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Sweetpotato seed — Requirements for certification

EAST AFRICAN COMMUNITY

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Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Seed classes	4
5 General requirements	4
6 Eligible varieties	4
7 Application requirements for certification	4
8 Field inspection	5
9 Field requirements	5
10 Postharvest inspection requirements	6
11 Packaging	6
12 Labelling	7
13 Post control tests	7
Annex A (normative) Form for application for field inspection of a seed crop	8
Annex B (informative) Form for field inspection report	10
Annex C (normative) Inspection procedure	12
C.1 Purpose	12
C.2 Scope	12
C.3 Equipment and tools	12
C.4 Procedure details	12
C.4.1 Stage 1: Source of seeds	12
C.4.2 Stage 2: Confirmation of field size and previous cropping	13
C.4.3 Stage 3: Checking isolation distance	13
C.4.4 Stage 4: Checking the general status of the field	13
C.4.5 Stage 5: Detailed examination of off-types and diseases	13
C.5 Sampling	13
C.5.1 General	13
C.5.2 Examination of off-types	13
C.5.3 Examination of diseases	14
C.5.4 Examination of pests	14
C.5.5 Decision taking	14
C.5.6 Reporting	14
Bibliography	15

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the principles and procedures for development of East African Standards.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 012, *Seed and propagation materials*.

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Sweetpotato seed — Requirements for certification

1 Scope

This draft East African Standard specifies the certification requirements for pre-basic, basic, and certified sweetpotato seed (*Ipomoea batatas* (L) Lam).

It covers requirements for eligible varieties, application for certification, field requirements, field inspection, requirements for eligible varieties, application for certification, field requirements, field inspection, storage inspection, size and grading, packaging and labelling.

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 document (including any amendments) applies.

Organization for Economic Co-operation and Development (OECD) Schemes for Varietal Certification or the Control of Seed Moving in the International Trade

International Union for the Protection of New Varieties of Plants (UPOV)

3 Terms and definitions

For the purposes of this standard, the terms and definitions given in UPOV and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

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

3.2

field

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

3.3

field inspection

inspection of a field and or seed crop, by an inspector to check if the minimum requirements for seed certification have been met

- 3.4
field number**
number assigned to the field when the application form for certification is submitted
- 3.5
seed producer**
person or entity registered to produce seed
- 3.6
isolation**
minimum distance or time between two crops of groundnuts that is required to prevent contamination either mechanically or by cross pollination
- 3.7
inspector**
authorized official or accredited entity responsible for carrying out seed certification activities
- 3.8
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 laws and regulations
- 3.9
previous cropping**
minimum number of growing seasons that elapse between the production of a crop of the same species in a field and the production of a crop entered in the certification scheme in the same field
- 3.10
maintainer**
person or organisation responsible for the production or maintenance of a bred variety included in a national list of varieties eligible for certification, and ensures that the variety remains true to type throughout its full life-span
- 3.12
off-type**
plant of the same species which does not exhibit the recognized and accepted habit and characteristics of the variety being grown
- 3.13
variety catalogue**
detailed list of varieties that have been registered by a national designated authority
- Note 1 to entry: Variety registration is inclusion of an approved new variety in a national variety catalogue when it has been tested and satisfied the requirements for distinctness, uniformity, stability (DUS), and has value for cultivation and use.
- 3.14
roguing**
removal by hand or other means of off-types, other varieties, and diseased or any other unwanted plants from a seed crop
- 3.15
seed certification**
process by which the quality and identity of a seed lot is assured and which is represented to the purchaser by attaching an official certification label to the package

3.16

seed lot

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

3.17

stability

condition of a variety distinguishing characteristics to remain unchanged after repeated growing cycles

3.18

uniformity

variety is deemed to be uniform if, subject to the variation that may be expected from the particular features of its propagation, it is sufficiently uniform in its relevant characteristics

3.19

variety

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

3.20

national list of varieties

list of varieties that have been registered by a national competent authority and can be produced and marketed as certified seed

3.21

ratoon

new shoot or sprout springing from the base of a sweetpotato seed plant after harvesting

3.22

pre-basic seed

seed that is derived from breeder seed that is used to produce basic seed through one cycle of multiplication

Note 1 to entry: Breeder seed is an original parental material produced by the breeder and which is multiplied through one or more generations to produce pre-basic seed.

