



## DRAFT TANZANIA STANDARD

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Kiwifruit - specification

DRAFT STANDARD FOR PUBLIC COMMENTS ONLY

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TANZANIA BUREAU OF STANDARD

## 0 foreword

Kiwifruit, also known as "kiwi" is a true berry having a furry brownish green skin and firm translucent green flesh with numerous edible purple-black seeds embedded around a white center. Kiwifruit is a rich source of Vitamin C and antioxidants.

This Tanzania Standard was prepared in order to provide guidance to kiwifruit producers and traders as well as regulators, and to ensure safety and quality of the produce.

In the preparation of this Tanzania Standard considerable assistance was derived from: Codex Alimentarius CXS 338-2020 *Standard for Kiwifruit*.

In reporting the results of a test or analysis made in accordance with this 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 Standard specifies quality and safety requirements, methods of sampling and test of kiwifruit of varieties (cultivars) derived from *Actinidia chinensis* Planch and *A. deliciosa* (A. Chev.) C.F. Liang & A.R. Ferguson and hybrids derived from at least one of them, of the *Actinidiaceae* family, to be supplied fresh to the consumer. Kiwifruit for industrial processing are excluded.

## 2. Normative references

The following referenced standards are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced standards (including any amendments) applies.

- a) TZS 4, *Rounding off of numerical values*
- b) TZS 109, *Code of hygiene for food processing unit*
- c) TZS 122-1- *Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella- Part 1: Detection of Salmonella spp.*
- d) TZS 538, *Packaging, marking and labeling of foods*
- e) TZS 852-1- *Microbiology of the food chain - Horizontal method for the detection and enumeration of Listeria monocytogenes and of Listeria spp - Part 1: Detection method*
- f) TZS 1002, *Fresh fruits and vegetables – Sampling*

- g) TZS 1003, *Guide to the pre-packaging of fresh fruits and vegetables*
- h) TZS 1743, *Code of Hygienic Practice for Fresh fruits*
- i) TZS 2425 - *Microbiology of food and animal feeding stuffs- Horizontal method for the detection of Escherichia coli O157*
- j) Codex Stan 193, *Codex 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 purposes of this standard, the following terms and definitions apply;

#### **3.1 sound**

produce not affected by rotting or deterioration such as to make it fit for consumption

#### **3.2 clean**

free from dirt, dust, insect stains or other foreign substances

#### **3.3 malformation**

misshaped produce that the appearance does not fit the known characteristics of the variety

#### **3.4 firm**

crisp and should not be shriveled, limp or pliable

#### **3.5 intact**

no parts removed and that have not suffered any damage making them incomplete

#### **3.6 cultivar**

plant within a specie that has been produced in cultivation by selective breeding

#### **3.7 pest**

any organism that directly or indirectly affects the quality and safety of the produce

#### **3.8 true berry**

simple freshly fruit originating from one flower with one ovary and have several seeds

## **4 Requirements**

### **4.1 General requirements**

In all classes, subject to the special provisions for each class and the tolerances allowed, the kiwifruit shall be:

- intact (but free of peduncle);
- sound;
- adequately firm; not soft, shrivelled or water-soaked;
- well formed; double/multiple fruit being excluded;
- clean;
- practically free of pests and damage caused by them;
- free of abnormal external moisture, excluding condensation following removal from cold storage;
- free of any foreign smell and/or taste;
- fresh in appearance;

**4.1.1** The development and condition of the kiwifruit shall be such as to enable them:

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

#### **4.1.2 Maturity Requirements**

The kiwifruit shall have reached an appropriate degree of maturity, in accordance with characteristics of the variety, to allow for development of satisfactory organoleptic characteristics. The fruit shall have attained a degree of maturity of at least 6.2° Brix or an average dry matter content of 15%.

### **4.2 Classification**

Kiwifruit are classified into three classes, as defined below:

#### **4.2.1 “Extra” class**

Kiwifruit in this class shall be of superior quality. They shall be characteristic of the variety (cultivar). The flesh shall be sound. Fruit shall be round, oblong or oval in cross section (not flattened), and the ratio of the minimum equatorial diameter to the maximum equatorial diameter of the fruit shall be 0.8 or greater.

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.

#### **4.2.2 Class I**

Kiwifruit in this class shall be of good quality. They shall be characteristic of the variety (cultivar). The flesh shall be sound. Fruit shall be round, oblong or oval in cross section (not flattened), and the ratio of the minimum equatorial diameter to the maximum equatorial diameter of the fruit shall be 0.7 or greater.

The following slight defects 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 (but free of swelling or malformations);
- slight defects in colouring;
- slight, superficial skin defects, provided the total area affected does not exceed 1cm;
- small “Hayward marks” (longitudinal lines) without protuberance.

