DRAFT EAST AFRICAN STANDARD

Certification standard for Sorghum Seed

EAST AFRICAN COMMUNITY

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First Edition 2014
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East African Community
P.O.Box 1096
Arusha
Tanzania
Tel: 255 27 2504253/8
Fax: 255 27 2504481/2504255
E-mail: eac@eachq.org
Web: www.eac-quality.net

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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.

In order to achieve this objective, the Community established an East African Standards Committee mandated to develop and issue East African Standards.

The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. 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 procedures of the Community.

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.

DEAS 822 was prepared by Technical Committee EASC/TC/012, Seeds and Propagation Material
Acronyms and Abbreviations

**DUS:** Distinctness, Uniformity and Stability  
**EAC:** East Africa Community  
**ISTA:** International Seed Testing Association  
**kg:** Kilograms  
**m:** Meters  
**m^2:** Square meters  
**OECD:** Organization for Economic Co-operation and Development  
**UPOV:** International Union for the Protection of New Varieties of Plants
Certification standard for Sorghum Seed

1 Scope

This Draft East African Standard prescribes the minimum requirements for the production of pre-basic, basic and certified seed of Sorghum (*Sorghum bicolor* (L.) Moench). It includes requirements for eligible varieties, field standards, field inspections, seed sampling, laboratory standards, certificates, packaging and labelling, and post-control tests.

2 Normative references

The following referenced documents are indispensable for the application 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.

*International Seed Testing Association (ISTA) Rules*

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

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

*UPOV TG/122/3 Guidelines for conducting DUS tests for Sorghum bicolor (L.) Moench*

3 Terms and definitions

For the purposes of this standard, in addition to the definitions stipulated in ISTA, UPOV and OECD, the following terms and definitions shall apply:

3.1 certificate
a legal document issued by the Seed Certification Authority and stating that a seed lot has met the requirements set in this standard.

3.2 distinctness
a variety shall be 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
a defined and identifiable area of land, space or facility that is used to produce a seed crop under the Seed Certification Scheme.

3.4 field inspection
the inspection of a field and or seed crop by the official authority to confirm that the minimum requirements for seed certification have been satisfied.
3.5 **field number**
the number assigned to the field when the application form for certification is submitted.

3.6 **germination**
The emergence and development of a seedling in a controlled laboratory test to a stage where the essential seedling structures indicate whether or not it is able to grow into a satisfactory plant under favourable conditions in soil.

3.7 **grower**
a person or entity registered to produce seed

3.8 **hybrid variety**
a type of variety produced by the controlled crossing of parent lines in a way prescribed by the breeder or maintainer.

3.9 **inert matter**
Seed units and all other matter and structures not defined as pure seed or other seeds.

3.10 **isolation**
The minimum distance or time between two crops of maize that is required to prevent contamination either mechanically or by cross pollination

3.11 **inspector**
an authorized official or accredited entity responsible for carrying out seed certification activities

3.12 **international seed testing association (ISTA) rules**
the rules for seed testing published by the International Seed Testing Association.

3.13 **label**
a 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 law.

3.14 **previous cropping**
the minimum period (seasons or years) that must elapse between the production of a crop of the same or a closely-related species in a field and the production of a crop entered in the certification scheme in the same field.

3.15 **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 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.

3.16 **national seed certification authority**
the national authority responsible for conducting seed certification processes.
3.17 noxious weed
da 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.

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

3.19 open pollinated variety (OPV)
a variety that is normally produced by natural (un-controlled) pollination

3.20 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.

3.21 parental material
the population or lines used by a breeder to maintain a variety and from which all seed of the variety is derived through subsequent generations of multiplication.

3.22 person
a natural person or legal entity

3.23 post-control plot
A small plot where a representative sample of a seed lot is grown to determine the identity and purity of a variety to confirm that the seed certification system is operating satisfactorily.

