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EAST AFRICAN STANDARD

Seed potato— Requirements for certification

PUBLIC REVIEW DRAFT 2022

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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. XXXXXX.

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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Seed potato — Requirements for certification

1 Scope

This Draft East African Standard specifies the certification requirements for pre-basic, basic and certified seed potato (*Solanum tuberosum*). It includes requirements for eligible varieties, application for certification, field requirements, field inspection, storage inspection, sizing 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.

3 Terms and definitions

For the purposes of this standard, the terms and definitions given in UPOV 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>

3.1

seed test certificate

legal document issued by the national seed certification authority, which states that a seed lot has met the 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

3.4

field inspection

inspection of a field and or seed crop, by an inspector to check if the minimum 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

3.6 germination
emergence and development of a seedling to a stage where the aspect of its essential structures indicates whether or not it is able to develop further into a satisfactory plant under favourable conditions in the field

3.7 seed producer
person or entity registered to produce seed

3.8 inert matter
seed units and all other matter and structures not defined as pure seed or other seeds

3.9 isolation
minimum distance or time between two crops of peas that is required to prevent contamination either mechanically or by cross pollination

3.10 inspector
authorized official or accredited entity responsible for carrying out seed certification activities

3.11 International Seed Testing Association (ISTA) rules
rules for seed testing published by the International Seed Testing Association

3.12 label
tag or other device that is attached to or 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

3.13 previous cropping
minimum period (seasons or years) that elapse between the production of a crop of the same species in the same field as the one entered in the certification scheme

3.14 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 and in the case of hybrid varieties, that the formula for hybridisation is followed

3.15 national designated seed certification authority
organization, or agency empowered by national legislation to administer the certification of seed potato under this Standard

3.16 noxious weed
weed species, the seed of which is difficult to separate during processing or has undesirable effects on the crop produced, for example by possible genetic contamination

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

3.18**other seeds**

seeds of any plant species other than that of the crop sample that is being tested. They consist of weed seeds and other crop seeds

3.19**parental material**

population or lines used by a breeder to maintain a variety

3.20**person**

natural person or legal entity

3.21**post-control plot**

small plot where a representative sample of a seed lot is grown to determine the identity and purity of the variety and to check if the seed certification system is operating satisfactorily

3.22**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

3.23**variety registration**

recording of a new variety in a national variety list/catalogue when it has been tested and satisfied the requirements for distinctness, uniformity, stability, and has value for cultivation and use

3.24**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

3.25**seed certification**

process by which the quality and identity of a seed lot is assured

3.26**seed lot**

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

3.27**stability**

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

3.28**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

3.29**variety**

assemblage of cultivated plants which is clearly distinguished by any characters (morphological, physiological, cytological, chemical or others) and which, when reproduced, (sexually or asexually) retains its distinguishing characters

3.30
variety catalogue/national list varieties

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

3.32
pre-basic seed

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

3.34
seed

planting materials used for generative propagation of plants

3.35
basic seed

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

3.36
certified seed

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

3.36.1

certified seed 1st generation

first generation of seed derived from basic seed

3.36.2

certified seed 2nd generation

certified seed 2nd generation which is multiplied once and from certified seed 1st generation

3.36.3

breeder

person who breeds or discovers and develops a seed variety

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:
 - 1) 1st generation (C1); and
 - 2) 2nd generation (C2).

5. General requirements

5.1 Seed potato shall be free from pests of quarantine importance and regulated non quarantine pests with zero tolerance and meet the thresholds stated in this standard 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 Seed potato shall be substantially dry outside and, in general, of normal shape for the variety.

5.3 Seed potato or growing crops of potato shall not be treated with sprout inhibitors without permission from the national designated seed certification authority.

6 Eligible varieties

6.1 Varieties eligible for seed certification shall be those registered in the national list of varieties/variety catalogue.