3.24

seed

cutting of sweetpotato used for vegetative propagation of plants

2.25

basic seed

seed that has been produced from pre-basic seed that is used for the production of certified seed

3.26

certified seed

seed that is produced from basic seed through one or two generations of multiplication

3.26.1

certified seed 1st generation

first generation of seed derived from basic seed

3.26.2

certified seed 2nd generation

second generation of seed derived from certified seed 1st generation which is multiplied once

4 Seed classes

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

- a) pre-basic seed;
- b) basic seed; and
- c) certified seed:
 - i) 1st generation (C1); and
 - ii) 2nd generation (C2).

5 General requirements

5.1 Sweetpotato seed shall be free from pests of quarantine importance and regulated non-quarantine pests with zero tolerance and meet the requirements specified in Table 1 in regard to the regulated non-quarantine pests, injurious diseases and pests and from any defects likely to impair their quality as seed.

5.2 Sweetpotato seed shall be substantially free from external surface moisture and, in general, of normal shape for the variety.

5.3 Soils from fields intended for sweetpotato seed production shall be free from sweetpotato weevils, root knot nematodes and root rots

6 Eligible varieties

6.1 Varieties eligible for seed certification shall be those that have been registered in at least one-member country of the EAC in the national list of varieties/national variety catalogue. The country adopting the variety shall test it for at least one season.

6.2 The national seed certification authority shall keep the official descriptor of the varieties it has registered in hard and electronic copies and these shall be made available within EAC on request.

7 Application requirements for certification

7.1 The minimum requirements for application of certification of a seed crop shall include the following:

- a) name, address and any other contact details of the seed company/seed grower;
- b) crop and variety to be planted;
- c) physical location;
- d) area and reference number of the field and cropping history for the past three cropping seasons;
- e) class of seed used during planting and class of seed to be produced; and
- f) registration number of the seed company/seed grower.

7.2 Information and crops related to the previous cropping history, origin of seed planted and field inspection shall be kept and used for certification to ensure full traceability of quality, genetic identity and purity of the seed harvested.

7.3 Seed grower of pre-basic, basic and certified seeds shall apply for certification of a seed crop not later than three weeks (21 days) after planting by filling the form in Annex A.

8 Field inspection

8.1 The National Seed Certification Agency shall prepare the inspections' schedule for the inspectors, based on all necessary information on the application form, to ensure that the timing of inspections allows the requirements in Table 1 to be properly assessed.

8.2. A minimum of two field inspections shall be made during the growing season for both basic and certified seed.

8.3 At the time of the first inspection, the inspector shall confirm with the grower the previous cropping of the field, checking on isolation, and the proof of origin/authentication of the variety planted by using the labels.

8.4 The inspector shall inspect the field in accordance with the procedure provided in Annex C.

8.5 The field inspection report shall indicate the field status and comments for any corrective actions required such as re-inspection to confirm the field standards. All field inspection reports shall be provided to the grower and applicant after each inspection in a timely manner. The field inspection report in Annex B shall be signed by both parties, i.e. inspector and producer or the producer's representative.

9 Field requirements

9.1 Pre basic shall be produced under the responsibility of the breeder or the maintainer.

9.2 Basic seed shall be produced under responsibility of licensed seed grower(s).

9.3 A field producing sweetpotato seed shall be approved for certification if it complies with the requirements given in Table 1.

9.4 The production of seed through ratoons shall be allowed by the inspector during the last inspection based on the quality of the seed mother crop.

9.5 Fields may be rejected for certification due to unsatisfactory conditions caused by noxious weeds, poor growth, poor stands, excessive disease presence, pest damage, and any other condition that prevents accurate inspection or creates doubt as to the identity of the variety.

Table 1 — Field requirements for sweetpotato seed crops

S/N	Parameters	Seed classes			
		Pre-basic	Basic	C 1	C 2
i.	Varietal purity (%)	100	100	99	99
ii.	Field isolation distance (m) (with suitable barrier crop) (Minimum)*	10	10	5	5
iii.	Previous cropping season (Min)	2	2	2	2
iv.	Permitted ratoons, Max	3	2	1	0
v.	Diseases				
vi.	SPVD causing viruses, Max %	0	0	0	0
vii.	Alternaria blight, Max %	0	0	1	2
viii.	Stem blight, max %	0	0	0	0
ix.	Fusarium wilt, max %	0	0	0	0
x.	Nematodes (affected plants), Max. %	0	0	0	02
xi.	Insect pests				
xii.	Sweetpotato butterfly/ caterpillars, counts per 100 plants, Max. %	-	2	5	5
xiii.	Sweetpotato weevils, Max %	0	0	0	0
xiv.	Mites/thrips, Max %	2	3	5	5
xv.	Aphids/Whiteflies (adults per 100 plants, Max %)	0	5	5	5

10 Postharvest inspection requirements

Postharvest inspection of Sweetpotato seed shall be done in accordance with the criteria given in table 2

Table 2 — Post-harvest requirements for sweetpotato seed

Criteria	Limits
Harvesting age: new crop	2-3 months
harvesting age: ratoon crop, Minimum	1-3 months after first cutting
length of cutting for root production, Minimum	15 to 30 cm long (with 3-5 nodes)
length of cutting for rapid multiplication, Minimum	15 cm
Off types and other varieties, max %	0
Observable Diseases and pests, max %	0

11 Packaging

All categories of seed that have been certified shall be packaged in containers that safeguard the quality of the seed.

