inspection report.
"**Filiation**" means the line of descent by vegetative propagation from a defined parent plant.
"**Foundation Block**" means site of pre-multiplication.
"**Foundation Seed**" means seed generation obtained from reproduction of breeder seed and meeting all requirements and standards.
"Foundation Stock" means plants that have been produced in the foundation block.
"**Genetic Quality**" means the combinations of characteristics, which show the degree of genetic or varietal purity of seed.
"**Increase Block**" means a planting of any nursery stock/lot or plants or Foundation Stock for the production of Certified Stock.
"**Increase**" means the rapid propagation of basic and certified material in some instances in agreement with the protocol for each plant species.
"**Index**" means to determine virus infection by means of inoculation from the plant to be tested to an indicator plant or by any other method.(should adopt virus indexing instead of index)
"**Indicator Plant**" means any herbaceous or woody plant used to index or determine virus infection.
"**Insect Pests**" means insects or other invertebrates injurious to plants and plant products.
"**Inspector**" means an officer designated/assigned and responsible for conducting the work of inspection, sampling, testing, supervising, guide and control in the implementation of seed law.
"**Interstock**" means scion wood used for compatibility purposes to graft between a particular top-stock and rootstock.
"**Lot**" means a determined and specifically identified quantity of seed, which are covered by one set of documents.
"**Ministry**" means Ministry of Agriculture, Animal Industry and Fisheries (MAAIF).
"Mother garden" refers to a place where vegetative planting materials such as cuttings, scions are multiplied/produced.

"**Multiplication**" means the production of certified propagating material to be distributed to the nurseries in compliance with the protocol of each plant species. (need to look at this)

"**National Variety List**" means a list of varieties released after approval by the Variety Release Committee, which are eligible for certification.

"Nuclear Stock Material" means propagating materials derived from nuclear stock, which may be further, propagated without change of ownership or certified for sale as pre-basic material.

"Nuclear Stock" means any nursery stock/lot or plants of cultivars, which were originally indexed, and their clonal progeny, which have been regularly re-indexed and continuously protected from systemic disease infection by research meeting standards established by the NSCS.

"Nursery Stock" means all botanically classified hard perennial or biennial trees, shrubs and plants either domesticated or wild, cuttings grafts, rhizomes, tubers or roots of such plants and plant parts for or capable of propagation.

"Nursery" means the place of production either by private organizations/individuals of rootstocks and grafted plants from certified material. The final product of which has to fulfill certification requirements for production of commercial certified material.(needs revision)

"**Off-Type**" means any volunteer plant or any stock plant different from the cultivar as stated on the application for certification.(needs revision)we may also to define what a cultivar is

"**Plant Diseases**" means fungi, bacteria, nematodes and/or virus, which are injurious to plant and plant parts.

"**Plant Products**" means cuttings, grafts, buds and all other parts of plants, fruits, vegetables, roots, bulbs, seeds, wood, timber and all other plant products.

"**Plant Quality**" means the freedom of plants from harmful and or designated plant insect pests and diseases, varietal purity and general health condition.(this maybe fits a high plant quality not plant quality)

"**Planting Quality**" means the combined indices which define the value of seedlings for planting.

"**Plants**" means trees, shrubs, vines, forage and cereal plants and all other plants.

"**Propagation Stock**" means plants derived from nuclear stock, propagated and maintained under conditions ensuring freedom from any infection.

"**Propagative Material**" means any living plant or part of the plant including seed, corm, cutting, bud rhizome and callus used or intended for propagation.

"Propagule" refers to a vegetative structure that can become detached from a plant and give rise to a new plant e.g. a bud, sucker or spore.

"**Rootstock**" means that part of a plant including the roots on which another variety of plant materials may be grafted.

"**Scion**" (Scion wood) means a detached shoot or other portion of a plant consisting of one or more buds used in propagation by grafting.
"**Seed lot**" means a unit of tubers or plants increased clonally from a single source of tubers or plants. If two or more seed lots are co-mingled in the field or in storage, seed lots shall be classified at the lowest acceptable seed class or shall be rejected from certification as appropriate.
"**Seed Quality**" means physical quality as measured by physical purity and freedom from undesirable materials, physiological purity as measured by germination and vigour, genetic purity as measured by varietal purity and health quality as measured by freedom from, pests and diseases.
"**Seed**" means propagative materials, plants and parts of plants intended for the propagation and multiplication of a variety.
"**Seed-Block**" means a planting of certified seed trees, which serves as a source of seed for producing rootstock used in the propagation of certified nursery stock.
"**Stability**" the characteristics of the variety must remain true to original description after repeated reproduction. (consider adding across environments)
"**Stool Bed**" means a clonal planting of self-rooted certified trees for the specific purpose of producing vegetatively propagated rootstock used in the propagation of "CERTIFIED NURSERY STOCK".
"Traceability" means the ability to verify the history, location or application of a vegetative structure by means of documented or recorded data/information.
"**Uniformity**" the variety should be sufficiently uniform for those varieties that breed true to type or with limited variability to permit accurate description.
"**Variety**" means an assemblage of cultivated individuals, which are distinguished by any characters (morphological, physiological, cytological, chemical, or others) significant for the purpose of agriculture, forestry, or horticulture and which, when reproduced (sexually or asexually) or reconstituted, retain their distinguishing features.
"**Virus affected**" means the presence of a harmful virus in a plant or plant part.
"**Virus-Like**" means either a genetic disorder or non-transmissible entity exhibiting virus infection-like symptoms. May be virus like symptoms
"**Voluntary Certification**" means certification requested by a seed producer for any of the species in the regulations under the Seed and Plant Act (2006).

PREFACE

The development of this manual arose as a challenge encountered during the nursery appraisal surveys conducted in the Central, Eastern and Western Uganda.

