



DEAS 748:2010  
ICS 67.080.20

## **DRAFT EAST AFRICAN STANDARD**

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**Fresh potato tuber (ware potato tuber) — Specification**

**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 East Africa. It is envisaged that through harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

In order to meet the above objectives, the EAC Partner States have enacted an East African Standardization, Quality Assurance, Metrology and Test Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community in order to facilitate industrial development and trade as well as helping to protect the health and safety of society and the environment in the Community.

East African Standards are formulated in accordance with the procedures established by the East African Standards Committee. The East African Standards Committee is established under the provisions of Article 4 of the EAC SQMT Act, 2006. 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.

Article 15(1) of the EAC SQMT Act, 2006 provides that “Within six months of the declaration of an East African Standard, the Partner States shall adopt, without deviation from the approved text of the standard, the East African Standard as a national standard and withdraw any existing national standard with similar scope and purpose”.

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.

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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](mailto:eac@eachq.org)

Web: [www.each.int](http://www.each.int)

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## Acknowledgement

This standard was developed with support from the Policy Analysis and Advocacy Programme (PAAP) of the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA). This was possible through a grant by the United States Agency for International Development (USAID). This support was used in the process of formulation and mobilization of stakeholders to review the standard in national and regional fora.

ASARECA is a non-political association of agricultural research institutes in: Burundi, DR Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania and Uganda. ASARECA serves as a platform for promoting regional research and in the sharing of benefits and spillovers that derive from such research. The mission of ASARECA is to *“Enhance regional collective action in agricultural research for development, extension and agricultural training and education, to promote economic growth, fight poverty, eradicate hunger and enhance sustainable use of resources in Eastern and Central Africa”*.

Development of standards has been part of PAAP's contribution to changing the way business is done in crucial agricultural sectors to increase efficiency and/or reduce waste through rationalization and harmonization of policies, laws, regulations and procedures. Rationalization focuses on how countries conduct business in a given subsector, and determines what should be done to make the procedures and processes more efficient. Harmonization brings together regionally different approaches (policies, laws, regulations and procedures) into unified approaches that are applied across the countries. This harmonization process allows commodities and factors to move freely across national boundaries, thereby improving domestic and foreign investment by expanding markets beyond national borders. Over time this will lead to gradual attainment of seamless borders for trade in potatoes and potato products across the region.

Removal of regulatory bottlenecks to transboundary movement of potato products in the region will enhance competitiveness of trade and value addition in the sub-sector. It will improve the value chains by supporting product differentiation and hence increased trade in potato products in the region. This will ultimately contribute to incomes, employment generation and improved welfare in the region. This fits snugly with the aspirations of ASARECA as a key player contributing to economic development of the region.

*Draft for comments only — Not to be cited as East African Standard*

## Fresh potato tuber (ware potato tuber) — Specification

### 1 Scope

This draft East African standard specifies the requirements for ware potato tuber of varieties (cultivars) grown from (*Solanum tuberosum* L.) and its hybrids to be supplied fresh and either packaged or sold loose for human consumption. It does not cover the requirements for potato tubers intended for industrial processing or seed potato tuber.

### 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.

EAS 38, *General standard for labeling of prepackaged foods*

EAS 39, *Code of practice for hygiene in the food and drink manufacturing industry*

CAC/RCP 53, *Code of Hygienic Practice for Fresh Fruits and Vegetables*

ISO 7563, *Glossary of terms for fresh fruits and vegetables*

EAS 103, *General standard for food additives*

ISO 874, *Fresh fruits and vegetables — Sampling*

ISO 6561, *Fruits and vegetables and derived products — Determination of cadmium content Flameless atomic absorption spectrometric method.*

ISO 6633, *Fruits and vegetables and derived products — Determination of lead content — Flameless atomic absorption spectrometric method.*

ISO 4833, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of micro organisms — Colony — count technique at 30 OC.*

ISO 4831, *Microbiology — General guidance for the enumeration of coliforms — Most probable number technique*

ISO 16654, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Escherichia coli 0157.*

### 3 Terms and definitions

For the purposes of this standard, the terms and definitions in ISO 7563 where applicable, and the following terms and definitions shall apply.

#### 3.1

##### **black heart**

blackening of tissues in the centre of the potato tuber

**3.2**

**badly misshapen**

potato tuber that is seriously deformed relative to the varietal shape

**3.3**

**clean**

practically free from dirt or staining and practically no loose dirt or other foreign matter present in the container

**3.4**

**damaged**

shall mean any defect or injury which is readily apparent upon examination, or which affects the edible quality of the potato tuber

**3.6**

**defects**

defects which can be detected externally. However, cutting may be required to determine the extent of the injury.

