DRAFT TANZANIA STANDARD

Sweet Orange *(Citrus sinensis* L.) seed — Requirements for certification

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TANZANIA BUREAU OF STANDARDS

Sweet Orange *(Citrus sinensis* L.) seed — Requirements for certification

1. Scope

This Tanzania standard specifies the certification requirements for pre-basic and certified seed of sweet orange (*Citrus sinensis* L.).

It includes requirements for eligible varieties, application for certification, field, field inspection, seed sampling, laboratory testing, certificates, packaging, labelling and post-control plot.

2. Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced documents (including any amendments) applies.

International Rules for Seed Testing Published by the International Seed Testing Association (ISTA)

OECD Seed Schemes for Varietal Certification or the Control of Seed Moving in the International Trade

OECD Seed Schemes; Guidelines for Control Plot Tests and Field Inspection of Seed Crops

3. Terms and definitions

For the purposes of this standard, the terms and definitions given in ISTA, OECD referenced documents and the following apply.

3.1
seed test certificate
legal document issued by the national seed certification authority, which states that a seed lot has met the prescribed requirements set in this standard

3.2
distinctness
variety is deemed to be distinct if it is clearly distinguishable in at least one character from any other variety whose existence is a matter of common knowledge at the time of filing the application for registration

3.3
field
defined and identifiable area of land or facility that is used to produce a seed crop under the Seed Certification Scheme

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3.4
field inspection
examination of a field and or seed crop, by an inspector to check if the prescribed requirements for seed certification have been satisfied

3.5
field number
number assigned to the field by the national seed certification authority, when the application form for certification is submitted

3.7
seed grower
person or entity registered to produce seed

3.8
isolation
prescribed distance or time between crops that is required to prevent contamination either mechanically or by cross pollination

3.9
inspector
authorized or licenced official responsible for carrying out field examination for seed certification purposes

3.10
international seed testing association (ISTA) rules
instructions for seed testing that should be adhered to published by the International Seed Testing Association

3.11
label
tag or other device that is attached to, written, stamped, or printed on any container of seed or that accompanies any lot of bulk seed and which describes the kind of seed and any other information required by relevant regulation

3.12
rotation
planting a different crop on a particular piece of land in a prescribed growing season that is required as a useful tool in preventing soil diseases, insect pests, weed problems and for building healthy soils.

3.13
maintainer
person or organisation responsible for the production or maintenance of a bred variety included in a national list of varieties/variety catalogue eligible for certification, and ensure that the variety remains true to type throughout its full life-span

3.14
national seed certification authority
national designated authority responsible for conducting seed certification processes

3.15
off-type
plant of the same species which does not exhibit the recognised and accepted habit and characteristics of the variety being grown

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3.16
parental material
population or lines used by a breeder to maintain a variety

3.17
pure seed
species stated by an applicant, or found to predominate in a test, and includes all botanical varieties and cultivars of that species, including intact seeds and pieces of seed units larger than one-half their original size

3.18
variety registration
listing of an approved new variety in a national variety catalogue after it has been tested and satisfied the prescribed requirements for distinctness, uniformity, stability, and has value for cultivation and use

3.19
rogueing
removal of off-types and diseased plants or any other unwanted plant from a seed crop if they may reduce the quality of the harvested crop

3.20
seed certification
process by which the quality and identity of a seed lot is assured through official control and inspection by designated seed certification authority

3.21
seed lot
defined quantity of seed bearing the same reference number and for which the origin, production history and identity is known

3.22
stability
condition where distinguishing characteristics of a variety remain unchanged after repeated growing cycles

3.23
uniformity
condition of a variety, subject to the variation that may be expected from the particular features of its propagation, to remain sufficiently homogeneous in its relevant characteristics

3.24
variety
assemblage of cultivated plants that is clearly distinguished from other plants by any characters (morphological, physiological, cytological, chemical, or others) and which retains its distinguishing characteristics when reproduced by the normal means for the crop

3.25
variety catalogue
list of varieties that have been registered by a national designated authority

3.26
carryover seed
seed produced and certified in previous season and stored for one or more cropping seasons/ or past its valid test duration

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3.27

seed dealer

any registered person, firm, agency, cooperative engaged in the production, processing or marketing of seeds

3.28
seed
planting materials used for generative propagation of plants

3.29
breeder seed
nucleus seed from the breeder and is used to produce pre-basic seed