The appraisal was meant to gain quick insights into the state of the art of nursery operations and management as well as document constraints and opportunities in the nursery business. The findings revealed that the nurseries and mother gardens were wanting. Specifically, the following were evident:

- The quality of seedlings grown by nursery operators was generally poor
- No single nursery was specialized in a particular type of seedlings/crop because an assortment of ornamentals, horticultural crops, fruit tree seedlings, forest tree seedlings, spices and medicinal plants were common in many nurseries.
- The knowledge on nursery operations and management is scanty and limited among the operators.
- Sources of planting materials/seedlings were diverse and not well established.
- There were no established system of record keeping and management available.
- Knowledge in safe use and handling of agrochemicals was lacking among the nursery operators.
- Varieties, of rootstocks and scions used in the grafting operations were not labeled.

This manual therefore is meant to act as a reference guide for the Inspection and Certification of vegetative propagated planting materials by inspectors and for gauging compliance by nursery operators on procedures and standards of production of quality planting materials.

INTRODUCTION

In the quest to promote production of high quality planting materials as envisioned under The Agricultural Sector Strategic Plan (ASSP), the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) through the Department of Crop Inspection and Certification (DCIC) is mandated to provide regulatory services for quality assurance and Plant Health Controls.

In accordance with the Seeds and Plant Act, 2006, Agricultural chemicals control act, 2006, the Plant protection and heath Act, 2016 and their attendant regulations; the certification, and plant health activities thereto related to vegetative propagated planting materials and seedlings are the responsibility of DCIC. MAAIF has put this manual in place to regulate and control the quality, health, agricultural value and traceability of vegetatively propagated planting materials and seedlings. Procedures prescribed in this manual shall be implemented by the nursery and mother garden operators and audited by DCIC

PURPOSE The purpose of this manual is to guide stakeholders responsible in the production, inspection and certification of vegetative plating materials and seedlings. Specifically (i) guide establishment of nurseries and (ii) guide inspectors in quality assurance of vegetative propagated planting materials and seedlings. This will ensure production of quality planting materials for the farming community.

SCOPE

The scope of this manual shall be limited to the design of systems for inspection and certification of vegetative planting materials of registered varieties/nursery stocks, grown and evaluated to ensure varietal identity, genetic purity, plant health and vigour

This manual is intended to be used by agricultural inspectors or delegated local government authorities and other accredited entities responsible for the inspection of plants proposed for certification and for the issue of appropriate certificates. In addition, it will be used by nursery operators of vegetatively propagated materials of particular certified plants whose quality status is attested by an official certificate. Consumers will also use this document to purchase material which meet required standards.

SECTION 1.0:

General principles for establishment and management of Nurseries and Mother gardens

1.1 Nursery and associated infrastructure.

1.1.1 Location

All nurseries must be located in an area with a gentle slope to allow free drainage and near a permanent source of water. It must be easily accessible to facilitate nursery operations and supervision.

1.1.2 Nursery layout and infrastructure

The locations and boundaries of a nursery or other propagating areas shall be distinct and unmistakable. A nursery must be fenced off and secured from destruction by livestock and human trespass. A nursery should have a shade, a store for the pots and tools, a working area, a soil storage area, a foot bath at the nursery entrance, internal paths, seeding area, PP store. There should be an area for washing the hands with a disinfectant before entering the plant chambers.

There should be a clear unidirectional flow of planting medium, pots and planting materials in the nursery up to when the planting materials arrive in the sales section of the nursery.

Trees should be planted on the windward side of the nursery to act as wind breaks in areas that suffer from severe winds. The wind breaks must be not less than 50 meters from the nursery.

a) The nursery shade

The nursery shade structure should be from permanent materials such as metal or semi-permanent materials such as wood framework,

covered by a net (either green or black) to reduce on the amount of radiation and heat coming to the delicate plants. The shade should be at least 1.8 meters high

Inside the structure, there should be compartments or sections separating the different age groups of the plants or the different species. These sections shall be clearly labelled. They should be less than one meter high for smooth air circulation. If the structure is big, there should be supports at about 20 feet (6 m) intervals to prevent collapse of the roof on the seedlings.

It is advisable to have raised platforms inside the nursery where seedlings are placed. For plants grown in containers, the varietal or clonal name shall be firmly attached to each container or plant for identity and traceability.

b) Soil storage area

A soil storage area should be protected from water. There should be a soil sterilization unit for getting rid of soil borne pathogens before use for use in nursery operations. Soil sterilization can be done by steaming, solarization or chemical means using registered chemicals. Some sophisticated nurseries may have electronic soil sterilizers, where the different wetted soil parts are placed and steamed using electricity. The thermometer reading and period of cooking, will determine when to stop the process. The final results of efficient steaming show in the potted seedlings if nothing foreign (weeds) sprouts from the soil in the pots.

c) The working area and internal paths.

All nursery stocks should be kept in a hygienic condition in appropriate structures. The plants are usually at different stages of growth and therefore they should be kept in different sections according to age, variety or batch and shall be clearly labelled. The space should be enough to handle all the different age groups or batches. The structure must be spacious enough to keep the plants well separated.

The paths should be at least 50 cm wide to provide for adequate working space

d) Nursery tools

The basic tools of a nursery shall include; pangas, grafting knives, watering cans, scissors, secateurs, germination trays, tapes, waterproof markers, labels, sterilization drums, spades, shovels, hoes, sand sieves, polypots, hummers, insect traps, among others.

1.1.3 Preparation of potting medium

The medium to be used for potting should be free from soil borne pathogens. Preferably forest soil should be mixed with sand and manure in the ratio of 2:1:1 respectively. In tea, loam soil is put at the bottom quarter of the pot and red soil is placed on top three quarters of a pot/ bag. The recommended pot sizes shall be according to the different crop specific requirements. (Refer to annex.…)

1.1.4 Potting planting materials

Potting is conducted after soil has cooled to ambient temperature in the case of steam or dry heat sterilization. Pots should only be filled up to three quarters (75%) of the pot to allow space for holding water during the watering process. The different planting materials should be planted in the pots either directly or from the nursery bed. In case of transplanting, water the seedlings in the seed bed, lift the best seedlings and pot them in a hole created in the soil in the pot, and water after planting. For large seeded fruits, the seed is placed on top of the soil in the pot, one seed per pot and then watered. In clonal coffee and tea, the stem cuttings are dipped in rooting hormone and placed in the potted wet soil. Care must be taken to plant the right end of the cutting. Ensure the tap root is not bent upwards during potting of root stocks. If the tap root is too long it should be trimmed before placing the seedlings in the pots.

