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# Asparagus — Specification and test methods

*Asperges — Spécifications et méthodes d'essai*



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# Foreword

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This document was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 3, *Fruits, vegetables and their derived products*.



Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

# Introduction

Asparagus is an ancient crop, native to the eastern Mediterranean and Asia Minor, and first cultivated by the Romans. Popular in sixteenth century France and England, it made its way to America through the colonists. A member of the lily family, it has great nutritional value. It is low in calories and very low in sodium. Asparagus is a particularly good source of vitamin B6, calcium, magnesium, zinc, vitamin A, vitamin C, vitamin E, vitamin K, thiamin, riboflavin, rutin, niacin, folic acid, iron, phosphorus, potassium, copper, manganese, selenium, chromium, dietary fibre and protein. Asparagus spears can be eaten raw or cooked.

Asparagus, *Asparagus officinalis*, is an herbaceous perennial plant in the family Asparagaceae, which is grown for its young shoots, or spears, which are eaten as a vegetable. The asparagus plant is tall with scale-like leaves emerging from the underground stem (rhizome) and has stout stems and feathery foliage. The flowers are bell-shaped and occur alone or in pairs. They are green-white to yellow in colour. After flowering, a round red berry is formed with one to six black seeds. Asparagus can live for 20 or more years and can attain a height of between 100 cm to 150 cm. Asparagus originates from Europe, northern Africa and western Asia.

# Asparagus — Specification and test methods

## 1 Scope

This document specifies requirements and test methods for fresh asparagus shoots of commercial varieties of asparagus grown from *Asparagus officinalis* L., of the Liliaceae family, offered to consumers after preparation and packaging.

This document is applicable to all asparagus except green and violet/green asparagus with a diameter less than 3 mm and white and violet asparagus with a diameter less than 8 mm, packed in uniform bundles or unit packages.

This document does not apply to processed asparagus.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 874, *Fresh fruits and vegetables — Sampling*



ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

ISO 4186, *Asparagus — Guide to storage*



ISO 6882, *Asparagus — Guide to refrigerated transport*



CXC 44-1995, *Code of Practice for Packaging and Transport of Fresh Fruit and Vegetables*

## 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

## 4 Description

Asparagus shoots are subsoil, surface soil suckers and shoots of commercial varieties of asparagus grown from *Asparagus officinalis* L. of the Liliaceae family, to be supplied fresh to the consumer, after preparation and packaging.

## 5 Classification and requirements

### 5.1 General

Asparagus are divided into groups according to their colour (see 5.2.1), divided into classes according to their quality characteristics and diameter (see 5.2.2) and divided into sizes according to their length (see 5.2.3).

## 5.2 Classification

### 5.2.1 Groups

Asparagus are divided into four groups according to their colour;

— white;

— violet;

— violet/green;

— green.

### 5.2.2 Classes

Asparagus are divided into three classes according to their quality characteristics and diameter:

— Extra class;

— Class I;

— Class II.

### 5.2.3 Sizes

Asparagus are divided into three sizes according to their length;



— long;

— short;

— tip.

## 5.3 Requirements

### 5.3.1 General requirements

Asparagus shall be:

— whole and sound;

— clean and free from visible foreign matter;

— fresh looking and fresh smelling;

— free from insects and insect damage;

— free from any wounds;

— free from rots and suitable for handling and transportation.

Asparagus shall not:

— contain abnormal external moisture;

— have a foreign taste and smell;

— contain hollows, clefts, peelings or fractures.

When asparagus reach their destination, they shall be in a satisfactory condition.

When asparagus are packaged in a bunch, to ensure a sleek appearance, the outer surfaces of the suckers' end parts shall be trimmed as clean as possible.

### 5.3.2 Group requirements

The features of the four colour groups are:

— white: completely white;

— violet: purple, pink to purple tips;

— violet/green: part of both green and violet;

— green: ends and a portion of green.

### 5.3.3 Class requirements

#### 5.3.3.1 General

The minimum diameters for different classes of asparagus are given in Table 1.

**Table 1 — Minimum diameter values according to group and class**

| Group | Class | Diameter (mm) minimum | Explanation |
|---|---|---|---|
| White and violet | Extra | 12 | Difference between the diameter of the asparagus in the same package or bundle of asparagus shall not be more than 8 mm. |
| | Class I | 10 | The difference between Class I in the same package or bundle of asparagus shall not be more than 10 mm in diameter. |
| | Class II | 8 | No uniformity requirement. |
| Violet/green and green | Extra and Class I | 3 | The difference between the diameter of the asparagus Extra and Class I in the same package or bundle of asparagus shall not be more than 8 mm. |
| | Class II | 3 | No uniformity requirement. |



#### 5.3.3.2 Extra class

Shoots in this class shall be of superior quality, very well formed and practically straight. This class shall have a unique colour. They shall be intact. The tips shall be very tight and in a closed state. The external appearance of the product shall have no defects. The packaging shall not affect the presentation and quality of ingredients.

Only a few very slight traces of rust caused by non-pathogenic agents on the shoot, removable by normal peeling by the consumer, are allowed.

For the white asparagus group, the tips and shoots shall be white; only a faint pink tint is allowed on the shoots. Green asparagus shall be green for at least 95 % of the length.

The cut at the base of the shoots shall be as square as possible. However, to improve presentation when the asparagus is packed in bundles, those on the outside may be slightly bevelled, so long as the bevelling does not exceed 1 cm.

Asparagus of this class shall show no sign of lignification.