3.30
pre-basic seed
seed that is derived from breeder seed and shall be produced under the responsibility of the breeder or maintainer through one cycle of multiplication

3.31
certified seed
seed that is produced from pre-basic seed under the responsibility of a seed dealer other than the breeder or maintainer

3.32
scion
a young shoot or twig of a plant especially used for vegetative propagation

3.33
bud
a small growth at the tip or on the side of a plant stem that later develops into a new shoot

3.34
rootstock
part of a plant (base and root portion) from which new above ground growth can be produced through vegetative propagation (grafting and budding)

3.35
clone
plants that are able to propagate by asexual means to produce genetically identical plants.

3.36
budding
a vegetative propagation technique in which a single bud from a desired plant is used to generate a new plant of desired characteristics.

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4. General requirements

Key parameters required to implement this standard are elaborated in the variety descriptors, field and laboratory requirements

4.1 Eligible varieties

4.1.1 Varieties eligible for seed certification shall be those registered in the variety catalogue.

4.1.2 The national seed certification authority shall keep the official descriptor of the varieties in hard and electronic copies.

4.2 Inspection and laboratory testing

4.2.1 The minimum information for an application for certification of a seed crop shall include the following:

a) name, address and contact details of the seed grower;

b) crop and variety to be sown;

c) physical location;

d) area and reference number of the field, and its cropping history for the past two cropping seasons;

e) class of seed to be produced; and

f) registration number of the seed dealer.

4.2.2 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.

4.2.3 The inspection of seed crops shall be done in accordance with OECD Seed Schemes; Guidelines for Control Plot Tests and Field Inspection of Seed Crops. If the field is found to be in conformity with the standards stated in Field requirements (Table 1) it is approved.

4.2.4 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 ISTA rules.

4.2.5 A seed lot that conforms to the standards set out in laboratory requirements (Table 2) shall be given a seed test certificate and a unique reference number to confirm its status under the certification scheme.

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5. Seed classes

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

a) Pre-basic seed; and

b) Certified seed

6. Land Requirements

Land to be used for clonal propagation of sweet orange shall be free from volunteer plants and soil borne disease.

7. Field Requirements

7.1. Pre-basic seed/clones shall be produced under the responsibility of the breeder or maintainer.

7.2. Certified seeds shall be produced in one generation.

7.3. The national certification authority shall inspect and certify the production of pre-basic and certified seed crops.

7.4. A field producing sweet orange seedlings shall be approved for certification if it complies with the requirements in Table 1

Table 1. Field requirement for certification

S/N	Variable		Pre-basic		certified
i.	Rotation, season, min.		2		2
ii.	Isolation, m, min.		2		2
iii.	Pure living clones (%), min.		99		99
iv.	Other living plants including Rootstocks (%), max.		1		1
v.	Off-types per 1000 plants, max.		1		1
vi.	No. of inspection, min	Rootstock	1		1
		scion (at fruit maturity)	1		1
		grafted (before sale of clones or budded	1		1
vii.	Plants infected with virus		0		0
viii.	Plants infected with dieback, max, %		0		0.5
ix.	Parasitic weed (*cuscuta campestris)*		0		0

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7.5. Fields may be rejected for certification because of unsatisfactory condition caused by poor growth, poor stands, excessive disease presence, insect damage, and any other condition that prevents accurate inspection or creates doubt as to the identity of the variety.

7.6. Clone specifications

a) The specification in respect of size of clones for pre-basic and certified classes shall be as follows:

b) The minimum diameter of the rootstock should be 0.6 cm

c) The height of the budding point should range from 25-30 cm.

d) The diameter of budding at 10 cm above the bud union should range from 0.6 – 1 cm

e) The height of the plant should be 30-40 cm

f) The budded clone should be free from suckers.

g) In the clone lot, clones not conforming to specified size shall not exceed 5.0% (by number).

8. Seed sampling and laboratory standards

8.1 The seedlings from the field approved for certification shall be kept as an identified unit until processing. After processing, sampling shall be done in accordance to ISTA rules and submitted to the laboratory for testing where a conformed sample shall be given a certificate with a unique lot number for the purpose of tracking.

8.2 The maximum size of a clonal lot for certification purposes is 100 000 plants; lots larger than this shall be divided and given separate lot numbers.

