

# PHILIPPINE NATIONAL STANDARD

PNS/BAFPS 51:2007  
ICS 65.020.20

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Fresh vegetables – Garlic – Grading and classification



BUREAU OF PRODUCT STANDARDS

**Foreword**

The revision of the Philippine National Standard for Garlic (PNS/BAFPS 51:2007) was undertaken in order to reflect the recent technology developments in the industry and the need for harmonization with Codex requirements in Heavy Metals, Pesticide Residues and Hygiene.

PNS/BAFPS 51:2007 supersedes the existing standard for garlic developed by the Philippine Trade Standards (PTS No. 054-09.14:1969) and the Bureau of Product Standards (Standardization of Philippine Garlic. 1971).

A Technical Committee (TC) and Sub-Committee were organized by Bureau of Agriculture and Fisheries Product Standards (BAFPS) through Special Order No. 411, series of 2001 to identify members and experts that shall be involved in the formulation of the revised PNS for Garlic. Modifications were made concerning definition of terms, minimum requirements, classification, packaging, marking and labeling. The draft standard was presented for technical review and public consultations in the three major islands of the country.

The PNS for Garlic aims to provide common understanding on the scope, definition, varieties, minimum requirements, classification, sampling, packaging, marking and labeling, contaminants and hygiene.

**Fresh vegetables – Garlic – Grading and classification**

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**1 Scope**

This standard establishes a system of grading commercial varieties of garlic grown from *Allium sativum* of the Alliaceae family produced in the Philippines to be supplied fresh to the consumer. Garlic for industrial processing are excluded.

**2 References**

The titles of the standard publications and other references of this standard are listed on the inside back cover.

**3 Definitions**

For the purpose of this standard, the following definitions apply:

**3.1****compact**

the cloves are not spreading but fit closely together practically the entire length of the individual clove

**3.2****damage**

any injury or defect which materially affects the appearance, eating and shipping qualities of the individual bulb

**3.3****diameter**

the greatest dimension at the equator

**3.4****dirt or staining**

presence of dirt or material staining on the bulb

**3.5****dry garlic**

produce in which the stem and outer skin of the bulb is sufficiently dry with a moisture content of 7 % – 8 %

**3.6****fairly well-enclosed**

the bulb is enclosed with one or more layers of the skin or scale

**3.7**

**fairly well-filled and fairly plump**

each bulb contains clove that is not more than slightly loose in its covering and is not shriveled

**3.8**

**length**

the longest dimension at the right angles to a straight line running from the neck to the root

**3.9**

**mature and well-cured**

garlic exhibits 'tight neck', firm, sufficiently dried, fully mature (100 days – 120 days after inflorescence) and the plants must have flowers

**3.10**

**similar varietal characteristics**

garlic must be sufficiently similar in color, shape and character of growth

**3.11**

**tops**

when considering this factor, the appearance of the whole lot should be considered. For braided garlic, there should be no requirement as to the length of tops; for loose bulbs, the tops should not be more than one inch

**4 Varieties**

**4.1 'Ilocos white'** – This variety has white scales, moderately resistant to pests and diseases and with good keeping quality. It has 18 cloves per bulb with pyruvic acid content of 9.90 micromoles per g fresh weight. It matures in 94 days - 124 days with a potential yield of 5 t/ha – 6 t/ha.

**4.2 'Tan bolters'** – This variety has bigger bulbs than 'Ilocos White'. It has a tan color with 20 cloves per bulb and pyruvic acid content of 10.8 micromoles per g fresh weight. It matures in 94 days – 122 days and has a good keeping quality.

**4.3 'Laguna'** – The outer scale of this variety is reddish brown in color and underlying scales are dirty white. It has a compact bulb.

**5 Minimum requirements**

Garlic must meet the following requirements:

**5.1** Sound and well-developed;

**5.2** Free from diseases, dead and living insects, mold and other contaminants;

**5.3** Free from mechanical and chemical damage;

**5.4** Clean and practically free of visible foreign matter such as dirt; and

**5.5** Free of externally visible sprouts.

## 6 Classification

**13.1 Extra class** – Bulbs in this class must be of superior quality and have color characteristic of the variety. The bulbs must be mature, intact, regularly-shaped, clean, well-cured, free of defects with the exception of superficial defects provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package. The cloves must be compact. The roots must be cut close to the base of the bulb.

