



## DRAFT TANZANIA STANDARD

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### Fresh apples - Specification

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TANZANIA BUREAU OF STANDARD

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## 0. Foreword

An apple is a round, edible fruit produced by apple tree (*Malus domestica*) which part of the Rose family (*Rosaceae*). Apples are cultivated in the temperate climate. They can be eaten fresh or processed into other fruit products and are valued for their nutrient content, mainly vitamins and antioxidants.

This Tanzania Standard was prepared to provide guidance to apples producers, traders and regulators to ensure safety and quality of the produce.

In the preparation of this Tanzania Standard, considerable assistance was derived from:

UNECE Standard FFV-50, Apples, published by the United Nations Economic Commission for Europe; and  
Codex Stan 299:2010, Standard for apples.

In reporting the results of a test or analysis made in accordance with this Tanzania Standard, if the final value observed or calculated is to be rounded off, it shall be done in accordance with TZS 4 (see clause 2).

## 1 Scope

This Tanzania Standard specifies requirements, methods of sampling and tests of fresh apples of the species *Malus domestica* of the rosaceae family.

## 2 Normative references

The following referenced standards are indispensable for the application of this Tanzania Standard. For dated references, only the edition cited applies.

For undated references, the latest edition of the referenced standard (including any amendments) applies.

- a) TZS 4, *Rounding off numerical values*
- b) TZS 109, *General principles of food hygiene - Code of practice*
- c) TZS 122, *Microbiology of food and feeding stuffs - Horizontal method for detection of Salmonella spp.*
- d) TZS 131, *Microbiology of food and animal feeding stuff - General guidance for enumeration of yeasts and moulds - Colony count technique at 25°C*
- e) TZS 538, *Pre -packaged food labeling - general requirements*
- f) TZS 729, *Microbiology of food and animal feeding stuffs -Horizontal method for the enumeration of coliforms - Colony count technique*

- g) TZS 730-2 *Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of -b-glucuronidase-positive Escheria coli - Part 2 - Colony-count technique at 44°C using 5-bromo-4-chloro-3-indolyl-b-D-glucuronide*
- h) TZS 1003 *Guide to the prepacking of fruits and vegetables*
- i) TZS 1743 *National standard for good agricultural practices (GAP) and good handling practices for fresh fruits and vegetables*
- j) *Codex stan 193 General Standard for Contaminants and Toxins in Food and Feed*
- k) *Codex pesticide residues in food online data base*

### **3 Terms and definitions**

For the purpose of this Tanzania Standard the following terms and definitions shall apply:

#### **3.1 fresh**

newly harvested mature fruits; with colours ranging from green, light green, yellowish, reddish green, green with shades of reddish coloration or admixture of such colors.

#### **3.2 mature**

qualitative or quantitative estimation of the state which a fruit has reached during its natural growth and development

#### **3.3 damage**

any defect or injury which affects the appearance and storage quality of apples.

#### **3.4 clean**

practically free of any visible foreign matter

#### **3.5 sound**

produce not affected by rotting or deterioration such as to make it unfit for human consumption;

#### **3.6 intact**

no part(s) removed and have not suffered any damage

#### **3.7 firm and fresh**

turgescient product with no signs of withering or ageing, the cells of which have not deteriorated and with significant resistance to pressure

#### **3.8 abnormal external moisture**

excess water on the surface of fruits caused by a natural agent (for example rain) or due to an artificial treatment (for example washing)

## 4 Requirements

### 4.1 General requirements

Subject to the special provisions for each class and tolerances allowed, apples in all classes shall meet the following general requirements;

- whole; the stalk (stem) may be missing, provided the break is clean and the adjacent skin is not damaged;
- intact;
- not damaged;
- mature;
- firm and fresh;
- sound;
- clean;
- practically free from pests and damage caused by them;
- free from unhealed injury and traces of dirt;
- free from foreign smell and/or taste;
- free of damage caused by low and/or high temperatures;
- free from abnormal external moisture, excluding condensation following removal from cold storage; and
- practically free of signs of dehydration.

4.2 Apples shall have colour that is characteristic of the variety and the area in which they are grown. The development and condition of the apples shall be such as to enable them:

- to withstand transport and handling; and
- to arrive in satisfactory condition at the place of destination.