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

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

3.26 rogueing
the removal by hand of off-types, other varieties, and diseased plants or any other unwanted plants from a seed crop if they may reduce the quality of the harvested crop.

3.27 seed certification
the process by which the quality and identity of a seed lot is assured to the purchaser by attaching an official certification label to the package.

3.28 seed lot
a defined quantity of seed bearing the same reference number and for which the origin, production history and identity is known.
3.29 stability
a condition of a variety distinguishing characteristics to remain unchanged after repeated growing cycles.

3.30 uniformity
a variety shall be 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.

3.31 variety
an 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.

3.32 variety catalogue
the list of varieties that have been registered and released by a national authority and can be produced and marketed in the EAC region as certified seed.

3.33 Carryover seed
seed produced in previous season and stored in one or more cropping season

3.34 Pre-Basic Seed
Seed of generations preceding Basic Seed is known as Pre-Basic Seed and may be at any generation between the parental material and the Basic Seed.

3.35 Basic Seed
Seed which has been produced under the responsibility of the maintainer according to the generally accepted practices for the maintenance of the variety and is intended for the production of Certified Seed. Basic Seed must conform to the appropriate conditions in the Scheme and the fulfilment of these conditions must be confirmed by an official examination.

3.36 Certified seed
Seed which is of direct descent from either Basic Seed or Certified Seed of a variety and is intended for the production of either Certified Seed or of crops for purposes other than seed production. It must conform to the appropriate conditions in the Scheme and the fulfilment of these conditions must be confirmed by an official examination. The first generation from Basic Seed is known as Certified Seed, 1st generation. Further generations are known as Certified Seed, 2nd, 3rd, etc. generation, the appropriate generation being designated.

4 General requirements

4.1 Eligible varieties

4.1.1 The key parameters required to implement this standard are the variety descriptors, the genetic purity of the seed sown, the field and laboratory standards and the post-control tests

4.1.2 Varieties eligible for seed certification are those that have been examined, tested and registered in at least one member country of EAC and are included in the national variety catalogue of that country

4.1.3 The examination of a candidate variety for registration shall be undertaken in accordance with the characters listed in Annex A.
4.1.4 The official descriptor of the variety shall be made available for the seed certification authority and its inspectors to check the identity and purity of the variety during field inspections. Each national authority shall keep the official description of the varieties it has registered in hard and electronic copies and these shall be made available to any other national authority of EAC that requests it.

4.2 Inspection and laboratory testing

4.2.1 The minimum information for an application for certification of a seed crop shall include: the name, address and contact details of the applicant; the crop and variety to be sown; the location, area and reference number of the field, and its cropping history for the past two cropping season; the class of seed to be produced and the registration number of the grower.

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 both quality, genetic identity and purity of the seed harvested.

4.2.3 The inspection of seed crops shall be done in accordance with the relevant OECD seed schemes. If the field is found to be in conformity with the standards stated in Table 1 or Table 2 and is approved, the harvested seed shall be identified, transported, stored, and processed.

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 Tables 3 and 4 shall be given a certificate and a unique reference number to confirm its status under the certification scheme. One part of the seed sample shall be retained for sowing in a post-control plot in the following season, or earlier if that can be achieved using irrigation.

5 Seed Classes

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

5.1 Pre-basic seed

5.2 Basic seed

5.3 Certified Seed

6 Field standards

6.1 Pre basic and Basic seed shall be produced under the responsibility of the breeder or maintainer who will define the number of generations to be used between breeder seed and basic seed.

6.2 Certified seed shall be produced in not more than two generations for OPVs and one generation for hybrids.

6.3 The national certification authority will inspect and certify the production of pre-basic, basic and certified seed crops.

6.4 A field producing a seed crop of open-pollinated sorghum varieties will be approved for certification if it complies with the requirements in Table 1.

6.5 A field producing a seed crop of hybrid sorghum will be approved for certification if it complies with the requirements in Table 2.
6.6 Fields may also be rejected for certification because of unsatisfactory condition caused by noxious weeds, 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.

