

འབྲུག་མེ་ཏྲག་ཏོན་ཚོད་ཀྱི་གནས་ཚད། དབྱེ་རིམ་དང་སྡེ་རིམ།

## **DRAFT BHUTAN STANDARD**

**Broccoli – Classification and Grading**



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**BHUTAN STANDARDS BUREAU**

**The National Standards Body of Bhutan**

**THIMPHU 11001**

འབྲུག་མེ་ཏྲག་ཏྲན་ཚློ་གནས་ཚད། དབྱེ་རིམ་དང་ཕྲེ་རིམ།

## **DRAFT BHUTAN STANDARD**

**Broccoli – Classification and Grading**

DRAFT BHUTAN STANDARD FOR THE PURPOSE OF WIDE CIRCULATION

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# **BTS XXX: 2024**

## **FOREWORD**

This Bhutan Standard for Broccoli-Classification and Grading was adopted by Bhutan Standards Bureau after the draft finalized by the Food and Agriculture Technical Committee TC 02 and approved by the Bhutan Standards Bureau Board (BSB Board) on Date Month Year.

This standard is subjected to systematic review after five years to keep pace with the market trends, industrial and technological developments. Any suggestions and further information may be directed to the concerned Technical Committee.

DRAFT BHUTAN STANDARD FOR THE PURPOSE OF WIDE CIRCULATION

## **Introduction**

Broccoli (*Brassica oleracea* var. *italica*) is a cole crop that belongs to Brassicaceae family. In Bhutan, Broccoli is grown from 300m to 2800m above mean sea level. The tightly closed head along with the fleshy stem is eaten as a vegetable throughout the world. The released varieties of broccoli in Bhutan are Dessico and Green Magic. In Bhutan, it has high scope for commercialization due to its growing demand.

The use of standard remains voluntary and when referenced by regulatory authorities for implementation, the standards become mandatory.

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## DRAFT BHUTAN STANDARD

### Broccoli – Classification and Grading

#### 1 Scope

This standard applies to commercial varieties of broccoli grown from *Brassica oleracea* L. var. *italica* of the Brassicaceae family, intended for consumer consumption following preparation and packaging.

This document does not apply to Broccoli for industrial processing.

#### 2 Normative References

The following 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 applies including amendments.

CAC/RCP 44-1995, *Code of Practice for the Packaging and Transport of Fresh Fruits and Vegetables*

CODEX STAN 1-1985, Rev. 1-199, *Codex General Standard for the Labelling of Prepackaged Foods*

CODEX STAN 193-1995, *Codex General Standard for Contaminants and Toxins in Food and Feed*

BTS 139: 2020 SARS 0014: 2018, *Food hygiene- General principles – Code of practice*

#### 3 Terms and Definitions

For the purpose of this standard, the following terms and definitions shall apply:

##### 3.1 Classification

Involves grouping item into categories of classes based on shared quality.

##### 3.2 Grading

Assessing and assigning a numerical or descriptive rating to produce.

##### 3.3 Sound

Produce not affected by rotting or deterioration making it unfit for consumption.

##### 3.4 Square Cut

The cut made at 90° angle, creating edges that are perpendicular to each other.

#### 4 Minimum Requirements

4.1 In all classes, subject to the special provisions for each class and the tolerances allowed, the broccoli:

- a) shall be whole.
- b) shall be fresh in appearance.
- c) shall be well-trimmed.
- d) shall be maximum stem length of 10 cm.
- e) shall be free of bloom or free of opening flower.
- f) shall be characteristic of the variety.
- g) shall be sound.
- h) shall be clean, practically free of any visible foreign matter.

- i) shall be practically free of pests and damage caused by them affecting the general appearance of the produce.
- j) shall be free of mechanical and/or physiological damage such as low and/or high temperature.
- k) shall be free of abnormal external moisture, excluding condensation following removal from cold storage.
- l) shall be free of any foreign smell.
- m) the cut of the floral stem shall be clean and as square as possible.
- n) hollow stems are not considered a defect provided the hollow part is sound, fresh, and not discoloured.
- o) the development and condition of the broccoli shall be such as to enable it to withstand transportation and handling.
- p) when broccoli reach their destination, they shall be in a satisfactory condition.