### 4.3 Maturity requirements

Apples shall be at a stage of development that enables them to continue the ripening process and to reach a stage of ripeness required in relation to the varietal characteristics. In order to verify the minimum maturity requirements some parameters such as: morphological aspects, firmness and refractometric index can be considered.

### 4.4 Colouring

In all classes, in the absence of national legislation, the following colour codes may be applied except for green and yellow apple varieties:

Code	Percentage of colour
A	75 or more

B	50 or more
C	25 or more
D	Less than 25

## 5 Classification

In accordance with the defects allowed in the Annex - Maximum Allowance for Defects, apples are classified in three classes defined below:

### 5.1 Extra class

Apples in this class shall be of superior quality. The flesh shall be sound. They shall be characteristic of the variety. They shall be free of defects, with the exception of very slight superficial defects, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package

### 5.2 Class I

Apples in this class shall be of good quality. The flesh shall be sound. They shall be characteristic of the variety. The following slight defects, however, may be allowed, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package:

- a slight defect in shape and development;
- a slight defect in colouring;
- slight skin or other defects (see the Annex).

### 5.3 Class II

This class includes apples which do not qualify for inclusion in the higher classes, but satisfy the general requirements. The following defects, however, may be allowed, provided the apples retain their essential characteristics as regards the quality, the keeping quality and presentation:

- defects in shape and development;
- defects in colouring;
- skin or other defects (see the Annex).

## 6. Provisions concerning sizing

Size is determined by maximum diameter of the equatorial section or by weight of each apple. For all varieties and all classes, the minimum size is 60 mm if measured by diameter or 90 g if measured by weight. Fruit of smaller sizes may be accepted provided the Brix level of the produce meets or exceeds 10.5° Brix and the size is not smaller than 50 mm or 70 g.

## 7 Provisions concerning tolerances

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

## **7.1 Quality tolerances**

The application of the following tolerances should take into accounts that at stages following export; products may show in relation to the requirements of the standard:

- a slight lack of freshness and turgidity;
- for products graded in classes other than the “Extra” Class, a slight deterioration due to their development and their tendency to perish.

### **7.1.1 Extra class**

Five percent by number or weight of apples not satisfying the requirements of the class, but meeting those of Class I or, exceptionally, coming within the tolerances of that class. Included therein shall be allowed not more than 1.0% for apples affected by decay or internal breakdown.

### **7.1.2 Class I**

Ten percent by number or weight of apples not satisfying the requirements of the class, but meeting those of Class II or, exceptionally, coming within the tolerances of that class. Included therein shall be allowed not more than 1% for apples affected by decay or internal breakdown.

### **7.1.3 Class II**

Ten percent by number or weight of apples satisfying neither the requirements of the class nor the minimum requirements, with the exception of apples affected by decay or internal breakdown that should not be more than 2%. Included therein shall be allowed, a maximum of 2% by number or weight of fruit which may show the following defects:

- cork like blemishing (bitter pit);
- slight damage or unhealed broken skin/cracks;
- presence of internal feeding insects/pests or damage to the flesh caused by pests.

## **7.2 Size tolerance**

For all classes of fruit subjected to rules of uniformity, 10% by number or weight of apples not meeting the size indicated on the package. This tolerance may not be extended to include produce with a size below 50 mm or 70 g if the refractometric index is below 10.5°Brix

## **8 Contaminants**

### **8.1 Metallic contamination**

Apples shall comply with those maximum heavy metal limits established by the Codex stan 193.

### **8.2 Pesticides residues**

Apples shall comply with those maximum pesticide residues limits established in the Codex pesticide residues in food online data base.

## 9 Hygiene

9.1 Apples shall be prepared and handled in accordance with TZS 109 and TZS 1743 (see clause 2).

9.2 Apples shall also comply with the microbiological requirements specified in Table 1.

**Table 1 - Microbiological requirements for apples**

Characteristic	Requirement	Test method
Coliforms cfu/g	10 <sup>2</sup>	TZS 729
<i>Escherichia coli</i> , cfu/g	Absent	TZS 730-2
<i>Salmonella spp</i> /25 g	Absent	TZS 122
Yeast and moulds, max	10 <sup>2</sup>	TZS 131

## 10 Provisions concerning presentation

### 10.1 Uniformity

The contents of each package shall be uniform and contain only apples of the same origin, quality, size (if sized) and variety. For “Extra” Class, colour should be uniform. Sales packages (of a net weight not exceeding 5kg) may contain mixtures of varieties and sizes provided they are uniform in quality, and for each variety concerned, its origin. The visible part of the contents of the package shall be representative of the entire contents except for mixed sizes and varieties. The uniformity of apples may be measured in accordance with one of the following options:

#### A. By diameter:

The maximum diameter difference of apples in the same package shall be limited to:

- 5 mm if the diameter of the smallest apples is less than 80 mm.
- 12 mm if the diameter of the smallest apple is equal to or over 80 mm.