Table 1 Field standards for seed crops of open-pollinated varieties of sorghum

| S.No | Variable                                                                 | Pre-Basic Seed | Basic Seed | Certified Seed |
|------|--------------------------------------------------------------------------|----------------|------------|               |
| i    | Previous cropping (seasons before)                                       | 1              | 1          | 1             |
| ii   | Isolation* (m)                                                          | 400            | 400        | 200           |
| iii  | Maximum off types                                                       | 1/30           | 1/30       | 1/10          |
| iv   | Minimum number of inspections                                           | 3              | 3          | 3             |
| v    | Maximum number of plants infected with sorghum smut \* \textit{Sphacelotheca cruenta} | 1/1000 plants  | 1/1000 plants | 2/1000 plants |
| vi   | Maximum number of plants infected with sorghum downy mildew             | 1/1000 plants  | 1/1000 plants | 2/1000 plants |

* In all cases these isolation distances also apply to other Sorghum species, such as \textit{S. sudanense} and forage sorghum varieties that can cross-pollinate with \textit{S. bicolor}.

Note: In case of noxious weeds found in the field, grower shall be instructed to remove the weeds before harvesting.

Note: isolation by time may be possible if minimum time enough to separate the flowering phase of two varieties or grade of a crop species is observed.

Table 2 Field standards for seed crops of hybrid sorghum

| S.No | Variable                                                                 | Pre-Basic Seed | Basic Seed | Certified Seed |
|------|--------------------------------------------------------------------------|----------------|------------|               |
| i    | Previous cropping (seasons before)                                       | 1              | 1          | 1             |
| ii   | Isolation* (m)                                                          | 400            | 400        | 200           |
| iii  | Maximum off types                                                       | 1/30           | 1/30       | 1/10          |
| iv   | Minimum number of inspections                                           | 3              | 3          | 3             |
| v    | Maximum number of plants infected with sorghum smut \* \textit{Sphacelotheca cruenta} | 1/1000 plants  | 1/1000 plants | 2/1000 plants |
| vi   | Maximum number of plants infected with sorghum downy mildew             | 1/1000 plants  | 1/1000 plants | 2/1000 plants |

* In all cases these isolation distances also apply to other Sorghum species, such as \textit{S. sudanense} and forage sorghum varieties that can cross-pollinate with \textit{S. bicolor}.

Note: In case of noxious weeds found in the field, grower shall be instructed to remove the weeds before harvesting.

Note: isolation by time may be possible if minimum time enough to separate the flowering phase of two varieties or grade of a crop species is observed.

7 Field Inspection
7.1 The national certification authority shall prepare the schedule to carry out the inspections by inspectors based on all necessary information on the field to ensure that the timing of inspections allows assessment of the standards shown in Table 1 or Table 2.

7.2 At least three inspections shall be made to each seed production field in order to determine the genetic identity and purity based on the class of seed as specified in Table 1 or Table 2.

7.3 At the time of the first inspection, the inspector shall verify with the grower the previous cropping of the field and the origin/authentication of the seed lot planted by requesting their labels, bags and/or the purchase receipt. 7.4 The inspector shall inspect the field in accordance with OECD seed schemes and shall check for isolation requirements, off types, the presence of noxious weeds and diseases.

7.5 Depending on the degree of contamination, the inspector may give instructions for off-types, noxious weeds and diseased plants to be rogued so as to maintain the genetic purity.

7.6 For fields producing certified seed of hybrid varieties a minimum of three inspections is required. The first inspection will be conducted before flowering to check for isolation and roguing; at this time the inspector shall also check the identity of the parental materials following the descriptors. The second and third inspections will be at the beginning and at the end of the flowering period to check roguing and for male sterility in the female parent.

7.7 The field inspection report will indicate the field status, and shall include any corrective actions required such as re-inspection to confirm the field standards. All field inspection reports shall be provided to the grower and the seed enterprise after each inspection in a timely manner. The final inspection report shall be signed by both the inspector and the grower as summarized in Annex D.

