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Pea seed — Requirements for certification

EAST AFRICAN COMMUNITY

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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.

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*.

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

Pea seed — Requirements for certification

1 Scope

This Draft Standard specifies the certification requirements for the production of pre-basic, basic and certified, and standard seed of pea (*Pisum sativum*). It covers requirements for eligible varieties, field standards, field inspections, seed sampling, laboratory requirements, certificates, packaging, labelling, and post control tests.

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) test guidelines

International Seed Testing Association ISTA Rules

3 Terms and definitions

For the purposes of this standard, the terms and definitions given in ISTA and OECD 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

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 that is clearly distinguishable in at least one characteristic 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 isolation

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 must 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

3.14

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 seed certification authority

national authority responsible for conducting seed certification processes

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 seed**

seed 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**person**

natural person or legal entity

3.20**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

3.21**seed certification**

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

3.22**seed lot**

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

3.23**stability**

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

3.24**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

3.25**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

3.26**variety catalogue**

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

3.27**carryover seed**

seed produced in previous season and stored for one or more cropping seasons

3.28

pre-basic seed

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

3.29

seed

planting materials used for generative propagation of plants

3.30

basic seed

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

3.31

certified seed

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

3.31.1

certified seed 1st generation

first generation of seed derived from basic seed

3.31.2

certified seed 2nd generation

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

3.32

Post control plots

small plot where a representative sample of a seed lot is grown to determine the identity and purity of the 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:
 - i) 1st generation (C1); and
 - ii) 2nd generation (C2).

5 General requirements

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

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 Inspection of seed crops shall be done as guided by the OECD Seed Schemes. If the field is found to be in conformity with the field standards specified in Table 1 and is approved, the harvested seed shall be identified, transported, stored and processed.

8.3. A minimum of two field inspections shall be made during the growing season for both basic and certified 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/authenticity 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.

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 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 pea 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 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.

9.6 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.

9.6 Where the number of off types is above the recommended threshold, the inspector may give instructions for the off types and diseased plants to be rogued as to maintain the genetic purity.

Table 1 — Field requirements for pea seed crops

S/N	Variable	Pre basic seed	Basic seed	Certified seed
i.	Previous cropping, number of season, min	2	2	1
ii.	Isolation, m, min	10	10	10
iii.	Off types, %, max	0	0.1	0.2
iv.	Plants infected by seed borne diseases (Max. % of infected plants)	0	0.1	0.2
v.	Bacterial blight, max % by number of plants infected	0	0.1	0.2
vi.	Anthrachnose, max % by number of plants infected	0	0.1	0.2
vii.	Mosaic virus, max % by number of plants infected	0	0.1	0.2

10 Seed sampling and laboratory requirements

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

10.2 An inspector shall draw a representative submitted sample from each lot according to ISTA rules.

10.3 The seed lot shall be sampled and tested in a national designated laboratory. The sampling and testing of seed lots shall be done in accordance with the relevant procedures described in the ISTA rules.

10.4 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.

10.6 The seed lots shall comply with the laboratory standards specified in Table 2.

10.5 A seed lot that conforms to the standards specified in Table 2 shall be given a seed test certificate and a unique reference number to confirm its status under the certification scheme

10.6. A field producing a seed crop of pea shall be approved for certification if it complies with the requirements in Table 1.

10.7 The samples shall be marked with the same identification as the seed lot, securely sealed and shall be stored in cool and dry conditions to prevent contamination and loss of germination.

Table 2 — Laboratory requirements for seeds lots of pea

S/N	Variable	Pre basic seed	Basic seed	Certified and standards seed
i.	Pure seed, %, by weight, min.	98	98	98
ii.	Inert matter, %, max.	1	1	2
iii.	Other crop seeds, %,by weight, max.	0.0	0.02	0.05
iv.	Germination, %, min.	85	80	80
v.	Moisture content, %, max.	14	14	14
vi.	Weed seeds, per kg, max.	0	0	0

11 Certificates

11.1 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 nine months.

11.2 Carryover seed shall be re-sampled and retested for germination. If the test result complies with the minimum standards, 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.

12 Packaging

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

13 labelling

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

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

- a) pre-basic (violet band on white);

- b) basic seed (white);
- c) Certified seed 1st generation (C1): (blue); and
- d) Certified seed 2nd generation (C2): (red).
- e) Standard seed: (Grey)

13.3 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 crop
- b) species (Latin name);
- c) variety denomination;
- d) seed lot number;
- e) seed test certificate number;
- f) date of test;
- g) net weight;
- h) seed treatment declaration (if applicable);
- i) logo of the national seed certification authority;
- j) name and address of national seed certification authority;
- k) seed class; and
- l) germination rate; and
- m) purity level.

13.4 In addition to the official labels provided by the national seed certification authority, the following information shall be labelled on the container:

- a) net weight;
- b) country of production;
- c) year of production;
- d) seed treatment declaration;
- e) name and address of the grower;
- f) seed class;
- g) lot number.and
- h) declaration of GMO status where applicable

13.5 If seeds are treated with any chemical or product harmful for human or animal consumption, the container shall carry a label stating the chemical or product used and warning of the health risks.

13.6 Repackaging and relabelling are authorized in the following cases:

- a) the national seed certification authority may authorize the repackaging and relabelling of a particular seed lot that is produced in another country, but shall retain the original label information of the producing country; and
- b) blending of a seed lot with other lots of the same variety and class (generation) is allowable if all seed lots of the blend have met the field and laboratory requirements for certification prior to blending. A new lot number shall be issued. Details of the blended lots and their proportions shall be kept by the certifying authority for traceability.

14 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 (informative)

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 must be mentioned separately. a crop is field planted within 5 days).

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