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

7 Application requirements for certification

7.1 The minimum application of 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 cropping history for the past two cropping seasons;
- e) class of seed to be produced; and
- f) registration number of the 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 producer of pre-basic, basic and certified seeds shall apply for certification of a seed crop not later than thirty (30) days after planting by filling the form in Annex A.

8 Field inspection

8.1 The national seed certification authority 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 standards in Table 1 to be properly assessed.

8.2 A minimum of two field inspections shall be made during the growing season, the first inspection at flowering/canopy cover for non-flowering varieties / tuber initiation stage and the second inspection at tuber development stage.

8.3 Seed potato shall be free from pests of quarantine importance and regulated non quarantine pests with zero tolerance and meet the thresholds stated in this standard in regard to the regulated non-quarantine pests, injurious diseases and pests and from any defects likely to impair their quality as seed.

8.4 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.

8.5 The inspector shall inspect the field in accordance with the procedure provided in Annex C to check the requirements in Table 1.

8.6 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 D shall be signed by both the inspector and the grower or the grower's representative.

9 Field requirements

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

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

9.3 Certified seed shall be produced in two generations.

9.4 A field producing a seed crop of irish potato shall be approved for certification if it complies with the requirements in Table 1

Table 1 — Field and storage requirements for seed crops

S/N	Variable	Pre basic seed	Basic seed	Certified seeds (C1, C2)
Field				
i.	Previous cropping requirements, seasons, min.	5	4	3
ii.	Isolation, m, min.	10	10	5
iii.	Maximum Off-types %, max.	1	2	3
Diseases and Pests				
iv.	Mycoplasma, %, max.	0	0.1	0.1
v.	PVY, PVX, PVM, PLRV, PVS, PVA, %, max.	0	0	0.1
vi.	SMV, %, max.	0	0	1
vii.	Fusarium wilt, %, max.	0	0	0.2
viii.	<i>Verticilium</i> wilt, %, max.		0	0.2
ix.	<i>Ralstonia solanacearum</i> , %, max.	0	0	0.1
x.	Nematode, number of infected plants %, max.	0	0	0.2

10 Storage inspection

10.1 The harvested tubers from the field approved for certification shall be kept as an identified seed lot. The seed lot shall be sampled and inspected to check if the seed tubers conform to the requirements specified in table 3.

10.2 The maximum size of a seed lot for certification purposes is 30 000 kg; lots larger than this shall be divided and given separate lot numbers.

10.3 Seed potato shall be substantially dry outside and, in general, of normal shape for the variety.

Table 3 — Seed lot inspection requirements

S/N	Variable tubers per 50 kg bag	Pre basic seed	Basic seed	Certified seeds (C1, C2)
Pests and diseases				
i.	Scab (Common, Powdery) max Common potato scab (<i>Streptomyces scabiei</i>) Powdery scab (<i>Spongospora subterranea</i>)	25	25	50
ii.	Black curl (<i>Rhizoctonia solani</i>), max	10	10	30
iii.	Pink rot (<i>Phytophthora erythroseptica</i>), max	0	0	1
iv.	Soft rot (<i>Erwinia carotovora</i>), max	0	0	1
v.	Severe tuber moth, max.	2	2	5
Defects				
vi.	Presence of earth and extraneous matter (%by weight)	1	2	3
vii.	Dry and wet rot	0	1	2
viii.	External defects (e.g. malformed or damaged tubers)	0	0	5
ix.	Shrivelled tubers which have become excessively dehydrated and wrinkled, % by weight	0	1	2

11 Size grading requirements

11.1 Pre-basic seeds are exempted from size requirements

11.2 The size of the tuber for basic, and certified shall be between 25 mm and 55mm.

The following size range shall apply

- a) Small 25-35 mm
- b) Medium 36-45 mm
- c) Big 46-55

11.3 Basic, and certified seeds shall not contain more than 5 tubers per 25kg not falling within the declared size range

12 Labelling

12.1 All categories of seed that have been certified shall be packaged to safeguard the quality of the seed and 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 seed: Violet band on white;
- b) Basic seed: White;
- c) Certified seed 1: Blue;
- d) Certified seed 2: Red;