7.8 A certification number shall be assigned to approved fields after the last inspection. All containers of the harvested seed from the field must be clearly and securely identified with this number prior to leaving the field.

7.9. At final inspections seeds from approved fields should be packed in containers having been clearly and securely identifiable by grower numbers, field crop number, packing unit, variety name and status prior to leaving the field.

8  Seed sampling and laboratory standards

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

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

8.3 An inspector shall draw a representative composite sample from each lot according to the ISTA Rules (Chapter 2).

8.4 The composite sample shall be divided into three sub-samples, one for testing in the laboratory, one to be stored for reference purposes in case re-testing is necessary, and one for the post-control tests. The samples must be labelled and securely sealed and shall be stored in cool and dry conditions to prevent contamination and loss of germination.

8.5 Laboratories authorized by the national seed certification authority to conduct seed testing for certification purposes shall follow the methodology established in the ISTA rules for sorghum seed.

8.6 The seed lots shall comply with the laboratory standards specified in Table 3 or Table 4.

8.7 The test certificate shall be issued in accordance with Annex C and shall be valid for twelve months.
Table 3 Laboratory standards for seeds lots of OPV sorghum varieties

<table>
<thead>
<tr>
<th>S.No</th>
<th>Variable</th>
<th>Pre-Basic Seed</th>
<th>Basic Seed</th>
<th>Certified Seed</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>Pure seed % (minimum)</td>
<td>98</td>
<td>98</td>
<td>98</td>
</tr>
<tr>
<td>ii</td>
<td>Maximum inert matter % by weight</td>
<td>1.95</td>
<td>1.95</td>
<td>1.95</td>
</tr>
<tr>
<td>iii</td>
<td>Maximum other seeds %</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>iv</td>
<td>Minimum germination %</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>v</td>
<td>Maximum moisture content %</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>vi</td>
<td>Weed seeds - maximum in 1 kg</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: Moisture content is expressed as a percentage of the weight of the original sample.

Table 4 Laboratory standards for seeds lots of hybrid sorghum

<table>
<thead>
<tr>
<th>S.No</th>
<th>Variable</th>
<th>Pre-Basic Seed</th>
<th>Basic Seed</th>
<th>Certified Seed</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>Pure seed % (minimum)</td>
<td>98</td>
<td>98</td>
<td>98</td>
</tr>
<tr>
<td>ii</td>
<td>Maximum inert matter % by weight</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>iii</td>
<td>Maximum other seeds %</td>
<td>0.01</td>
<td>0.01</td>
<td>0.08</td>
</tr>
<tr>
<td>iv</td>
<td>Minimum germination %</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>v</td>
<td>Maximum moisture content %</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>vi</td>
<td>Weed seeds - maximum in 1 kg</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: Moisture content is expressed as a percentage of the weight of the original sample.

9 Certificates

The certificate of conformity of a seed lot is issued by the National Seed Certification Authority and signed by the Director or an authorized representative and shall include all information presented in Annex B.

10 Treatment, Packaging and Labelling

10.1 All classes of seed that have been certified shall be packaged in new containers printed with the company logo and have the official certified seed label of the national authority.

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

- Pre-basic seed: Violet band on white
- Basic seed: White
- Certified Seed 1st generation: Blue
- Certified Seed 2nd generation: Red

10.3 If seeds are treated with any chemical or product harmful for human or animal consumption, the container must carry a label stating the material used and warning of the health risks.
10.4. The labels shall be prominent indelible, legible and fixed to the containers by authorized person in such a way that they cannot be destroyed or easily removed. The minimum information that must be included in the national labels is shown below. The language shall be English. Any additional language may be used.

a) Front of label

- Name of the Crop, “sorghum seed”
- Species (Latin name)
- Variety denomination
- Seed Lot Number
- Test Certificate Number
- Date of Test
- Date of sealing
- Net Weight
- Seed Treatment Declaration (if applicable)

b) Back of label

- Logo of the National Certification Authority
- Name and Address of Certifying Authority
- Seed Class
- Year and Country of Production
- Statement of Re-packing and Re-labelling (if applicable)

10.4. All containers shall be closed either by hand or machine stitching and shall be sealed in such a way that if they are opened illegally, that violation can be detected.