## 5 Classification

Broccoli is classified in two classes, as defined below:

### 5.1 Class I

- 5.1.1 Broccoli in this class shall be of good quality.
- 5.1.2 It shall be characteristic of the variety.
- 5.1.3 Shall be firm and compact.
- 5.1.4 Shall be tightly grained.
- 5.1.5 Shall be free of enlarged flower bud.
- 5.1.6 Shall be free of defects such as stains or traces of frost.
- 5.1.7 The floral stem shall be sufficiently tender and free of woodiness.
- 5.1.8 The buds shall be fully closed.
- 5.1.9 Leaves enclosing and slightly extending above the head may be allowed provided it is green, tender, sound, and fresh appearance.
- 5.1.10 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) a slight defect in shape.
  - b) a slight defect in colouring.

### 5.2 Class II

This class includes broccoli that do not qualify for inclusion in Class I but satisfy the minimum requirements specified above.

- 5.2.1 Broccoli may be slightly loose and less compact.
- 5.2.2 Broccoli may be less tightly grained.
- 5.2.3 The buds shall be practically closed.
- 5.2.4 The floral stem shall be reasonably tender and may have a trace of woodiness.
- 5.2.5 Leaves enclosing and slightly extending above the head may be allowed provided it is green, tender, sound, and fresh appearance.



**5.2.6** The following defects may be allowed, provided broccoli retains its essential characteristics as regards to the quality, the keeping quality and presentation in the package:

- a) defects in shape.
- b) defects in colouring.
- c) slight bruising and injury.

## 6 Grading

**6.1** Size is determined by the weight or maximum diameter of the equatorial section of the inflorescence (floral head), in accordance with the following tables:

**Table 1 – Grading of broccoli based on weight**

Size Code	Weight (gm)
1	>400
2	300-400
3	200-300
4	100-200

**Table 2 – Grading of broccoli based on diameter**

Size Code	Diameter (cm)
1	>14
2	12-14
3	10-12
4	8-10
5	6 - 8

## 7 Tolerances

### 7.1 General

Tolerances in respect of quality shall be allowed in each package or in each lot for produce presented in bulk, for produce not satisfying the requirements of the class indicated.

## 7.2 Quality Tolerances

### 7.2.1 Class I

Five percent by number or weight of broccoli not satisfying the requirements of the class, but meeting those of Class II or, exceptionally, coming within the tolerances of that class.

### 7.2.2 Class II

Ten percent by number or weight of broccoli satisfying neither the requirements of the class nor the minimum requirements, with the exception of produce affected by rotting or any other deterioration.

## 7.3 Size Tolerances

**7.3.1** For all classes, 10% by number or weight of broccoli not satisfying the requirements as regards sizing but falling within the size immediately above or below those indicated in clause 6.

## 8 Presentation

### 8.1 Uniformity

The contents of each package shall be uniform and contain only broccoli of the same origin, variety, quality and size. The visible part of the contents of the package shall be representative of the entire contents.

### 8.2 Packaging

**8.2.1** Broccoli shall be packed in such a way as to protect the produce properly.

**8.2.2** Broccoli shall be packed in each package in compliance with the *Code of Practice for the Packaging and Transport of Fresh Fruits and Vegetables* (CAC/RCP 44).

**8.2.3** 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.

**8.2.4** Stickers individually affixed to the produce shall be such that, when removed, they neither leave visible traces of glue nor lead to skin defects. Information lasered on single vegetable should not lead to flesh or skin defects.

### 8.3 Labelling

**8.3.1** The following basic information is required for the purpose of labelling:

**8.3.1.1** The name of the product and/or variety.

**8.3.1.2** The trademark or brand name, if any.

**8.3.1.3** The name and address of the producer and/or packer and/or distributor.

**8.3.1.4** The code or lot number.

**8.3.1.5** The net mass or gross mass (according to the request of the importing country) or Number of units.

**8.3.1.6** The class of product.

**8.3.1.7** Size code, expressed by weight or diameter. For example, (Size code: (1) grams OR (1) cm).

**8.3.1.8** The producing country.

**8.3.1.9** Date of packaging.

**8.3.1.10** Any other marking required by the purchaser.

**8.3.1.11** A reference to this document, i.e. BTS (optional).

## **9 Sampling**

Sampling methods to be used for ascertaining conformance to the requirements of this specification shall be in accordance with internationally accepted methods or national methods recognized internationally.

## **10 Requirements for Contaminants**

**10.1** The produce shall comply with the maximum levels of the Codex General Standard for Contaminants and Toxins in Food and Feed (CODEX STAN 193-1995).

**10.2** The produce shall comply with the maximum residue limits for pesticides established by the Codex Alimentarius Commission.

**10.3** The produce should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

## **11 Hygiene**

The manufacturer shall comply in accordance with BTS 139:2020 SARS 0014:2018, *Food hygiene-General principles – Code of practice*.

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