12 Labelling

12.1 Each package shall have the official label of the national designated seed certification authority.

12.2 The labels for each category shall be identified by the following colours:

- a) pre-basic (white with diagonal stripes);
- b) basic seed (white);
- c) Certified seed 1st generation (C1): (blue); and
- d) Certified seed 2nd generation (C2): (red).

12.3 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 language on the label shall be English and any other official language of Partner State may be used. The following information shall be included on the official labels provided by national seed certification authority:

- a) name of the multiplier and contact details (cell phone number, village and district);
- b) crop name, variety name and seed class (e.g. pre-basic, basic, certified);
- c) original source;
- d) number of cuttings (optional);
- e) year of production;
- f) date of packing;
- g) name of certifying authority;
- h) lot reference number per harvest/batch;
- i) variety Information (e.g. flesh colour, skin colour, yield, maturity period, dry matter; susceptibility to diseases and pests).
- j) certificate number; and
- k) declaration of GMO status where applicable.

12.4 The nature of the active substance of any chemical treatment of the seed potato shall be indicated either on the outside of the unit of presentation, on the official label or a label provided by the supplier or printed on the unit of presentation. This information may also appear inside the unit of presentation.

12.5 If re-inspection is conducted, the authority which carried out the re-inspection shall be stated on the new label, as well as the date of the re-sealing. Re-labelling shall be done under the supervision of the national designated authority. If a new label is necessary, this shall show the particulars, which appeared on the old label, the date of the re-closing and the authority concerned, national designated authority/certification

13 Post control tests

The post control tests shall be carried out in accordance with OECD Schemes for Varietal Certification or the Control of Seed Moving in the International Trade.

Annex A (normative)

Form for application for field inspection of a seed crop

FORM

Grower No.....

APPLICATION FOR FIELD INSPECTION OF A SEED CROP

1. Full name of grower _____ Physical location/GPS
coordinates _____

Postal Address _____ Tel. No. _____

2. Farm on which the seed crop is being grown _____ L/R. No.

3. Details of crop (Every crop regardless of size shall be mentioned separately. a crop is field
planted within 5 days).

Crop

Field crop No.	Species	Variety	Lot No. of seeds used	Class of seed used	Ha	Date planted	Approx' date of harvest	Previous cropping history		
								Season 1	Season 2	Season 3

4. Seed rate per hectare _____ kg

5. I have enclosed _____ as proof of origin.

6. The person who will daily be in charge of this seed crop is (name/telephone number)

7. Declaration:

I hereby declare that all information provided here is true to the best of my knowledge and belief and I shall always observe all conditions governing Seeds production as provided in the Seeds Act and Regulations.

Date Signature of applicant.....

Stamp of seed dealer.....

Annex B (informative)

Form for field inspection report

FORM

Date.....

G/No.....

FIELD INSPECTION REPORT

Growers Name _____ Species _____

Variety _____ Field No. (s) Name _____

Crop No.(s) _____ Hectares _____ Class _____

☐ 1st ☐ 2nd ☐ 3rd Inspection (tick)

ITEMS:

1. is the crop true to type? ☐ Yes ☐ No ☐ Doubtful

Remarks.....

2. Isolation in distance/time ☐ satisfactory ☐ Not Satisfactory

Remarks.....

3. Off-type(s) (describe).....

Remarks.....

4. Noxious Weeds (Specify)

Total found.....

5. Other Crop Species (specify).....

6. Health (Diseases).....

7. Crop Stand ☐ Good ☐ Satisfactory ☐ Not satisfactory

Remarks.....

8. Estimated yield at final inspection.....

No of counts made..... Average count.....

No of plants counted..... tassels/selfing plant found.....%

CROP RESULT ☐ Pending ☐ Approved rejected because of

.....

If to be re-inspected within days

Further remarks

..... Bags/ha

Copy to: _____

Seed Inspector(s) Name.....Signature.....