1.1.5 Hardening off

Hardening is critical in preparing the tender seedlings for harsh conditions in the field. This should be done by reducing the frequency and amount of watering and reducing the shade atleast one month before they are ready for planting. In the first week of hardening off, the seedlings are under 50% of shade and the shade is gradually reduced until there is 100% light.

1.1.6 Pest and disease management

The occurrence of pathogens in a nursery is a deterrent to nursery certification, since infected or infested pathogens can cause total loss and/or introduce pests and diseases in new areas. It is therefore important that nurseries and mother gardens be kept neat and healthy.

Important nursery diseases include; Dumping off, seedling blights, nematodes and downy mildew, among others. The most common pests

in nurseries and mother gardens include: cutworms, termites, aphids, white flies, mealybugs, among others

i) Damping off

This is a condition in the nursery beds where the seedlings wilt and die off in huge numbers in a very short time. The seedlings rot from the base and topple over. Damping off is caused by a number of pathogens including, *Pythium* Spp., *Phytopthora* Spp., and *Fusarium* Spp.,

This condition can be controlled by sterilizing the soil and watering using clean water or regulating the watering of the seedlings. Too much water promotes damping off. Improving the soil drainage, planting the seeds in raised nursery beds, allowing sufficient aeration in the nursery and keeping good nursery hygiene, can reduce the condition.

Agricultural chemicals like Mancozeb 80wp or copper oxychloride can be sprayed to the seedlings in the nursery according to the manufacturer's instructions on the label. Seed dressing with a chemical fungicide prior to seed sowing is very important in reducing the problem.

ii) Seedling Blights and Leaf Spots

Use of disease-free seed at root stock planting, seed dressing prior to sowing and spraying the seedlings with preventive chemicals are good management options to the seedling blights and leaf-spots.

Pests

i) Cutworms, termites, aphids,
These can be sprayed off using insecticides according to the manufacturer's instructions. Constant scouting to detect the insect pests early and to take action against them as early as possible is important. Insecticides like Dusban and Cypermethrin can be helpful.

Disorders

i) Leaf scotches

The leaf scotches can be caused by diseases, pesticides or sunlight, that penetrates through the nursery shade. The delicate nursery plants have to be protected from the diseases the inappropriate sunshine and proper dosing of pesticides.

ii) Nutritional disorders

Unless completely decomposed manure is used in the nursery, nutritional disorders can occur. These may include yellowing, stunting, purpling or bronzing of the seedlings. Foliar sprays of fertilizers can be applied depending on whether the cause of the problem is understood.

1.1.7 Disease indexing

- This should be done twice during the crop duration
  1. At 6 months stage
  2. At fruiting stage
- The indexing should be carried out primarily for 4 viruses, namely Banana Bunchy Top Virus, Banana Bract Mosaic Virus, Banana Streak Virus and Cucumber Mosaic Virus.
- The entire clump of plant, suckers along with infected mother underground corm should be removed and destroyed once found infected.

1.1.8 Waste management

Every nursery should have a nursery waste management procedure. There should be waste bins and pits for containing the organic waste and soak pits for chemicals. During nursery operations, all plants that dry up, the unwanted, the leaves and twigs from operations, are temporarily stored in the waste bins. The bins that fill are emptied in the waste pits to decompose into manure. The plastic waste is collected separately in one place for recycling.

1.2 Mother gardens

Vegetative propagated plants like cassava, bananas, coffee, mangoes, Citrus and other crops, need mother gardens that act as sources of scions, buds and cuttings for propagation or grafting. The plant spacing in a mother garden is usually closer than the recommended in commercial fields. The mother garden should be isolated and/or fenced off from the rest of the crop/nursery depending on the plant species isolation requirements and adequate to supply the nursery requirements or if used as a source of planting materials, should meet minimum size requirements.

Certification for mother gardens shall be seasonal and samples shall be collected frequently for testing to prove freedom from pests and diseases before certification. Once certified by the Department of Crop Inspection and Certification, MAAIF, a sign post labeled 'MAAIF CERTIFIED MOTHER GARDEN, shall be placed at the site as appropriate for farmers to purchase planting materials from there. The sign post shall be removed at the end of the season or when the entire certified planting crop is sold off. It shall be replaced after the next season certification or after certification of the ratoon.

1.3 Raising grafted planting materials

Grafting is a form of vegetative propagation, which involves the union of two separate structures, usually woody parts of two plants. The common parts grafted are usually stems. The upper part is the scion and the lower part or root is called stock or rootstock. In grafted plants, the desired characteristics of the two parent plants are united in one plant. Fruit trees commonly grafted in Uganda include mangoes, avocadoes and citrus. For quality control purposes, both the scion and root stalk sources must be carefully chosen and managed. If not properly managed, grafted materials out of the nursery can be of poor quality and may act as sources of viral and bacterial diseases.

1.3.1 Managing scion sources

Scions shall be sourced from certified mother gardens/plants of known varieties and isolated from other fields of the same species/variety. Mother gardens to be used as source of scions shall be free from regulated pathogens (Annex….). For certification purposes, samples shall routinely be collected and sent to an approved laboratory, for purposes of disease diagnosis. Mother gardens having regulated pathogens should cease to be sources of Scions.

1.3.2 Managing root stock sources

Rootstocks shall be obtained from species/varieties which are known resistant to soil borne pathogens. Before use, root stocks should be indexed for potential systemic pathogens mostly viruses. Recommended species/varieties for use as root stocks are provided for in Annex….. .

1.3.3 Grafting

The rootstocks shall be about pencil thick before grafting. During grafting, the scions shall preferably be collected during the dormant stage of crop growth. The graft union shall be at least 1.5 ft from the soil surface of the potting bag. After grafting, the new shoots emerging below the graft union shall be removed, while those above the graft are trained into the fruit tree.