**3.7.**

**firm**

shall mean potato tuber that are not soft, flabby or shrivelled

**3.8**

**food grade material**

one that will not transfer non-food chemicals into the food and contains no chemicals which would be hazardous to human health

**3.9**

**foreign matter**

any material other than that originating from the potato tuber

**3.10**

**hollow heart**

cavities of various sizes in the centre of the tuber

**3.11**

**intact**

not having any part removed or damaged such that it makes the potato tuber incomplete

**3.12**

**malformed**

shape of a potato tuber not typical of the cultivar/variety concerned

**3.13**

**mature potato tuber**

Potato tuber with the skin of potato tuber that is generally firmly set and not feathered

**3.14**

**practically clean**

shall mean potato tuber that are free from dirt, stain or other foreign matter, but not from unavoidable dirt incidental to improper harvesting and packing.

**3.15****serious damage**

shall mean any injury or defect which seriously affect the appearance or the edible quality of the potato tuber

**3.16****similar varietal characteristics**

potato tuber that are of the same variety and type.

**3.17****sprout**

new shoot emerging from the tuber

**3.18****sound  
wholesome**

free from disease, serious deterioration (such as but not limited to decay, breakdown, freezing damage, or soft or shrivelled specimens) or adulteration/contamination, that appreciably affects their appearance, edibility, the keeping quality of the produce or market value.

**3.19****industrial processing**

production of potato products such as starch, flour, livestock feeds, paste, granules and syrups

**4 Quality requirements****4.1. General quality requirements**

The potato tuber shall have been carefully harvested and have reached an appropriate degree of physiological development taking into account the characteristics of the variety and the area in which they are grown.

The development and condition of the potato tuber shall be such as to enable it to

- a) withstand normal transport and handling conditions, and
- b) arrive in a satisfactory condition at the place of destination

**4.2 Minimum requirements**

All fresh potato tubers to be supplied to the market shall be meet the following minimum requirements:

- a) of normal appearance for the variety according to the producing area
- b) intact, ;
- c) sound;
- d) practically clean;

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- e) firm;
- f) free of abnormal external moisture; i.e. shall be adequately "dried" if they have been washed;
- g) free of any foreign smell and/or taste.
- h) free of loss of colour such as browning in the flesh
- i) shall be covered with well-formed skin,
- j) shall be practically unsprouted, i.e. sprouts shall be no longer than 3 mm. practically
- k) free from pests affecting the general appearance of the produce;
- l) practically free from free from mechanical damage
- m) bruise and roughness (only for varieties of which the skin is not normally rough)
- (n) Fresh potato tuber shall be practically free of external or internal defects detrimental to the general appearance of the produce, the quality, the keeping quality and presentation in the package, such as:
  - i) brown stains due to heat;
  - ii) cracks (including growth cracks), cuts, bites, exceeding 5 mm in depth for ware potato tuber;
  - iii) green colouration; pale green flush not exceeding one eighth of the surface area and which can be removed by normal peeling does not constitute a defect;
  - iv) serious deformities (malformation, misshape,...);
  - v) grey, blue or black sub-epidermal stains; exceeding 5 mm in depth;
  - vi) rust stains, hollow or black hearts ;
  - vii) deep common potato tuber scab and powdery potato tuber scab of a depth of 2 mm or more
  - viii) superficial common potato tuber scab; i.e. scab spots in all shall not extend over more than a 25 % of the surface of the tuber;
  - ix) frost damage;

## 5 Classification

### 5.1 General

Fresh potato tuber may be classified before marketing.

Where classification is done the following classes shall be used in accordance with the requirements of each class and the quality tolerances in Clause 7.

- Extra class;
- Class I and
- Class II

### 5.2 Extra class

#### 5.2.1 Quality requirements

Fresh potato tuber of Extra Class may be presented in any of the sizes in Clause 6.

Extra class fresh potato tuber shall be potato tuber that meets the minimum requirement in Clause 4. Tubers in this class shall be of superior quality. The flesh shall be perfectly sound. They shall be characteristic of the variety (for example, uniform shape and size) and free of defects (for example, sprouting, lesions, epidermal stains etc.) with exception of very slight superficial bruises not exceeding 2% of the surface area of the tuber and provided that this will not affect the general appearance of the produce, the keeping quality and the presentation in the package.

### 5.3 Class I

#### 5.3.1 Quality requirements

Fresh potato tuber of Class I may be presented in any of the sizes in Clause 6

Class I fresh potato tuber shall be potato tuber that meet the minimum requirement in Clause 4 and shall be of good quality

#### 5.3.2 Defects

The following defects may be allowed provided the potato tubers retain their essential characteristics as regards to quality, keeping quality and presentation:

- a) defects in shape not exceeding 5% of the tubers
- b) bruising, not exceeding 10 % of the surface area of the tubers
- c) sprouts of length not more than 3 mm ;
- d) lesions not more than 2 mm in depth and not more than 3% surface coverage;
- e) sub-epidermal stains not more than 2 mm in depth,
- f) greening covering not more than 10% of the surface of the tuber and greening intrusion not deeper than 2 mm; and the affected tubers
- g) internal defects in not more than 3 % by number or mass of the tubers;

- h) common scab not extending more than 3 % of the surface area and intrusion not exceeding 2 mm

## 5.4 Class II

### 5.4.1 Quality requirements

Fresh potato tuber of Class III may be presented in any of the sizes in Clause 6. They consist of potato tuber that do not qualify for inclusion in Class II but meet the minimum requirements specified under clause 4.

