

CES 93

Compulsory Ethiopian Standard

Third Edition
2021

Onion- Specification



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Foreword

This Ethiopian Standard has been prepared under the direction of the Technical Committee for Fruits and vegetables (TC 13) and published by the Ethiopian Standards Agency (ESA).

This Compulsory Ethiopian Standard cancels and replaces CES 93:2018. Application of this standard is **COMPULSORY** with respect to clauses 7, 8.1, 9, 10, 11.2 and 13. A Compulsory Ethiopian Standard shall have the same meaning, interpretation and application of a "Technical Regulation" as implied in the WTO-TBT Agreement.

Implementation of this standard shall be effective as of xx-xx-2021

Onion- Specification

1. Scope.

This Ethiopian standard applies to onions of varieties (cultivars) grown from *Allium Cepa* L. to be supplied fresh to the consumer the natural state, green onions with full leaves for industrial processing being excluded.

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. Information on currently valid national and international standards can be obtained from the Ethiopian Standards Agency (ESA).

CES 73, General standard for prepackaged foods

ES 577, Recommended code of practice. General principles of Food hygiene

ES ISO, 874, Fresh fruits and vegetables-Sampling

ES 1246, Code of practice for packaging and transport of fruits and vegetable

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

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

ES ISO 4833, Microbiology of food and animal feeding stuffs- Horizontal method for the enumeration of microorganisms- Colony- count technique at 30 °C.

ES ISO 4831, Microbiology- General guidance for the enumeration of coli-forms-Most probable number technique

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

3. Definitions

For the purpose this Ethiopian Standard the following definitions shall apply.

3.1.

mature well cured.

Midseason onions which are not customarily held in storage shall be considered mature when harvested in accordance with good commercial practice at a stage which will not result in the onions becoming soft or spongy.

3.2

dormant

at least 90 percent of the onions in any lot show no evidence of growth as indicated by distinct elongation of the growing point or distinct yellow or green color in the tip of the growing point

3.3

fairly firm

the onion may yield slightly to moderate pressure but is not appreciably soft or spongy

3.4

fairly well shaped

having the shape characteristic of the variety, but onions may be slightly off-type or slightly misshapen

3.5

wet sunscald

sunscald which is soft, mushy, sticky or wet

3.6

doubles

onions which have developed more than one distinct bulb joined only at the base harvesting and packing.

3.7

bottlenecks

onions which have abnormally thick necks with only fairly well developed bulbs

3.8

scallions

onions which have thick necks and relatively small and poorly developed bulbs

3.9

damage

any specific defect described in this section; or any equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which materially detracts from the appearance, or the edible or marketing quality of the onions. The following specific defects shall be considered as damage:

3.10**diameter**

the greatest dimension measured at right angles to a straight line running from the stem to the root

3.11**badly misshapen**

the onion is so misshapen that its appearance is seriously affected

3.12**serious damage**

any specific defect described in this section; or any equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which seriously detracts from the appearance, or the edible or marketing quality of the onions. The following specific defects shall be considered as serious damage.

3.13**one type**

the onions are within the same general color category

4. General requirements**4.1 General**

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

- a) intact;
- b) sound; produce affected by rotting or deterioration such as to make it unfit for consumption is
- c) excluded;
- d) Clean, practically free of any visible foreign matter;
- e) free of damage due to frost;
- f) sufficiently dry for the intended use (in the case of pickling onions, at least the first two outer skins and the stem shall be fully dried);
- g) without hollow or tough stems;
- h) practically free from pests;
- i) practically free from damages caused by pests;
- j) free of abnormal external moisture;
- k) free of any foreign smell and/or taste.
- l) the stems shall be twisted or clean cut and shall not exceed 6 cm in length (except for
- m) stringed onions).

4.1.2 The development and condition of the onions must be such as to enable them:

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

5. Classification

The onions are classified in two classes defined below:

5.1 Class I

Onions in this class shall be of good quality. Their characteristics shall be typical of the variety. The bulbs shall be :

- a) Firm and compact
- b) Unsprouted (free from externally visible shoots)
- c) Free from swelling caused by abnormal vegetative development
- d) Practically free of root tufts; however, for onions harvested before complete maturity, root tufts are
- e) allowed.

The following defects, however, may be allowed, provided they do not affect the general appearance of the produce, the quality, the keeping quality or presentation in the package:

- $\frac{3}{4}$ a slight defect in shape
- $\frac{3}{4}$ a slight defect in colouring
- $\frac{3}{4}$ light staining which does not affect the last dried skin protecting the flesh, provided it does not cover more than one fifth of the bulb's surface
- $\frac{3}{4}$ superficial cracks in, and partial absence of the outer skins, provided the flesh is protected.

5.2 Class II

This class includes onions, which do not qualify for inclusion in Class I, but satisfy a minimum requirements specified. They shall be reasonably firm.