8.3 Laboratories authorized by the national seed certification authority to conduct seed testing for certification shall follow the methodology established in the ISTA rules for sweet orange seed.

8.4 The seed lots shall comply with the laboratory requirements specified in Table 2.

Table 2 — Laboratory requirements for certification

S/No	Variable	Pre-basic		Certified
i.	Diseases (%), max • Plants infected with viruses	0		0
	• Die back (*Phytophthora cinnamom*i) (%)	0		0.5
	• Citrus greening or Huanglong Bing (HLB)	0		0
	• Psorosis (*Citrus psorosis ophiovirus*)	0		0
	• Citrus tristeza	0		0

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8.5. The laboratory test report shall be issued in accordance with Annex B

9. Certificates

9.1 The seed test certificate for a seed lot shall be signed and issued by the national seed certification authority and shall include all information presented in Annex C. This certificate shall be valid for a period of five months.

9.2 Carryover seeds shall be transferred into relatively larger polythene bags so that the roots will not exceed the size of the bag. Carryover seeds shall be re-examined and if it complies with this condition, a new test certificate shall be issued for the seed lot, which cancels the previously issued certificate, and shall include the certificate number of the cancelled certificate.

10. Packaging and labelling

10.1 All classes of seed that have been certified shall be packaged in new containers which shall be marked with the company name and crop species and shall have the official label of the national seed certification authority.

10.2 The labels for each class are identified by the following colours:

- Pre-basic seed: Violet band on white
- Certified Seed Blue

10.3 If budded clones are treated with any chemical harmful for human or animal, the container shall carry a label stating the chemical used and warning of the health risks using English and Swahili.

10.4 The labels shall be prominent, indelible, legible and fixed to the containers by an authorized person in such a way that they cannot be destroyed or easily removed. The following information shall be included on the official labels:

- name of the crop, “sweet orange seed”;
- species (Latin name);
- variety denomination;
- seed lot number;
- test certificate number;
- date of test;
- net weight;
- clone treatment declaration (if applicable)

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- logo of the national certification authority;
- name and address of certifying authority;
- seed class;
- year and country of production; and
- statement of re-packing and re-labelling (if applicable).

10.5 Repackaging and relabelling are authorized in the following cases:

a) the national seed certification authority may authorize the re-packaging and re-labelling of a particular seed lot that is produced in another country, but shall retain the original label information of the producing country; and
b) where screen house or reusable polysheet is used treatment is compulsory in all seed Class
c) where new polysheet is used no rotation or treatment is applicable in all seed Class

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Annex A
(normative)

Field inspection report

Reference number.....
Date of the report.....

Seed grower information
Name …… Address ……
Telephone: …… E-mail.....……
Registration number……. Number of inspections.....
Field location
Province/Region..... District .....Sector .....
Latitude..... Longitude ……. Field number.....
Field size (Ha/acre) ……..... Cropping season ……. Crop species …….....
Seed class ……..…… Variety …… Rotation……

Variable		**Observations/results**	**Comments/remarks**
Isolation, m			
Off types			
Deliberative disease			
General conditions of the crop (for example, drought, crop husbandry, etc.)			

Decision

Decision on the approval	**Justification**
The seed crop is approved for certification	
The seed crop is not approved for certification	

Name of seed grower **Name of Inspector**

Date &signature **Date, signature & stamp**

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Annex B
(informative)

Seed laboratory test report

Name of seed grower				
Species, variety, class,				
Testing and Issuing laboratory				
Sampled by				
Test number				
Country of origin				
Label serial number				
Seed Lot Reference Number:				
Number of containers	Date of sampling	Date sample received	Date test(s) concluded	Test number
ANALYSIS RESULTS				
Deliberative disease				
Other determinations				
Decision on the approval	**Justification**			
The seed crop is approved for certification				
The seed crop is not approved for certification				
Place	Date	Name & Signature		

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Annex C
(Normative)

Seed test certificate

This certificate is issued for a seed lot which has satisfied all the requirements of the certification scheme

Previously issued certificate number.....		Certificate No. …….		Standard: .....
APPLICANT INFORMATION				
Seed Lot Reference Number	Species and Variety	Class	number of a lot	Number of containers
Name of testing laboratory:		Test number:		
ANALYSIS RESULTS				
Deliberative disease				
Other determinations		Statement of packaging and re-labelling: (if applicable)		

National Seed Certification Authority
Signature …….
Place and Date …….

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