1.4. Raising planting materials from cuttings

In potted cuttings and grafted plants, humidity control is very important. To control humidity, a humid chamber is needed. This often improvised by creating a framework of easy-to-bend tree stakes, placing them in the ground in a semi-circular manner, and covering them with a transparent plastic sheeting to create a tunnel. The watered potted plants are placed under the plastic sheeting and checked frequently for about 2 weeks. The cuttings will sprout and after about one month, the plastic sheets are opened to remove the seedlings for other nursery operations. Alternatively, a rectangular hole is dug in the ground and used as a humidity chamber. This method is appropriate for particular crops such as ginger

1.5 Raising planting materials from seed

1.5.1 Sourcing seed

Seedlings shall be raised using quality seed from known sources. The variety identity of the seed should also be known. The seeds shall be free from regulated pests.

1.5.2 When to start raising seedlings

The time to start work in the nursery depends on when field planting is planned or target season for sale. It is important to allow sufficient time for seedlings to grow to a size where they will survive well in the field (normally 30 to 45 cm, though this depends on the species. Sometimes it is important to treat seed before it is planted, in order to improve on the level, speed and uniformity of germination. This can be done by hot water treatment or by cold treatment depending on the species.

1.5.3 Seed bed preparation

Nursery beds can be arranged in different ways. Before transplanting to the pots, seedlings can first be raised on a flat bed, or can be set into a sunken bed, which is a basin like excavation of about 1 m by 1 m and about 10 cm deep. Such a structures holds seedlings together, and helps to conserve water in dry areas. Raised beds are used for establishing bare-rooted seedlings; as the sides of the bed can be broken down to reveal the roots of plants, ready for transplanting. However, for some plant species, seeds can be sown directly into pots.

1.6 Raising planting materials from tissue culture

For the production and certification of tissue culture propagated materials, the guidelines for certification of tissue culture. shall apply.

1.7 Record Keeping and traceability

Prior to certification, the inspectors will ensure that there is a traceability system used by the nursery. Traceability is a method of tracing back planting materials from the actual source to the final user. A nursery shall not be certified without a clear record of how plants were produced. Information shall be provided on;
(1) Source of scion
(2) Source of root stalk
(3) Pest control records
(4) Indexing records

For traceability purposes, the registered mother garden should have a traceability number comprising of initials of the name of the registration code, initials of the farmer, initials of the location, crop and variety. The traceability number will be registered by the Registrar of Plant Nurseries and Mother Gardens at the Department of Crop Inspection and Certification. The registered mother garden should also have a traceability code comprising of initials of the name of the registration code provided by the Department of Crop Inspection and Certification, initials of the farmer, initials of the farm location and variety. For example, if the nursery registration code is MG/2010/001, the initials of the farmer are MB for Mukasa Benon of Mutundwe, Wakiso District, the garden is for mangoes variety Tommy Atkins, the traceability number can be MG/2010/001/MBMW/MTA1. If in the same area, there is another registered mother garden, belonging to a farmer with the same initials, growing the same crop and variety, the code becomes, MG/2010/002/MBMW/MTA.

i. Mother garden records

The records of the date of planting, variety, source of the variety, location or block number and management options used to bring up the mother garden, harvesting records, sales and dates of delivery are important.

For rootstocks and scions, the dates of planting, variety, date of grafting and sources of both the rootstocks and scions should be recorded. The number of plants that die and likely cause of death, are also recorded.

ii. Nursery management records

All the operations that are run in a nursery are recorded including the names of the workers that carry them out, when they are conducted and any adjustments for improvement. Pest and disease control procedures, the chemicals used, dates of application and personnel used including the

blocks where the chemicals are applied are kept. The following records should be kept; All soil and water tests records are kept. Sales records are also kept. All records should be kept for as long as necessary to handle traceability problems that may arise. Inspectors have the right to look at the records to certify the nursery.

SECTION 3: GENERAL REQUIREMENTS AND PRINCIPLES OF CERTIFICATION

1.1 Requirements and Principles

Seed certification is a system of ensuring production of genetically pure, good quality seeds and healthy planting materials of improved or wanted varieties.

This is accomplished through a number of steps namely, determination of the eligibility of cultivars/varieties, verifying the authenticity of the seed/planting material sources, National Performance Trials (NPT) and DUS tests, field inspection, lot examination, sampling, seed testing, labelling and sealing/packaging. Therefore, for any field or nursery to be certified the above conditions must be observed as outlined below.

1.2 Eligibility and Verification of Planting Materials

According to the Seed and Plant Act (2006), only varieties/cultivars or nursery stocks officially released by the Variety Release Committee (VRC) or advanced breeders' lines awaiting release shall be eligible for certification. The origin of seed or planting materials must be known and traceable to the breeders' seed.

3.4 Growing Seedlings and Vegetative Planting Materials

1. **Seedling types:** the following requirements shall apply solely to growing by the seedling types:
    (i) At the time of planting, the same certified variety or seed of an entirely different species should be planted in an area previously used to avoid contamination.
    (ii) Seed containers shall be properly labeled at all times and handled so as to prevent mixed identities. To prevent

contamination, seedling equipment shall be thoroughly cleaned before use.

(iii) Isolation strips or barriers to prevent movement of seed of the same species from adjacent areas shall be maintained until germination is complete.

(iv) If resowing is required, only seed of the same certified variety should be used.

2. **Vegetative types**: Containers or propagules shall be properly labeled with the clonal name at all times and handled so as to prevent mixed identities. Tissue culture equipment shall be thoroughly cleaned before use to prevent contamination. The following requirements shall apply solely to vegetative materials:

   (i) Adequate safeguards against mixed identities at all times throughout the propagule collection, culturing, planting, transplanting, lifting, transporting, storing, grading and packing processes. The certified clonal materials shall be kept completely separate from similar materials.

   (ii) Optimum conditions shall be maintained so that the plants will be healthy and vigorous at the time of sale.

   (iii) Labeling tags shall contain the name and address of the operator/producer, species and clone name, planting/grafting date if applicable and lot/code number.

   (iv) Vegetatively reproduced clones shall be graded, free of diseases, insects and any other damage that would adversely affect survival and growth. Insect damaged or diseased plants shall be rejected and destroyed.