#### **4.2.3 Class II**

This class includes kiwifruit which do not qualify for inclusion in the higher classes, but satisfy the general requirements specified in clause 4.1. The flesh should not show any serious defects.

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

- defects in shape including flattened fruit;
- defects in colouring;
- skin defects provided that the total area affected does not exceed 2cm;
- several more-pronounced “Hayward marks” with a slight protuberance;
- slight bruising.

#### **4.3 Provisions concerning sizing**

Kiwifruit may be sized by weight or count, or in accordance with existing trading practices, and labelled accordingly. When sized in accordance with existing trade practices, the package shall be labelled with the size and method used.

For fruit sized by weight; *A. chinensis* and *A. deliciosa* and hybrids between these species, the minimum weight for “Extra” class is 90g, for Class I is 70g and for Class II is 65g.

To ensure uniformity in size, the range in size between produce in the same package that is sized by weight shall not exceed:

- 10g for fruit less than or equal to 85g;
- 15g for fruit weighing greater than 85g and up to 120g;
- 20g for fruit weighing greater than 120g and up to 150g;
- 40g for fruit weighing greater than 150g

#### **4.4 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.

##### **4.4.1 Quality tolerances**

###### **4.4.1.1 “Extra” class**

Five percent, by number or weight, of kiwifruit not satisfying the requirements of the class but meeting those of Class I. Included therein is 0.5% tolerance for decay, soft rot and/or internal breakdown which only applies beyond the export control point.

#### **4.4.1.2 Class I**

Ten percent, by number or weight, of kiwifruit not satisfying the requirements of the class but meeting those of Class II. Included therein is 1% tolerance for decay, soft rot and/or internal breakdown.

#### **4.4.1.3 Class II**

Ten percent by number or weight of kiwifruit satisfying neither the requirements of the class nor the minimum requirements. Included therein not more than 2% in total may consist of produce affected by decay, soft rot and/or internal breakdown.

#### **4.4.2 Size tolerances**

For all classes (if sized), 10% by number or weight of kiwifruit not satisfying the requirements as regards sizing is allowed.

### **4.5 Provisions concerning presentation**

#### **4.5.1 Uniformity**

The contents of each package shall be uniform and contain kiwifruit of the same origin, variety (cultivar), quality and size. However, a mixture of kiwifruit of distinctly different varieties may be packed together in a package provided they are uniform in quality and, for each variety concerned, uniform in origin.

The visible part of the contents of the package shall be representative of the entire contents.

## **5**

## **6 Hygiene**

**6.1** It is recommended that the produce covered by the provisions of this Standard be prepared and handled in accordance with TZS 109 (see clause 2) and TZS 1743.

**6.2** Kiwifruit shall also comply with the microbial requirements prescribed in Table 1.

**Table 1: Microbiological limits for Kiwifruit**

<b>S/N</b>	<b>Test</b>	<b>Test Method</b>	<b>Requirement</b>
1.	<i>Listeria monocytogenes</i> per 25g	TZS 852-1	Absent
2.	<i>Escherichia coli</i> O157:H7	TZS 2425	Absent
3.	<i>Salmonella</i> per 25g	TZS 122-1	Absent

## **7 Contaminants**

### **7.1 Heavy metal contaminants**

Kiwifruit shall comply with those maximum metal contaminants established by the Codex Stan 193.

### **7.2 Pesticide residues**

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

## **8 Sampling and tests**

### **8.1 Sampling**

Representative samples of kiwifruit shall be drawn as prescribed in TZS 1002 (see clause 2).

### **8.2 Tests**

Tests shall be done in accordance with the methods prescribed in this standard.

## **9. Packing, marking and labelling**

### **9.1 Packing**

Kiwifruit shall be packed in such a way as to protect the produce properly. The materials used shall be of food grade, clean and of a quality such as to avoid causing any external or internal damage to the produce. The use of materials, particularly of paper or stamps bearing trade specifications, is allowed, provided the printing or labelling has been done with nontoxic ink or glue.

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

**9.1.2** The use of any substance tending to modify the natural characteristics of the produce, especially form, texture and taste shall be prohibited.

**9.1.3** In addition to the provisions covered by this standard, kiwifruit shall also be packed in accordance with TZS 538 and TZS 1003 (See clause 2).

### **9.2 Marking and labelling**

**9.2.1** Each package shall legibly and indelibly bear the following information in Swahili or and English on the same side:

- a) Name and address of exporter, packer and/or dispatcher;
- b) Name of the produce;
- c) Country of origin;
- d) Class;
- e) Size (if sized), be expressed

- by the minimum and maximum weight of the fruit; or
  - by number of fruit and the net fruit weight; or
  - by the size and method used
- f) Net weight (kg);
- g) Batch number;
- h) Storage condition;

**9.2.2** Certification mark – Each container may also be marked with TBS certification mark.

**NOTE:** The use of TBS certification mark 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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