#### B. By weight:

The maximum difference by weight between apples in the same package shall be limited to:

- 15 g if the weight of the smallest apple is 90 g.
- 20 g if the weight of the smallest apple 90 g and over but under 135 g.
- 30 g if the weight of the smallest apple is 135 g and over but under 200 g.
- 40 g if the weight of the smallest apple is 200 g and over but under 300 g.
- 50 g if the weight of the smallest apple is over 300g.

There is no size uniformity for apples packed loose in the package or sales package.

## **11. Packaging, marking and labelling**

### **11.1 Packaging**

**11.1.1** Apples shall be packed in such a way as to protect the produce properly. The materials in particular the paper used inside the package must be new, clean and of quality such as to avoid causing any external or internal damage or contamination to the produce during handling, shipping or preservation of the produce.

**11.1.2** The use of any substance tending to modify the natural characteristics of the produce, especially form, texture and taste shall be prohibited. Use of toxic ink or glue which could result into coming in contact with the fruit is prohibited.

**11.1.3** Any paper or other material used inside the packages shall be of food grade.

**11.1.4** In addition to the provisions covered by this Tanzania Standard, apples shall also be packed in accordance with TZS 538 and TZS 1003 (see clause 2).

### **11.2 Description of containers**

The containers shall meet the quality, hygiene, ventilation and resistance characteristics to ensure suitable handling, shipping and preserving of the apples. Packages shall be free of foreign matter and objectionable smell.

### **11.3 Marking and labelling**

**11.3.1** Each package shall legibly and indelibly bear the following information:

- a) Name and address of exporter, packer and/or dispatcher;
- b) Name of the produce by common name, i.e. Apple;
- c) Name of the variety/cultivar for extra class and class I.  
May be optional for class II and III;
- d) Country of origin
- e) Commercial specifications,
  - Class;
  - Size (if sized);
  - Colour code (if used).
- f) Net weight;
- g) Pack date;
- h) brand or trade mark, if any.

### **11.3.2 Marking for retail sale**

At the retail stage where the produce is presented in its original packaging, the label shall be clearly displayed. Where the produce is presented in any other way the retailer shall display with the goods as offered for sale a durable label or display cards giving the following information:

- a) variety;
- b) the origin of the produce; and
- c) the quality class.

### **11.3.3 Certification mark of quality**

Each container may also be marked with TBS certification mark of quality

NOTE - The use of TBS certification mark of quality is governed by provisions of the standards Act 2009. Details of the conditions under which a license for the use of TBS certification mark may be granted to manufacturers or producers, may be obtained from TBS.

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## ANNEX

### MAXIMUM ALLOWANCE FOR DEFECTS

Defects Allowed		“Extra” Class	Class I	Class II
Russetting outside Calyx/stem cavity	• smooth net-like	3% of surface area	20% of surface area	50% of surface area
	• smooth solid	1% of surface area	5% of surface area	33% of surface area
accumulation for both types of russetting should not exceed the following		3% of surface area	20% of surface area	50% of surface area
Accumulated Blemishes & Bruising: - Bruises with slight discoloration; - Scars caused by Scabs ( <i>Venturiainaequalis</i> ); - other defects/blemish including healed hail marks		0.50 cm <sup>2</sup>	1.0 cm <sup>2</sup> 0.25 cm <sup>2</sup> 1.0 cm <sup>2</sup>	1.5 cm <sup>2</sup> 1.0 cm <sup>2</sup> 2.5 cm <sup>2</sup>
Stem or Calyx cracks (healed or well cured)		-	0.5 cm	1 cm
Maximum length of elongated shaped defects		-	2 cm	4 cm

Russetting can be simply described as a “brownish roughened area or streaks on the skin of the apple”. In some apple varieties russetting is a characteristic of the variety and for others a quality defect. Allowances for russetting will be applied to apple varieties that russetting is not a characteristic of.