   (v) Soils used for the propagation of any nursery stock/seeds/seedlings must be sufficiently sterilized to exclude pests and diseases resident in the soil. The final soil to be used for planting of the nursery stocks shall be emulated in a proper manner to ensure adequate nutrition for the growing plants. The soil mixture of loam, sand and manure in the ration of 2:1:1, is the standard recommended for most of the nursery.

   (vi) The nursery/mother garden shall be kept clean and weed free at all times.

3.5 Production of Scion/buds, Stool beds, Seed blocks and Nursery Stock

i- Site requirements to be clearly specified shall include: location, isolation distances, accessibility, water sources and water quality.

ii- Other requirements shall include information of the design and arrangement of the nursery, capacity as well as selection of the materials for construction of the nurseries.

iii- Of paramount importance, the source and quality of the growth media for raising the seedlings, types of implements to be used in the maintenance of the nursery or any growth regulators/protectors necessary for the proper nutrition of the plants must be highlighted.

Specifically, the following shall apply to scion/bud blocks, stool beds, seed blocks and nursery stock.

3.5.1 Scion/bud

(a) Unless specified, scion/bud block shall be located not less than 30 meters from any cultivated

plant or any vegetatively propagated planting materials of the same species. The ground in a scion-block, and for a distance of 6 metres surrounding it, shall be kept either clean-cultivated or in an approved, properly controlled ground cover. Certified scion/bud block trees shall be planted and maintained in a manner, and at sufficient distances, so that branches of different varieties do not overlap to avoid pest and disease contamination. Each tree shall bear a permanent registration number.

(b)The rootstock and top-stock sources of the scion/bud block trees shall have originated from foundation trees established under the certification program and these are equivalent to virus-tested trees originating through the tissue culture or other approved virus-tested sources. If the tree is scion-rooted, its source shall have met the above-mentioned requirements. Only registered trees shall be permitted in the scion/bud block.

3.5.2 Stool Beds

(a) A stool bed shall be located not less than 15 metres from any plant of any vegetatively propagated planting materials of the same species. However, non-registered stool beds may be located not less than 3 metres from registered stool bed plantings if such plantings are in production when they become subject to the certification programme. The ground in a stool bed, and for a distance of 3 metres surrounding it, shall be kept clean cultivated:

(b) Existing stool beds of any vegetatively propagated plants that index clean on the commonly used virus indicators or other pathogens shall qualify as registered stool beds. New stool beds shall have originated from foundation stock established under the certification program, or from virus-tested plants originating from tissue culture or other virus-tested

sources, and shall be located not less than 15 metres from non-registered vegetatively propagated plant hosts and not less than 3 metres from registered vegetatively propagated plants. If the tree is scion-rooted, its source shall have met the requirements of the certification programme. Only registered trees shall be permitted in the stool bed.

3.5.3 Seed Blocks

(a) A seed-block shall be located not less than 100 metres from any non-registered plant of the species in question. The ground in a seed-block and for a distance of 6 metres surrounding the seed-block shall be kept clean-cultivated or in an approved, controlled ground cover. Each tree shall bear a permanent registration number.

(b) The rootstock and top-stock sources of the seed-tree shall have originated from foundation trees established under the certification program or from virus-tested trees originating through tissue culture or other approved virus-tested sources. If the tree is scion-rooted, its source shall have met the above requirements. Only registered trees shall be permitted in the seed-block.

SECTION 4: CERTIFICATION PROCESS

Points to note

Personnel – qualification of the personnel, *(only designated inspectors as provided in the seed and plant act, 2006 shall undertake the inspection exercise)*

Registration process as a nursery operator

Registration of nurseries (location) – Application, Inspection and registration

Certification process of the materials – Application, Inspection and Certification

Inspection process

1. Plants propagated from nuclear stock material may remain nuclear stock provided that they do not leave the nuclear stock conditions. In the case of plants which are maintained by grafting onto rootstocks, the rootstocks must also be nuclear stock and shall be the responsibility of the originator of the variety or the authorized representative. It shall be used as a source of Foundation Stock.

2. Plants propagated from Foundation Stock are eligible for tagging as registered stock for one year only.

3. Plants propagated from Registered Stock are eligible for tagging as certified stock for two years only.

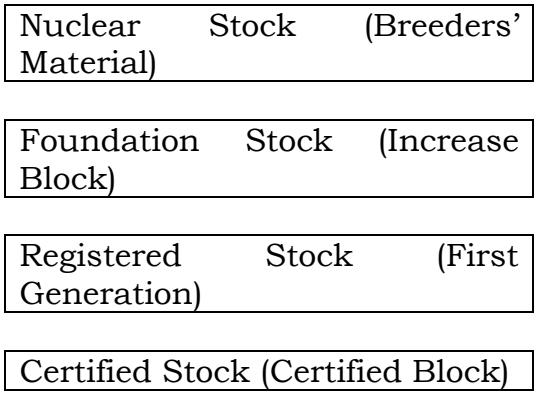
4. Tags as evidence of certification for varietal purity and freedom from pests and diseases shall be issued by the Department of Crop Inspection and Certification

5. The methods and procedures used for virus indexing shall conform to the universally accepted standards and shall be conducted in a manner determined by the Department of Crop Inspection and Certification

6. At least one visual inspection shall be made on nursery rootstock in a planting for certification during the first growing season whereas at least two visual inspections shall be made on nursery stock during the growing season following bud or graft placement.

7. All nursery stock meeting the requirements shall have the variety, interstock and rootstock certified.

Figure 1: Schematic Diagram showing the classes of certified materials



3.0 Categories for Certification

The term "certified" shall be amplified to include several categories that apply specifically to fruit tree seeds, seedlings and vegetatively propagated planting materials as follows:

1. "Certified fruit tree seeds, seedlings or clones" (blue tag) shall either be seeds, plants grown from seeds or plants vegetatively propagated from trees of proven genetic superiority and produced so as to assure genetic identity.

2. "Selected tree seed, seedlings or clones" (green tag) shall be seed, plants grown from seeds or plants vegetatively propagated from untested but rigidly selected trees that have promise but not proof of genetic superiority and produced so as to assure genetic identity.