12.3 The labels shall be prominent, indelible and legible, and issued by a national designated seed certification authority. The following information shall be included on the official labels:

- a) name of the crop, "cassava stem cutting";
- b) species (Latin name);
- c) variety denomination;
- d) seed lot number;
- e) number of cuttings per package;
- f) harvest date.
- g) logo of the national designated seed certification authority;
- h) name and address of national designated seed certification authority;
- i) seed class; and
- j) season and country of production.

It is recommended that the harvesting of the cutting be done in the presence of inspector and the seed dealer. In this case, the package should be legibly and indelibly labelled with the following information:

- h) inspector name/code;
- i) harvest date; and
- j) certificate number.

12.4 Chemical treatment

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 Re-inspection and re-labelling

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 12.4 Chemical treatment.

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 Re-inspection and re-labelling

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 NDA. The new label shall show the particulars which appeared on the old label. 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. NDA/certification authority. The new label shall show the particulars which appeared on the old label. 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.

13 Post control test

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
(Informative)**

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 must 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

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)

9. 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.....

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Annex B

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.....

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Annex C

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 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 Definition of terms

For the purpose of this procedure the terms and definitions provided in seed potato standard shall apply.

C.4 Equipment and tools

Inspector shall be equipped with the following:

- a) current 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.5 Procedure details

C.5.1 Stage 1: Source of seeds

C.5.1.1 In order to authenticate the identity of the seed planted, seed producer retains at least one label from each seed lot used to plant the crop.

C.5.1.2 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.5.1.3 The inspector proceeds to next stage if the declared information correspond to those on the label otherwise the field is automatically rejected.

C.5.2 Stage 2: Confirmation of field size and previous cropping

C.5.2.1 The seed inspector interviews the seed producer on details of previous cropping seasons of the field.

C.5.2.2 In case the previous cropping requirements are met, inspector proceeds to the next stage.

C.5.2.3 The seed inspector, by using GPS or measuring wheel, calculates the area of the field to confirm to the declared area.

C.5.3 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 relevant decision/recommendation.

C.5.4 Stage 4: Checking the general status of the field

C.5.4.1 The inspector assesses the general status of the field and determines whether it is in satisfactory conditions to permit the detailed examination of plants for varietal purity.

C.5.4.2 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.5.5 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.6 Sampling

C.6.1 General

C.6.1.1 The inspector does the counts following a walking pattern that enables him/her to extrapolate the whole field while sampling

C.6.1.2 The number of counts (samples) depends on the size of the field, 5 counts for a field up to 2 ha and an increase of 1 count for each increase of 2 ha.

C.6.1.3 The sample corresponds to a count of 100 plants

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

C.6.2 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 offtypes is recorded and the percentage is calculated after examining all counts.

C.6.3 Examination of diseases

C.6.3.1 The inspector uses clear symptom description and chart (photo) to recognise a diseased plant.

C.6.3.2 In each count, the inspector checks infected plant with the diseases mentioned in Table 1 and takes record for each of them.

C.6.3.3 The inspector calculates the percentage of infected plant after examining all samples.

C.6.3.4 In case there is confusion in symptoms, the inspector may recommend laboratory testing.

C.6.4 Examination of pests

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

C.6.5 Decision taking

C.6.5.1 The inspector compares the calculated percentage for each parameter with acceptable limits provided in the standard.

C.6.5.2 Based on the results of the comparison, the inspector may accept, downgrade to lower category or reject the seed crop (part or whole)

C.6.5.2.1 The seed crop is accepted when it complies with the requirements specified in the standard.

C.6.5.2.2 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, otherwise the crop is rejected.

C.6.6 Reporting

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

Bibliography

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