
Fresh sweet banana - Specification

Foreword

This Ethiopian Standard has been prepared under the direction of the Technical committee for fruit and vegetable (TC-13) and published by Ethiopian Standard Agency (ESA).

In the preparation of this standard reference has been made to the following:

CODEX STAN 205, Codex standard for bananas.

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

Acknowledgment has been made for the use of information from the above publications.

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1. Scope

This Ethiopian Standard applies to fresh banana, grown from *Musa spp*, of the family Musaceae; in an unripe or ripe state, to be supplied to the consumer. Bananas intended for cooking only or industrial processing are excluded.

NOTE: the commonly grown commercial varieties of bananas are stated in Annex A.

2. Normative references

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

CES 73 General standard for prepackaged foods –Labeling.

ES ISO 874 Fresh fruits and vegetables – Sampling.

ES ISO 7558, Guide to the prepacking of fruits and vegetables.

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

3. Terms and definitions

For the purpose of this standard the following definitions shall apply.

3.1.

fresh sweet banana

the mature fruit, being light green or red/purple when unripe, marketed before and/or after ripening for consumption.

3.2.

plantain

cooking banana; distinctly recognized for its higher level of starch content; commonly marketed while green in color; normally not considered to be suitable for dessert even when ripened.

3.3.

east africa highland banana

cooking banana; recognized for its low level of starch content; commonly marketed while green or yellow in colour; normally not considered to be suitable for dessert even when ripened.

3.4.

physiological maturity

the stage when the fruit reaches its largest diameter.

3.5.

cluster

a group of attached bananas from a split hand.

3.6.

hand

group of bananas fingers attached to one piece of peduncle.

3.7.

finger

means single banana.

3.8.

sound

not overripe, not soft and free from diseases or insect damage, or bruising or physical injuries affecting keeping quality of the fruit.

3.9.

food grade packaging material

any material which when it comes in contact with food or if the area near food is unlikely to contaminate food with harmful materials.

3.10.

firm

not soft, flabby, or shriveled.

3.11.

colored

the surface of each banana showing definite change of color from matured green to yellow.

3.12.

even color

fruit color fulfills the color of the variety at certain stage.

3.13.

optimal maturity

banana harvested at maturity stage. it is identified by saturation degree, skin color and flesh color.

3.14.

matured green

banana whose surface is still green while the contents are fully developed.

3.15.

damage

any defect or injury, which is readily apparent upon examination or which affects the edible quality of the bananas.

4. Requirements

4.1. General requirements

4.1.1. Fresh sweet banana in all classes shall meet the following minimum requirements.

- a) Whole (taking the finger as the reference).
- b) Sound: produce affected by rotting or deterioration such as to make it unfit for consumption is excluded.
- c) Clean: practically free of any visible foreign matter.
- d) Practically free of pests affecting the general appearance of the produce.

- e) Practically free of damage caused by pests.
- f) Free of abnormal external moisture, excluding condensation following removal from cold storage and banana packed under modified atmosphere conditions.
- g) Free of any foreign smell and/or taste.
- h) Firm.
- i) Free of damage caused by low temperatures.
- j) Practically free of bruises.
- k) Free of malformation or abnormal curvature of the fingers.
- l) With pistil removed.
- m) With the stalk intact, without bending, fungal damage or desiccation.

In addition, hands/clusters must include:

- (i) A sufficient portion of the crown of normal colouring, sound and free of fungal contamination; and
- (ii) A cleanly cut stalk, not beveled or torn, with no stalk fragments.

4.1.2. The development and condition of the bananas shall be such that enable them to reach the appropriate stage of physiological maturity corresponding to the particular characteristics of the variety and arrive in a satisfactory condition at the place of destination in order to ripen satisfactorily.

4.2. Specific requirements

4.2.1. Classification

Fresh sweet bananas are classified in three classes; Extra class, Class I and Class II.

4.2.1.1. "Extra" Class

Fresh sweet bananas in this class shall be of superior quality. They shall have the characteristics typical of the variety and/or commercial type. The fingers shall be free of defects and free from decay with the exception of very slight superficial defects, provided these do not affect the general appearance of the produce, the quality and presentation in the package:

- a) Clean, practically free from any visible foreign matter.
- b) Normal development with optimal development.
- c) Even color, no split, without broken fingers.
- d) Free from disease and pests and damage caused pests.
- e) Fruits shall be of the same variety or type.

4.2.1.2. Class I

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

- i. Slight defect in shape and colour.
- ii. Slight skin defects due to rubbing and other superficial defects not exceeding 2 cm² of the total surface area.
- iii. The defects shall not, in any case, affect the flesh of the fruit.
- iv. Fruits shall be of the same variety.
- v. Finger pedicle shall not be damaged not too soft, crown shall be apparently firm.
- vi. Free from disease and pesticide injury.