3. "Source-identified tree seed or seedlings" (yellow tag) shall be seed, plants grown from natural population or a plantation for which the geographic location and the genetic background are clearly defined and produced so as to assure genetic identity. This does not apply to seedlings from vegetative propagation.

3.1 Conditions for Certification

Certification by Department of Crop Inspection and Certification inspectors shall not imply or be construed as any warranty by the Department or its employee as to the condition of nursery stock. The following requirements and conditions shall be met in order to qualify for consideration of certification of nursery stock:

1. The applicant for certification shall be responsible for the selection of the location and the proper maintenance of all plants being grown. The applicant shall also be responsible for maintaining the identity of all nursery stock. Any plants entered in the certification program shall be kept in the conducive growing condition and free of plant pests.

2. Trees may be registered for certification as rootstock and top-stock sources for the propagation of nursery stock when inspected, tested and found to be free from virus and virus-like diseases and having varietal purity in accordance with the seed standards.

3. No budding, grafting, or top working of registered trees in a scion-block, seed-block, or stool bed shall be permitted. Use of a certified nursery stock for scion wood shall only be allowed upon receiving permission from the Ministry and shall be subject to inspection.

Any plant found to be infected by a virus or virus-like disease, or found to be off-type, shall be removed immediately from any planting and destroyed after notification is made by the Department of Crop Inspection and Certification.

4. Once all requirements are fulfilled, the mother garden or the nursery will be registered in the Department of Crop Inspection and Certification Register, issued with a registration number and a sign post labeled "MAAIF Registered Mother Garden or Nursery" and signed by the registrar will be nailed at the mother garden or nursery for all consumers of the products.

4.3 Units of Certification

This shall be any clearly defined nursery, field or fields, which may be sub-divided, subject to specific crops as follows:

(a) **Seed category:** Certification applies only to the seed crop in one particular year of the trees specified in the application. For certified or selected tree seed, each tree shall be identifiable in the nursery or field by a registration number and its location and characteristics shall tally with the information supplied in the application. Boundaries of the seed-producing area and its isolation zone shall be distinct and unmistakable.

(b) **Seedling category:** Certification applies to one seedling crop grown from a particular lot of certified seed in a particular nursery bed or container as specified in the application.

(c) **Vegetative Category**: Certification applies to one crop vegetatively propagated from particular members of a certified clone in a particular nursery bed or containers as specified in the application. Each plant or tissue culture plants, which provide a source of propagules, shall be labeled with clone name, any other reference number and the date that it became a separate organism. If a member of the clone is planted in a row, it shall suffice to label both ends of each row.

4.4 Field Standards and Inspection Requirements

Adequate field standards should be maintained in respect of any field of vegetatively propagated planting materials as outlined below:

- There shall be restrictions on number of varieties per farm – when registered or certified planting stock is being produced. No other variety or strain of the same species shall be grown for planting

stock production without special permission from the Department of Crop Inspection and Certification.

- **Unit of Certification**: This shall be the entire acreage standing at the time of inspection as a unit from a map showing the exact size and permanent location of the field, with GPS co-ordinates.
- Production of materials from different stock sources must be maintained in separate fields.
- A field to be eligible for the production of registered or certified planting stock of any of the vegetatively propagated planting materials must be isolated from any other variety/cultivar of the same species by a strip at least 3 metres wide to preclude any possibility of mixing planting material during the digging operation.

4.5 Application for Certification

1. All application for certification of nurseries or fields shall be made on a form prescribed by the Department of Crop Inspection and Certification and shall be submitted sufficiently in advance of the time of planting so as to permit establishment of the origin of the planting stock, the determination of the suitability of location, and supervision of any treatment that may be required. The application shall include the consent of the applicant for the removal of plants from any planting for inspection or testing purposes.

2. Certification fees are payable at the time of the application and are for the sole purpose of meeting expenses incurred during the inspection, approval, or certification processes.
   Payment thereof shall not be construed as granting any right or privilege to the applicant.

3. Application for inspection: It is the responsibility of the Nursery Operators or managers of mother gardens, to ensure that they apply for inspection of nurseries/fields using the prescribed application form. This application must be submitted sufficiently in time to allow for a decision by the Department of Crop Inspection and Certification. The information to be specified in the form shall include: origin and source of materials; authentic values, i.e., agricultural versus genetic values, names and description of the varieties/nursery stocks in question. The Department of Crop Inspection and Certification retains powers to close unregistered nurseries and/or destroy unregistered vegetative propagated plants.

4.6 Inspection Procedures

Before any inspection can be carried out the following conditions must be fulfilled:

(i) **Registration of nursery operators:** Anybody who intends to engage in production and propagation of nursery stocks of any vegetatively propagated planting materials must be registered with the Department of Crop Inspection and Certification. Application for registration as a nursery operator shall be made on a form prescribed by the Department of Crop Inspection and Certification and shall be evaluated before the operator is issued with a registration certificate. Issuance of a registration certificate shall be effected upon payment of a fee determined by the Department of Crop Inspection and Certification.

(ii) **Field inspection:** Once the application is assessed, a field inspection shall be conducted to verify and confirm the cultivars stated in the form, check for isolation distances, names of varieties, labeling of fields and plots, water sources and any contamination in form of off types, weeds, pests and disease incidences, as well as plant protection measures being applied.

A field must be rogued and/or sprayed sufficiently during the growing season to remove any mixture of volunteer plants or other perennial grasses and noxious weeds.

(iii) **Time of Inspection:** an inspection must be made during the growing season at a time when there is sufficient growth to make the identification of off types, other perennial plants and noxious weeds easy. At least two field inspections shall be made for seedlings of vegetative propagated crop in the following manner:

(a) *Seedling and vegetative propagated crops:* The first inspection shall be scheduled within 30 days before or after the proposed sowing date for seedlings and the proposed propagule collection date for vegetative propagation and the second, prior to removal from the place of propagation and within 30 days before or after the date when plants are expected to attain their full size.

(b) Additional Inspections may be carried out any time without prior notice during seed or clone collection and /or the seedling or clonal crop production.

4.7 Acceptance and Issuance of Certificates: On completion of the inspection exercise, the nursery operator shall be issued with a certificate, indicating that the material has met the certification requirements. This certification shall be annual.