10.5 Repackaging and relabeling are authorized in the following cases:

a) Carryover seed shall be re-sampled and re-tested for germination. If the test result complies with the minimum standard, new labels will be issued for the seed lot.

b) The seed certification authority may authorize the re-packaging and re-labelling of a seed lot that is produced in another country, but shall retain the original label information of the producing country.

c) Blending of a seed lot with other lots of the same variety is allowable if all seed lots of the blend have met the field requirements for certification prior to blending. The new labels will contain the numbers of all seed lots and will show the proportion of each component.

11 Post-control tests

The post-control tests shall be carried out in accordance with OECD guidelines for post control tests.
Annex A  
(normative) 

Characters to be used for assessing varietal identity and purity when carrying out inspection of a certified sorghum seed crop (adopt the UPOV)

<table>
<thead>
<tr>
<th>Character Description</th>
<th>Character number</th>
<th>State of Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant: time of panicle emergence (50% of plants with a panicle)</td>
<td>5*</td>
<td>very early</td>
</tr>
<tr>
<td></td>
<td></td>
<td>early</td>
</tr>
<tr>
<td></td>
<td></td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>late</td>
</tr>
<tr>
<td></td>
<td></td>
<td>very late</td>
</tr>
<tr>
<td>Flag leaf: extension of discoloration of midrib</td>
<td>8*</td>
<td>absent or very weak</td>
</tr>
<tr>
<td></td>
<td></td>
<td>weak</td>
</tr>
<tr>
<td></td>
<td></td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>strong</td>
</tr>
<tr>
<td></td>
<td></td>
<td>very strong</td>
</tr>
<tr>
<td>Flag leaf: intensity of green coloration of midrib compared to blade</td>
<td>9*</td>
<td>paler</td>
</tr>
<tr>
<td></td>
<td></td>
<td>same color</td>
</tr>
<tr>
<td></td>
<td></td>
<td>darker</td>
</tr>
<tr>
<td>Flag leaf: yellow coloration of midrib</td>
<td>10*</td>
<td>absent or very weak</td>
</tr>
<tr>
<td></td>
<td></td>
<td>weak</td>
</tr>
<tr>
<td></td>
<td></td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>strong</td>
</tr>
<tr>
<td></td>
<td></td>
<td>very strong</td>
</tr>
<tr>
<td>Lemma: aristae formation</td>
<td>14*</td>
<td>absent or very weak</td>
</tr>
<tr>
<td></td>
<td></td>
<td>weak</td>
</tr>
<tr>
<td></td>
<td></td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>strong</td>
</tr>
<tr>
<td></td>
<td></td>
<td>very strong</td>
</tr>
<tr>
<td>Stigma: anthocyanin coloration</td>
<td>15*</td>
<td>absent or very weak</td>
</tr>
<tr>
<td></td>
<td></td>
<td>weak</td>
</tr>
<tr>
<td></td>
<td></td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>strong</td>
</tr>
<tr>
<td></td>
<td></td>
<td>very strong</td>
</tr>
<tr>
<td>Stigma: yellow coloration</td>
<td>16*</td>
<td>absent or very weak</td>
</tr>
<tr>
<td></td>
<td></td>
<td>weak</td>
</tr>
<tr>
<td></td>
<td></td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>strong</td>
</tr>
<tr>
<td></td>
<td></td>
<td>very strong</td>
</tr>
<tr>
<td>Plant: total height (at maturity)</td>
<td>21*</td>
<td>very short</td>
</tr>
<tr>
<td></td>
<td></td>
<td>short</td>
</tr>
<tr>
<td></td>
<td></td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>high</td>
</tr>
<tr>
<td></td>
<td></td>
<td>very high</td>
</tr>
<tr>
<td>Panicle: density at maturity</td>
<td>27*</td>
<td>very sparse</td>
</tr>
<tr>
<td>Character Description</td>
<td>Character number</td>
<td>State of Expression</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Panicle: shape</td>
<td>28*</td>
<td>reverse pyramid</td>
</tr>
<tr>
<td></td>
<td></td>
<td>broader in upper part</td>
</tr>
<tr>
<td></td>
<td></td>
<td>symmetric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>broader in lower part</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pyramidal</td>
</tr>
<tr>
<td>Neck of panicle: visible length above sheath</td>
<td>29*</td>
<td>absent or very short</td>
</tr>
<tr>
<td></td>
<td></td>
<td>short</td>
</tr>
<tr>
<td></td>
<td></td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>long</td>
</tr>
<tr>
<td></td>
<td></td>
<td>very long</td>
</tr>
<tr>
<td>Glumes: color at maturity</td>
<td>30*</td>
<td>white</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pale yellow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>yellow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pale brown</td>
</tr>
<tr>
<td></td>
<td></td>
<td>reddish brown</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dark brown</td>
</tr>
<tr>
<td>Caryopsis color: color after threshing</td>
<td>32*</td>
<td>white</td>
</tr>
<tr>
<td></td>
<td></td>
<td>grey white</td>
</tr>
<tr>
<td></td>
<td></td>
<td>yellowish white</td>
</tr>
<tr>
<td></td>
<td></td>
<td>straw yellow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>orange</td>
</tr>
<tr>
<td></td>
<td></td>
<td>orange red</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pale brown</td>
</tr>
<tr>
<td></td>
<td></td>
<td>red brown</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dark brown</td>
</tr>
</tbody>
</table>