4.2.1.3. Class II

This class covers banana which do not qualify for inclusion in the Extra class or Class I but satisfy the minimum requirements specified in clause 4.1. The following defects, however, may be allowed provided the banana retains their essential characteristics as regards the quality, the keeping quality and presentation:

- a) Defects in shape and colour, provided the product retains the normal characteristics of the banana
- b) Skin defects due to scraping, scabs, rubbing, blemishes or other causes not exceeding 4 cm² of the total surface area.
- c) The defects shall not, in any case, affect the flesh of the fruit.

4.2.2. Size requirements

4.2.2.1. Sizing is determined by:

- a) The length of the edible pulp of the fruit, expressed in centimeters and measured along the convex face from the blossom end to the base of the peduncle.
- b) The grade (girth), i.e. the measurement, in centimeter of the thickness of a transverse section of the fruit between the lateral faces and the middle, perpendicularly to the longitudinal axis.

4.2.2.2. The reference fruit for measurement of the length and grade is:

- a) For hands, the median finger on the outer row of the hand.
- b) For clusters the finger next to the cut section of the hand, on the outer row of the cluster.

The minimum length permitted is 14 cm with exception to apple banana and the minimum diameter permitted is 2.7 cm. [see 4.2.2.1 (b)].

5. Tolerances

5.1. Quality tolerances

5.1.1. Extra class – 5% by number or weight of banana not satisfying the requirements of the class, but meeting those of class 1 or, exceptionally coming within the tolerances of that class.

5.1.2. Class 1 - 10% by number or weight of banana not satisfying the requirements of class 1 but meeting those of class II, or, exceptionally, coming within the tolerance for class.

5.1.3. Class II - 10% by number or weight of bananas satisfying neither the requirements for class I nor the minimum requirements, with the exception of produce affected by rotting or any other deterioration rendering it unfit for consumption.

5.2. Size tolerances

For all classes: 10% by weight of bananas not satisfying the requirements as regards sizing. The roots may fall below the minimum size or exceed the maximum permissible difference for the class.

5.3. Presentation tolerances

- a) The banana shall be presented in hands and clusters (parts of hands) of at least four fingers. Bananas may also be presented as single fingers.
- b) Clusters with no more than two missing fingers are allowed, provided the stalk is not torn but cleanly cut, without damage to the neighboring fingers.
- c) Not more than one cluster of three fingers with the same characteristics as the other fruit in the package may be present per row.

6. Contaminants

6.1. Pesticide residues

Banana shall comply with those maximum residue limits established by the Codex Committee on Pesticide Residues for this commodity.

6.2. Metal contaminants

When tested in accordance with ES ISO 6633, the Lead content in fresh banana shall not exceed 0.1 mg/kg

7. Hygiene

It is recommended that the produce covered by the provisions of this standard be prepared and handled in accordance with CAC/RCP 53-2003.

8. Packaging and Labeling

8.1 Packaging

8.1.1 Fresh sweet bananas shall be packed in such a way as to protect the produce properly. The food grade packaging material used inside the package shall be 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 non-toxic ink or glue. Packages must be free from any foreign matter and the material shall be recyclable.

8.1.2 Fresh sweet bananas shall also be packed in containers in accordance with ES ISO 7558.

8.1.3 The contents of each package shall be uniform and consist exclusively of bananas of the same origin, variety and/or commercial type, and quality. The visible part of the content of the package must be representation of the entire contents.

8.2 Labelling

The labeling shall comply with the requirements of CES 73, and shall be legibly and indelibly marked with the following:

- a) Name of the product
- b) Name and physical and postal address of manufacturer, exporter/importer;
- c) Batch or identification code;
- d) Net weight in liter;
- e) Expiry date;
- f) List of ingredients;
- g) Storage instruction;
- h) Country of origin;
- i) Date of manufacture;
- j) Any other information required by the purchaser.

9. Methods of Sampling

Sampling of dehydrated vegetables shall be done in accordance with ES ISO 874.

Annex A

The following are the commonly grown commercial varieties of banana.

- i. Dwarf Cavendish
- ii. Giant Cavendish
- iii. Grand naine
- iv. .Paz (Pazi)
- v. Robusta
- vi. Gross Michel/Jamaica
- vii. Williams
- viii. Silk/ Apple banana
- ix. FHIA

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Organization and Objectives

The Ethiopian Standards Agency (ESA) is the national standards body of Ethiopia established in 2010 based on regulation No. 193/2010. ESA is established due to the restructuring of Quality and Standards Authority of Ethiopia (QSAE) which was established in 1998.

ESA's objectives are:-

- ❖ Develop Ethiopian standards and establish a system that enable to check whether goods and services are in compliance with the required standards,
- ❖ Facilitate the country's technology transfer through the use of standards,
- ❖ Develop national standards for local products and services so as to make them competitive in the international market.

Ethiopian Standards

The Ethiopian Standards are developed by national technical committees which are composed of different stakeholders consisting of educational institutions, research institutes, government organizations, certification, inspection, and testing organizations, regulatory bodies, consumer association etc. The requirements and/or recommendations contained in Ethiopian Standards are consensus based that reflects the interest of the TC representatives and also of comments received from the public and other sources. Ethiopian Standards are approved by the National Standardization Council and are kept under continuous review after publication and updated regularly to take account of latest scientific and technological changes.

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