4.8 Refusal and Cancellation of Certification

Certification may be cancelled in accordance with the following:

(1) Failure to meet or maintain the requirements of these guidelines.

(2) Any Foundation or increase Block in which any of the following are found:
   (a) Off-type plants:
   (b) Non-thrifty plants;
   (c) An injurious systemic disease:
   (d) Evidence of pests injurious to transplants.

(3) Any Certified Block in which any of the following are found:
   (a) More than 0.02 percent off-type plants;
   (b) More than one percent non-thrifty plants;
   (c) More than 0.01 percent injurious systemic disease;
   (d) Evidence of insects injurious to transplants.

4.9 Sale of Certified Materials (Nursery Stocks)

No person shall operate a mother garden, nursery or sell seedlings, cuttings, and seeds for the purpose of vegetative propagation of any plant without being registered.

Any person selling, or offering for sale, any nursery stock or seed identified by tagging as certified nursery stock shall be responsible for the identity of such stock. All certified nursery stock offered for sale should be identified by the tags described in sub-section 4 (7) of this manual.

Schedule 1: List of crops under compulsory certification scheme

Category	**Crop**	**Botanical Names**
Fruits	Apples	*malus domestica*
Fruits	Avocado	*Persea Americana*
Fruits	Banana	*Musa spp*
Oil	Cashew nut	*Anacardium occidentale*
Staples	Cassava	*Manihot spp*
Beverages	Cocoa	*Threobroma cacao*
Beverages	Coffee	*Coffea spp*
Fruits	Citrus	*Citrus spp*
Spices	Ginger	*Zingiber officinale*
Fruits	Mangoes	*Magnifera indica*
Fruits	Paw paw	*Carica papaya*
Fruits	Peaches	*Salix amygdaloides*
Fruits	Pears	*Pyrus spp*
Fruits	Pineapples	*Ananas comosus*
Oil	Oil palm	*Elaeis guinenensis*

Seeds	Solanum potato	*Solanum tuberosum*
Beverages	Sugarcane	*Saccharum spp*
Staples	Sweet potato	*Ipomea batatus*
Beverages	Tea	*Camellia sinensis*
Spices	Vanilla	*Vanilla spp*

Schedule 2: List of Crops under Voluntary Certification Scheme

Category	**Crop**	**Botanical Names**
Multipurpose	Aleo Vera	Aloe Vera
Spices	Cardamomim	*Elettaria cardamomium*
Fruits	Jack fruit	*Articarpus heterophyllus*
Multi-purpose	Moringa	*Moringa aleifera*
Medicinal	Pyrethrum	*Chrysanthemum cineraria folium*
Medicinal	Artemesia	

Schedule 3: Seed Classes

Seed Class	**Label Colour**
Nuclear Stock	White
Foundation	Yellow
Registered	Blue
Certified	Blue

Schedule 4: Isolation Requirements

Crop	**Botanical Names**	**Seed Category**	**Isolation Distances (m)**
Apples	*Malus domestica*	Foundation Registered Certified	3.0 3.0 3.0
Avocado	*Persea Americana*	Foundation Registered Certified	3.0 3.0 3.0
Banana	*Musa* spp	Foundation Registered	3.0 3.0

		Certified	3.0
Cashew nut	*Anacardium occidentale*	Foundation Registered Certified	3.0 3.0 3.0
Cassava	*Manihot spp*	Foundation Registered Certified	3.0 3.0 3.0
Cocoa	*Threobroma cacao*	Foundation Registered Certified	3.0 3.0 3.0
Coffee	*Coffea spp*	Foundation Registered Certified	3.0 3.0 3.0
Citrus	*Citrus spp*	Foundation Registered Certified	3.0 3.0 3.0
Ginger	*Zingiber officinale*	Foundation Registered Certified	3.0 3.0 3.0
Mangoes	*Magnifera indica*	Foundation Registered Certified	3.0 3.0 3.0
Paw paw	*Carica papaya*	Foundation Registered Certified	3.0 3.0 3.0
Peaches	*Salix amygdaloides*	Foundation Registered Certified	3.0 3.0 3.0
Pears	*Pyrusspp*	Foundation Registered Certified	3.0 3.0 3.0
Pineapples	*Ananas comosus*	Foundation Registered Certified	3.0 3.0 3.0
Oil palm	*Elaeis guinenensis*	Foundation Registered Certified	3.0 3.0 3.0
Solanum potato	*Solanum tuberosum*	Foundation Registered Certified	3.0 3.0 3.0
Sugar cane	*Saccharum spp*	Foundation Registered Certified	3.0 3.0 3.0
Sweet potato	*Ipomoea spp*	Foundation	3.0

		Registered Certified	3.0 3.0
Tea	*Camellia sinensis*	Foundation Registered Certified	3.0 3.0 3.0
Vanilla	*Vanilla spp*	Foundation Registered Certified	3.0 3.0 3.0

Schedule 5: Weed Standards

Standards: Weeds, off types Pests and Diseases, Unhealthy, etc.

Crop	**Botanical Names**	**Seed Category**	**Acceptable Levels**
Apples	*Malus domestica*	Foundation Registration Certified	0.01% 0.02% 0.05%
Avocado	*Persea americana*	Foundation Registered Certified	0.01% 0.02% 0.05%
Banana	*Musa spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Cashew nut	*Anacardium occidentale*	Foundation Registered Certified	0.01% 0.02% 0.05%
Cassava	*Manihot spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Cocoa	*Threobroma cacao*	Foundation Registered Certified	0.01% 0.02% 0.05%
Coffee	*Coffea spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Citrus	*Citrus spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Ginger	*Zingiber officinale*	Foundation Registered Certified	0.01% 0.02% 0.05%
Mangoes	*Magnifera indica*	Foundation Registered Certified	0.01% 0.02% 0.05%