**6.2 Class I** – Bulbs in this class must be of good quality, mature and well-cured, fairly regularly-shaped, compact with cloves well-enclosed, well-filled and fairly plump. The bulbs are free from mold, decay, shattered cloves, sprouts, sunscald, cuts and from damage caused by stains, disease and insects. Slight bulb swellings may be allowed. The tops shall not be more than 5 cm in length. The roots must be cut close to the base.

**6.3 Class II** – Bulbs in this class must be mature and well-cured, compact, fairly well enclosed, may be irregularly shaped, with cloves fairly plump, reasonably free from mold, decay, sprouts, cut and from damage caused by dirt or stains, roots and disease. Healed injuries and slight bruises may be allowed. The tops shall not be more than 5 cm in length.

## 7 Size classification

Garlic shall be classified according to size based on diameter as follows:

<b>Classification</b>	<b>Size</b>	<b>Diameter (cm)</b>
Extra class	Large	> 4.0
Class I	Medium	3.0 - 3.9
Class II	Small	2.0 - 2.9

## 8 Tolerances

### 13.1 Quality tolerances

**8.1.1 Extra class** – Five per cent by weight of bulbs not satisfying the requirements of the class but meeting those of Class 1.

**8.1.2 Class 1 and class II** – Five per cent by weight of bulbs not satisfying the requirement of the class but meeting those of Class II. Not more than 1 % by weight of bulbs may exhibit decay and external visible sprouts.

## **8.2 Size tolerances**

For all classes, ten percent by weight of bulbs conforming to the size immediately above and/or below that specified.

## **9 Sampling**

Sampling method to be used for ascertaining conformance to the requirements of this specification shall be in accordance with PNS/ISO 874 – 1980 (E).

## **10 Packaging**

Garlic shall be packed in red bags or any container that will adequately protect the products from normal hazards of transportation and handling. Packages must be clean and free of all foreign matter.

## **11 Marking or labeling**

Each container shall be properly labeled with the following information:

- 13.1** Name of product, variety or commercial type;
- 11.2** Class and size;
- 11.3** Net weight (kg);
- 11.4** Name and address of producer or exporter; and
- 11.5** Product of the Philippines

## **12 Contaminants**

### **12.1 Heavy metals**

Cloves of garlic shall comply with those maximum residue levels for heavy metals established by the Codex Alimentarius Commission and/or authority for this commodity.

### **12.2 Pesticide residues**

Cloves of garlic shall comply with those maximum residue limits established by the Codex Committee on Pesticide Residues and/or authority for this commodity.

## **13 Hygiene**

**13.1** It is recommended that the product covered by the provisions of this standard be prepared and handled in accordance with appropriate sections of the Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1 – 1969, Rev. 2 – 1985).

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

## References

PNS/BAFPS 51:2007

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.

Bautista, O.K. 2000. Bulbcrops database. PCARRD Book series 172/2000. 125 p. Los Baños, Laguna

GMTFM Standards for Garlic (undated)

Philippine Trade Specification for Garlic: PTS 054 –09.14; 1969

UN/ECE Standard FFV – 18: Concerning the marketing and commercial quality control of garlic.

United States Standards for Grades of Garlic. September 1981.

B P S

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Product Quality

The use of the PS Certification Mark is governed by the provisions of Department Administrative Order No. 01 series of 1997 – Revised Rules and Regulations Concerning the Philippine Standard (PS) Quality and / or Safety Certification Mark Scheme by the Bureau of Product Standards. This mark on a product/container is an assurance by the manufacturer/producer that the product conforms with the requirements of a Philippine standard. Details of conditions under which a license to use the PS Certification Mark may be granted can be obtained from the Bureau of Product Standards, Department of Trade and Industry, 361 Sen. Gil J. Puyat Avenue, Makati City.



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Product Safety

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Bureau of Agriculture and Fisheries Product Standards**

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