*Characteristics of the variety given by UPOV Guidelines TG/122/3*

*note: Where the OECD character description differs from the UPOV character, it is indicated by * against the relevant character number.*
Annex B
(normative) (EAS xxx: 2014)

Seed Certificate

Certificate issued for a seed lot which satisfies all the requirements of the certification scheme

TO..................................................................................................................

Address...........................................................................................................

Seed Lot Reference Number:
Species and variety:
Seed Class:
Statement of re-packaging and re-labelling: (if applicable):
Number of containers:
Lot Weight:

The seed lot described above is hereby accepted as per the EAC seed certification standard (EAS ...:2014)

National Seed Certification Authority
Signature
Place and Date
## Seed Laboratory Test Certificate

**Annex C**
(normative)

**Name of Applicant**

**Species, variety, class, weight of lot**

**Testing and Issuing laboratory**

**Sampling by**

**Test number**

**Seed Lot reference number**

**Label Serial number**

**Country of origin**

<table>
<thead>
<tr>
<th>Number of containers</th>
<th>Date of sampling</th>
<th>Date sample received</th>
<th>Date test concluded</th>
<th>Test Number</th>
</tr>
</thead>
</table>

**ANALYSIS RESULTS**

**Species**

<table>
<thead>
<tr>
<th>Purity %</th>
<th>Germination</th>
<th>Moisture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure seed</td>
<td>Inert matter</td>
<td>Other seeds</td>
</tr>
</tbody>
</table>

**Kind of inert matter:**

**Other seeds:**

**Other determinations:**

**Place**

<table>
<thead>
<tr>
<th>Date</th>
<th>Signature</th>
</tr>
</thead>
</table>

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Bibliography


[8] Rwanda Seed Sector Baseline Study, AFSTA 2010


[10] Burundi Seed Sector Baseline Study, Mr. Juvent Baramburiye, AFSTA 2010


[14] The seeds and plants regulations for Uganda 2011"