Paw paws	*Carica papaya*	Foundation Registered Certified	0.01% 0.02% 0.05%
Peaches	*Salix amygdaloides*	Foundation Registered Certified	0.01% 0.02% 0.05%
Pears	*Pyrus spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Pineapples	*Ananas comosus*	Foundation Registered Certified	0.01% 0.02% 0.05%
Oil Palm	*Elaeis guinenensis*	Foundation Registered Certified	0.01% 0.02% 0.05%
Solanum potato	*Solanum tuberosum*	Foundation Registered Certified	0.01% 0.02% 0.05%
Sugar cane	*Saccharum spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Sweet potato	*Ipomoea spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Tea	*Camellia sinensis*	Foundation Registered Certified	0.01% 0.02% 0.05%
Vanilla	*Vanilla spp*	Foundation Registered Certified	0.01% 0.02% 0.05%

Schedule 6: Off types

Crop	**Botanical Names**	**Seed Category**	**Acceptable Levels**
Apples	*Malus domestica*	Foundation Registration Certified	0.01% 0.02% 0.05%
Avocado	*Persea americana*	Foundation Registered Certified	0.01% 0.02% 0.05%
Banana	*Musa spp*	Foundation Registered Certified	0.01% 0.02% 0.05%

Cashew nut	*Anacardium occidentale*	Foundation Registered Certified	0.01% 0.02% 0.05%
Cassava	*Manihot spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Cocoa	*Threobroma cacao*	Foundation Registered Certified	0.01% 0.02% 0.05%
Coffee	*Coffea spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Citrus	*Citrus spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Ginger	*Zingiber officinale*	Foundation Registered Certified	0.01% 0.02% 0.05%
Mangos	*Mangnifera indica*	Foundation Registered Certified	0.01% 0.02% 0.05%
Paw paws	*Carica papaya*	Foundation Registered Certified	0.01% 0.02% 0.05%
Peaches	*Salix amygdaloides*	Foundation Registered Certified	0.01% 0.02% 0.05%
Pears	*Pyrus spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Pineapples	*Ananas Comosus*	Foundation Registered Certified	0.01% 0.02% 0.05%
Oil Palm	*Elaeis guinenensis*	Foundation Registered Certified	0.01% 0.02% 0.05%
Solanum potato	*Solanum tuberosum*	Foundation Registered Certified	0.01% 0.02% 0.05%
Sugar cane	*Saccharum spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Sweet potato	*Ipomoea spp*	Foundation Registered Certified	0.01% 0.02% 0.05%

Tea	*Camellia sinensis*	Foundation Registered Certified	0.01% 0.02% 0.05%
Vanilla	*Vanilla spp*	Foundation Registered Certified	0.01% 0.02% 0.05%

Schedule 7: Disease tolerance

Crop	**Botanical Names**	**Seed Category**	**Acceptable Levels**
Apples	*Lannea coromandelica*	Foundation Registered Certified	0.01% 0.02% 0.05%
Avocado	*Persea Americana*	Foundation Registered Certified	0.01% 0.02% 0.05%
Banana	*Musa spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Cashew nut	*Anacardium occidentale*	Foundation Registered Certified	0.01% 0.02% 0.05%
Cassava	*Manihot spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Cocoa	*Threobroma cacao*	Foundation Registered Certified	0.01% 0.02% 0.05%
Coffee	*Coffeaspp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Citrus	*Citrus spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Ginger	*Zingiber officinale*	Foundation Registered Certified	0.01% 0.02% 0.05%
Mangos	*Magnifera indica*	Foundation Registered Certified	0.01% 0.02% 0.05%
Paw paws	*Carica papaya*	Foundation Registered Certified	0.01% 0.02% 0.05%

Peaches	*Salix amygdaloides*	Foundation Registered Certified	0.01% 0.02% 0.05%
Pears	*Pyrus spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Pineapples	*Ananas Comosus*	Foundation Registered Certified	0.01% 0.02% 0.05%
Oil Palm	*Elaeis guinenensis*	Foundation Registered Certified	0.01% 0.02% 0.05%
Solanum potato	*Solanum tuberosum*	Foundation Registered Certified	0.01% 0.02% 0.05%
Sugar cane	*Saccharum spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Sweet potato	*Ipomea spp*	Foundation Registered Certified	0.01% 0.02% 0.05%
Tea	*Camellia sinensis*	Foundation Registered Certified	0.01% 0.02% 0.05%
Vanilla	*Vanilla spp*	Foundation Registered Certified	0.01% 0.02% 0.05%

Schedule 8: Fees

Seed class	**Label Color**	**Fees**
Nuclear Stock	White	
Foundation	Yellow	
Registered	Blue	
Certified	Blue	

Annex 1

APPLICATION FOR CERTIFICATION OF A NURSERY/MOTHER GARDEN FOR VEGETATIVELY PROPAGATED PLANTING MATERIALS

1. Applicant entity (Reg. No:)
Name: Address: Village: Parish: Sub county: District: Telephone no:
2. Nursery/Mother Garden In Charge
Name: Position: Qualification: Address: Telephone No:

3. Particulars of the Nursery/Mother Garden/ Names
Public sector • Public Institutions eg. ZARDIS • State funded Nursery/Mother Gardens Private Sector NGO: Others:
4. Plant species multiplied
5. Infra-structure available (Please provide details including list of major equipment, instruments and capacity. Eg Green house, nursery/shade house
6. Staff Details; (Please provide details about qualification and relevant experience of technical staff and non-technical staff. 7. Reporting system for technical supervision and monitoring of production process
8. In house mechanism for quality control and quality assurance
9. Proof of laboratory tested root stocks and scions

REFERENCES

1. European and Mediterranean Plant Protection Organisation (EPPO)
   Standards. 2002. Production of healthy plants for planting. EPPO Bulletin **32**: 49-53.

2. European and Mediterranean Plant Protection Organisation (EPPO)
   Standards. 2004. Schemes for the production of healthy plants for planting. EPPO Bulletin **34:** 145 – 147.

3. Nursery Requirements. Bulletin OEPP/EPPO **31**: 441-444.

4. Seed Potatoes. Bulletin OEPP/EPPO **29**:253-267.

5. Pathogen-tested material of grapevine varieties and rootstocks. Bulletin OEPP/EPPO 24:347-367.

6. Pathogen-tested citrus trees and rootstocks. Bulletin OEPP/EPPO **25**:737-755.