### 5.4.2 Defects

The following defects may occur provided the fresh potato tuber retain their essential characteristics as regards to quality, keeping quality and presentation:

- a) defects in shape not exceeding 10% of the tubers
- b) bruising, not exceeding 20 % of the surface area of the tubers
- c) sprouts not more than 3 mm in length;
- d) lesions not more than 2 mm in depth and covering not more than 5% of the surface area of the tuber;
- e) greening covering not more than 10 % of the surface of the tubers and greening intrusion not deeper than 2 mm;
- f) sub-epidermal stains not more than 2 mm in depth;
- g) internal defects in not more than 5 % by number or mass of the tubers;
- h) common scab not extending more than 5 % of the surface area and intrusion not exceeding 2 mm

## 6 Size designation

Fresh potato tuber may be designated by size in accordance with Table 1. When the designations in Table 1 are used the sizes shall be within the specification in Table 1.

The size of the tuber shall be determined by use of an appropriate square mesh.

Table 1 — Scale for sizing tubers

| Size   | Minimum,<br>mm | Maximum,<br>mm    |
|--------|----------------|-------------------|
| Small  | 31 x 31        | 50 x 50           |
| Medium | 51 x 51        | 80 x 80           |
| Large  | 81 x 81        | more than 81 x 81 |

## 7 Provisions for tolerances

Tolerances in respect of quality and size shall be allowed in each package for produce not satisfying the requirements of the class indicated.

### 7.1. Quality

#### 7.1.1 General

Tolerances for the quality requirements shall be such that;

- a) a total of no more than 10 % of the potato tuber in the lot may fail the requirements;
- b) no more than 3 % of the potato tuber may be affected by rot, mould or deterioration as to make it unfit for consumption;
- c) no more than 3 % of the potato tuber may be affected by damage caused by pests; and
- d) no more than 3 % of the potato tuber may be affected by both rot, mould or deterioration and damage caused by pests in combination

#### 7.1.2 Class tolerances

##### 7.1.2.1 Extra class

Fresh potato tuber of Extra class may have a maximum of 5 % by number or mass of potato tuber not satisfying the requirements of the class, but meeting those of Class I or exceptionally coming within the tolerances of that class.

##### 7.1.2.2 Class 1

Fresh potato tuber of Class I may have a maximum of 10 % by number or mass of potato tuber not satisfying the quality requirements of Class II, but meeting those of Class III or exceptionally coming within the tolerances of that class.

##### 7.1.2.3 Class II

Fresh potato tubers of Class II shall satisfy the general quality requirements in Clause 4 may have a maximum of 20 %.

### 7.2. Size tolerance

Size tolerances for all classes shall be a maximum of Extra Class – 5%, Class I and II – 10% by number or the weight of potato corresponding to the size immediately above or below the size declared or indicated on the package.

## 8 Contaminants

### 8.1 Pesticide residues

Fresh potato tubers shall comply with the maximum residue limits for pesticides established by the Codex Alimentarius Commission for this commodity.

## 8.2 Other contaminants

Fresh potato tubers shall comply with the maximum levels of the Codex General Standard for Contaminants and Toxins in Food and Feed (CODEX STAN 193).

## 9 Hygiene

Fresh potato tubers shall be handled in hygienic manner in accordance with CAC/RCP 53.

## 10 Packaging

Fresh potato tubers may be sold packaged or loose. Packaged fresh potato tubers shall be packaged in such a way to protect the produce from mechanical, heat and frost damage.

Fresh potato tubers shall be packaged in food grade materials that will safeguard the hygienic, nutritional, and organoleptic qualities of the product.

## 10 Weights and Measures

Food grade cassava starch shall be packaged in accordance with Weights and Measures requirements of the destination country.

## 12 Labelling

12.1 In addition to the requirements of EAS 38, the following specific requirements shall apply and shall be **legibly** and **indelibly** marked;

- a) name of the product to be shown on the label shall be "Fresh potato tubers";
- b) name and location address of the exporter and/or packer shall be declared;
- c) country of origin of the produce
- d) place of origin such as district, or region
- e) commercial identification shall be declared:
  - grade;
  - variety;
  - size (size code);
  - net weight (in metric system); and
- f) lot identification (batch number);

12.2 When labelling non-retail packages, information for non-retail packages shall either be given on the packages or in accompanying documents, except that the name of the product, lot identification and the name and address of the manufacturer or packer shall appear on the package.

### 13 Sampling

Sampling shall be done in accordance to ISO 874

### 14 Criteria for conformity

A lot shall be declared as conforming to this standard if each sample inspected or analysed for quality requirement conforms to the provision of this standard.

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