

## DRAFT TANZANIA STANDARD

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Bambara nut (*Vigna subterranea* (L.) Verdc) seed — Requirements for certification

DRAFT FOR STAKEHOLDERS COMMENTS

# Bambara nut (*Vigna subterranea* (L.) Verdc) seed — Requirements for certification

## 1. Scope

This Tanzania standard specifies the certification requirements for pre-basic, basic and certified seed of bambara nut (*Vigna subterranea* (L.) Verdc).

## 2. Normative references

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

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

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

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

## 3. Terms and definitions

For the purposes of this standard, the terms and definitions given in ISTA and OECD together with the following shall apply;

### 3.1 seed test certificate

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

### 3.2 distinctness

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

### 3.3 field

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

### 3.4 field inspection

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

**3.5**

**field number**

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

**3.6**

**germination**

emergence of plumule and radicle 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 grower**

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**

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

**3.10**

**inspector**

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

**3.11**

**international seed testing association rules**

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

**3.12**

**label**

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

**3.13**

**previous cropping**

prescribed 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.

**3.15**

**national seed certification authority**

national designated authority responsible for conducting seed certification processes

**3.16**

**off-type**

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

**3.17**

**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

**3.18**

**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

**3.19**

**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

**3.20**

**variety registration**

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

**3.21**

**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

**3.22**

**seed certification**

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

**3.23**

**seed lot**

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

**3.24**

**stability**

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

**3.25**

**uniformity**

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

**3.26**

**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

**3.27**

**variety catalogue**

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

**3.28**

**carryover seed**

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

**3.29**

**seed**

planting materials used for generative propagation of plants

**3.30**

**breeder seed**

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

**3.31**

**pre-basic seed**

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

**3.32**

**basic seed**

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

**3.33**

**certified seed**

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

**3.33.1**

**certified seed 1st generation**

first generation of seed derived from basic seed

**3.33.2**

**certified seed 2nd generation**

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

#### 4. General requirements

Key parameters required to implement this standard are the variety descriptors, the genetic purity of the seed sown, the field and laboratory standards

##### 4.1 Eligible varieties

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

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

##### 4.2 Inspection and laboratory testing

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

- a) name, address and contact details of the seed grower;
- b) crop and variety to be sown;
- c) physical location;
- d) area and reference number of the field, and its cropping history for the past two cropping seasons;
- e) class of seed to be produced; and
- f) registration number of the seed 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 quality, genetic identity and purity of the seed harvested.

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

4.2.4 The seed lot shall be sampled and tested in an official or authorized laboratory. The sampling and testing of seed lots shall be done in accordance with the relevant procedures described in the ISTA rules.

4.2.5 A seed lot that conforms to the standards set out in laboratory requirements (Table 2) shall be given a seed test certificate and a unique reference number to confirm its status under the certification scheme. One part of the seed sample shall be retained for sowing in a post-control plot in the next season

## 5 Seed classes

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

- a) Basic seed;
- b) Registered seed; and
- c) Certified seed:
  - (i) 1st generation (C1); and
  - (ii) 2nd generation (C2).

## 6. Land Requirements

Land to be used for seed production of bambara nut shall be free of volunteer plants.

## 7. Field requirements

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

**Table 1. Field requirements for certification**

S.No	Variable	Pre-basic	Basic	Certified 1	Certified 2
i.	Previous cropping (seasons before), min.	1	1	1	1
ii.	Isolation, m, min.	10	10	5	5
iii.	No. of inspection, min	2	2	2	2
iv.	Off-types (%), max.	0.1	0.1	0.5	0.5
v.	Diseases (No./1000 plants), max	2	2	3	3
	• Fusarium wilt				
	• Rosette virus	1	1	5	5
	• Mosaic virus	1	1	5	5
	• Anthracnose	2	2	3	3

7.2. Fields may be rejected for certification because of unsatisfactory condition caused by 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.

7.3. The field inspection report shall be issued in accordance with Annex A

**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, 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.

8.2 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.

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

8.4 The submitted 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 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.

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

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

**Table 2 — Laboratory requirements for certification**

S.No	Variable	Pre-basic	Basic	Certified 1	Certified 2
i.	Pure seed (%), min.	98	98	97	97
ii.	Other seeds (%), max.	0.1	0.1	0.1	0.1
iii.	Weed seeds (number/kg)	1	1	2	2
iv.	Inert matter (%), max	2	2	3	3
v.	Moisture content (%), max.	9	9	9	9
vi.	Germination (%), min	80	80	75	75
vii.	Diseases (%), max	0.2	0.2	0.3	0.3
	• Fusarium wilt				
	• Rosette virus	0.1	0.1	0.5	0.5
	• Mosaic virus	0.1	0.1	0.5	0.5
	• Anthracnose	0.2	0.2	0.3	0.3

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

## 9. Certificates

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

9.2 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.

## 10. Packaging and labelling

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

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

- Pre-basic seed: Violet band on white
- 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 shall carry a label stating the chemical or product used and warning of the health risks.

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

- name of the crop, "bambara nut seed";
- species (Latin name);
- variety denomination;
- seed lot number;
- test certificate number;
- date of test;
- net weight;
- seed treatment declaration;
- logo of the national certification authority;
- name and address of certifying authority;
- seed class;
- year and country of production; and
- statement of re-packing and re-labelling (if applicable).

10.5 All containers/bags 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.

**10.6 Repackaging and relabelling are authorized in the following cases:**

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

b) 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.

**11 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

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## Annex A (normative)

### Field inspection report

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

#### Seed grower information

Name ..... Address .....  
Telephone: ..... E-mail.....  
Registration number..... Number of inspections.....

#### Field location

Province/Region..... District ..... Sector .....  
Latitude..... Longitude ..... Field number.....  
Field size (Ha/acre) ..... Cropping season ..... Crop species .....  
Seed class ..... Variety ..... Previous cropping.....

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

#### Decision

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

Name of Seed grower

Name of Inspector

Date & signature

Date, signature & Stamp

**Annex B**  
(informative)

**Seed laboratory test report**

Name of seed grower										
Species, variety, class, weight of lot										
Testing and Issuing laboratory										
Sampled by										
Test number										
Country of origin										
Label serial number										
Seed Lot Reference Number:										
Number of containers		Date of sampling		Date sample received		Date test(s) concluded		Test number		
ANALYSIS RESULTS										
Purity				Germination						Moisture content, %
Pure seed %	Inert matter, %	Other crop seeds %	Weed seeds, per kg	Number of days	Normal seedlings, %	Hard seeds, %	Fresh seeds, %	Abnormal seedlings, %	Dead seeds, %	
Kind of inert matter:										
Other crop seeds:										
Weed seeds:										
Other determinations:										
Place				Date				Name & Signature		

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**Annex C  
(Normative)**

**Seed test certificate**

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

Previously issued certificate number.....				Certificate No. ....			Standard:.....		
<b>APPLICANT INFORMATION</b>									
Seed Lot Reference Number			Species and Variety			Class	Weight of lot		Number of containers
Name of testing laboratory:					Test number:				
<b>ANALYSIS RESULTS</b>									
Purity				Germination					Moisture content, %
Pure seed %	Inert matter %	Other crop seeds %	Weed seeds Per kg	Normal seedlings	Abnormal seedlings	Fresh seeds	Hard seeds	Dead seeds	
Kind of inert matter:					Statement of packaging and re-labelling: (if applicable)				
Kind of other crop seeds:									
Kind of weed seeds:									
Other determinations									

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

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