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

- a) Defect in shape;
- b) Defect in colouring
- c) Early evidence of externally visible shoot growth (no more than 10 per cent by number or weight by

- d) unit of presentation);
- e) Traces due to rubbing;
- f) Slight marking caused by parasites or disease;
- g) Small healed cracks;
- h) Slight bruising, healed, unlikely to impair keeping qualities;
- i) Root tufts;
- j) Stains which do not affect the last dried skin protecting the flesh, provided they do not cover more than
- k) half the bulb's surface;
- l) Cracks in the outer skins and partial absence of over a maximum of one third of the bulb's surface
- m) provided the flesh is not damaged

6. Sizing

6.1 Size is determined by the maximum diameter of the equatorial section. The difference between the diameters of the smallest and largest onions in the same package shall not exceed:

- a) 5 mm where the diameter of the smallest onion is 10 mm and over but under 20 mm. However, where the
- b) diameter of the onion is 15 mm and over but under 25 mm, the difference may be 10 mm.
- c) 15 mm where the diameter of the smallest onion is 20 mm and over but under 40 mm.
- d) 20 mm where the diameter of the smallest onion is 40 mm and over but under 70 mm.
- e) 30 mm where the diameter of the smallest onion is 70 mm or over
- f) The minimum diameter fixed at 10mm

7. Tolerances

Tolerances in respect of quality and size shall be allowed in each packaging (,o r in each batch for onions in bulk) for produce not satisfying the requirements of the class indicated

7.1.1 Class I

10 percent by number or weight of onions not satisfying the requirements of the class, but meeting those of Class II or exceptionally coming within the tolerance of that class.

7.1.2 Class II

10 percent by number or weight of onions satisfying neither the requirements of the class nor the minimum requirements, with the exception of produce affected by rotting or any other deterioration rendering it unfit for consumption.

7.2 Size tolerances

For all cases: 10 per cent by number or weight of onions not satisfying the size identified, but with a diameter of no more than 20 per cent below or above it.

8. Provisions concerning presentation

8.1. Uniformity

The contents of each package (or lot, for produce presented in bulk) must be uniform and contain only onions of the same origin, variety, quality and size. However, sales packages, of a net weight not exceeding three kilogrammes, may contain mixtures of onions of different colours, provided that they are uniform in quality, and, for each colour concerned, in origin, variety and size. The visible part of the contents of the package (or lot, for produce presented in bulk) must be representative of the entire contents.

8.2. Presentation

Onions may be presented:

- a) Arranged in layers;
- b) Loose in a package (including bulk bins);
- c) Transported in bulk;
- d) In strings;
- e) Either of a certain number of bulbs, in which case the strings shall contain at least six onions (with
- f) fully dried stems); Or of a certain net weight.

For stringed onions, the characteristics of the strings in any one package (number of bulbs or net weight) shall be uniform.

9. Contaminants

Onions shall comply with maximum heavy metals Limits indicated in Table 1

Table 1 Heavy metals limit for onions

S.no	Heavy Metal	Requirement	Test Method
1.	Lead mg/Kg ,Max	0.1	ES ISO 6633
2.	Cadmium mg/Kg ,Max	0.05	ES ISO 6561

10. Pesticide residues

Onions shall comply with the maximum residual limits specified by codex alimentarius commission.

11. Hygiene

11.1. It is recommended that the products covered by the provisions of this committee draft prepared and handled in accordance with the appropriate section of the recommended , code of practice ES 577

11.2. To the extent possible a good agricultural practice the products shall be free objectionable matter and shall not contain any substance originating from microorganisms in amounts, which may represent a hazard to human health

Table 2 Microbiological requirements

S.no	Characteristics	Requirement	Test method
1.	Aerobic plate count/g, max	1×10^3	ES ISO 4833
2.	Coliforms/gram, max.	Less than 3(MPN)	ES ISO 4831
3.	E.Coli/gram,max.	Nil	ES ISO 16654

12. Sampling

Sampling of onion shall be done in accordance with ES ISO 874:.. Fresh fruits and vegetables sampling

13. Packaging and Labeling.**13.1. Packaging**

13.1.1. Packaging Onions shall be packed in such a way as to protect the produce properly.

13.1.2. The materials used inside the package shall be new, clean and of a quality such as to avoid causing any external or internal damage to the produce.

13.2. Labeling

Labeling of onions shall be done in accordance with CES 73 , general requirement for packaging and labeling of pre packaged food and shall bear the following particular in letters grouped on the same side, legibly and indelibly marked, and visible from the outside.(For onions transported in bulk (direct loading into a transport vehicle) these particulars shall appear on a document accompanying the goods, and attached in a visible position inside the transport vehicle).

- Name and address of the producer or supplier.
- Type of the product:
- Origin of the produce:
- Class
- Size (expressed by minimum and maximum diameters)
- Date of packing

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. Orders For all Ethiopian Standards, International Standard and ASTM standards, including electronic versions, should be addressed to the Documentation and Publication Team at the Head office and Branch (Liaisons) offices. A catalogue of Ethiopian Standards is also available freely and can be accessed in from our website.

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International Involvement

ESA, representing Ethiopia, is a member of the International Organization for Standardization (ISO), and Codex Alimentarius Commission (CODEX). It also maintains close working relations with the international Electro-technical Commission (IEC) and American Society for Testing and Materials (ASTM). It is a founding member of the African Regional Organization for standardization (ARSO).

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