Annex C (normative)

Inspection procedure

C.1 Purpose

This procedure is intended to provide guidelines for the seed inspector. They are intended to address the methods used to determine the status of seed potato as provided in the relevant standards.

C.2 Scope

This procedure covers inspection of the general status of the seed crop, identification of the source of the seed, isolation, previous cropping, genetic purity and health status of the seed crop.

C.3 Equipment and tools

The inspector shall be equipped with the following:

- a) current national seed law, regulations and relevant standards,
- b) seed crop declaration form,
- c) variety descriptors,
- d) seed inspector service card or letter of introduction,
- e) tally counter,
- f) support literature,
- g) measuring wheel/GPS,
- h) protective clothing,
- i) report book, and
- j) calculator.

C.4 Procedure details

C.4.1 Stage 1: Source of seeds

C.4.1.1 In order to authenticate the identity of the seed planted, the seed grower retains at least one label from each seed lot used to plant the crop.

C.4.1.2 The inspector checks the details provided on the label against those on the seed crop declaration form and confirms the identity of the variety.

C.4.1.3 The inspector proceeds to next stage if the declared information corresponds to that on the label otherwise the field is automatically rejected.

C.4.2 Stage 2: Confirmation of field size and previous cropping

C.4.2.1 The seed inspector interviews the seed grower on details of previous cropping seasons of the field.

C.4.2.2 In case the previous cropping requirements are met, the inspector proceeds to the next stage.

C.4.2.3 The seed inspector, by using GPS or measuring wheel, calculates the area of the field to confirm to the declared area.

C.4.3 Stage 3: Checking isolation distance

The inspector checks isolation of the seed crop whilst walking around its perimeter. If the required distance is not met, the inspector evaluates any risk of physical mixture and seed born disease contamination and makes the relevant decision/recommendation.

C.4.4 Stage 4: Checking the general status of the field

C.4.4.1 The inspector assesses the general status of the field and determines whether it is in satisfactory condition to permit the detailed examination of plants for varietal purity.

C.4.4.2 Seed crop which is highly infested with weeds, stunted or poorly grown because of disease, pests or other causes and which cannot be assessed for other parameters is rejected.

C.4.5 Stage 5: Detailed examination of off-types and diseases

The final stage in inspection is the assessment of varietal purity and health status of the seed crop. This is done when the crop location, source of seeds, varietal identity, isolation and crop condition are all satisfactory. To do this, it is necessary to follow a sampling procedure which focuses attention on small areas of the seed crop for detailed examination.

C.5 Sampling

C.5.1 General

C.5.1.1 The inspector does the counts following a walking pattern that enables him/her to extrapolate the whole field while sampling.

C.5.1.2 The number of counts (samples) depends on the size of the field, five counts for a field up to 2 ha and an increase of one count for each increase of 2 ha.

C.5.1.3 The sample corresponds to a count of 100 plants.

NOTE One plant corresponds to all progenies deriving from one seed (cutting).

C.5.2 Examination of off-types

By using the descriptor of the variety, the inspector evaluates the key characteristics of the variety, including but not limited to leaf shape, leaf and stem colour; in each count and the number of off-types is recorded and the percentage is calculated after examining all counts.

C.5.3 Examination of diseases

C.5.3.1 The inspector uses clear symptom description and chart (photo) to recognize a diseased plant.

C.5.3.2 In each count, the inspector checks infected plant with the diseases mentioned in Table 1 and takes record for each of them.

C.5.3.3 The inspector calculates the percentage of infected plant after examining all samples.

C.5.3.4 In case there is confusion in symptoms, the inspector may recommend laboratory testing.

C.5.4 Examination of pests

The inspector examines for the presence of pests, determines their percentage and provides appropriate recommendation.

C.5.5 Decision taking

C.5.5.1 The inspector compares the calculated percentage for each parameter with acceptable limits provided in the standard.

C.5.5.2 Based on the results of the comparison, the inspector may accept, downgrade to lower category or reject the seed crop (part or whole) as follows:

- a) the seed crop is accepted when it complies with the requirements specified in the standard;
- b) the seed crop is downgraded to lower category when it does not meet the requirements of the declared category but meeting those of any lower category; or
- c) the seed crop is rejected.

C.5.6 Reporting

The report is done by filling in the form provided in Annex B.

Bibliography

- [1] <https://www.upov.int/portal/index.html.en>
- [2] ISPM 33: *Pest free potato (Solanum spp.) micropropagative material and minitubers for international trade*, Secretariat of the International Plant Protection Convention, Adopted 2010; published 2019

