

PHILIPPINE NATIONAL STANDARD

PNS/BAFPS 56:2007
ICS 065.020

Fresh fruits – Watermelon – Grading and classification



BUREAU OF PRODUCT STANDARDS

Foreword

The revision of the Philippine National Standard for Watermelon (PNS/BAFPS 56:2007) 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 56:2007 supersedes the existing standard for watermelon developed by the Philippine Trade Standards (PTS No. 051 – 12.00, 1970) through Administrative Order No. 78, series 1970.

A Technical Committee and Sub-Committee were organized by the Bureau of Agriculture and Fisheries Product Standards (BAFPS) through No. 411, series of 2001, and Special Order No. 169, series of 2007 to identify members and experts that shall be involved in the formulation of the PNS for Watermelon. BAFPS in collaboration with the TC conducted technical reviews and public consultations in the three major islands of the country for the finalization of the draft standards.

PNS/BAFPS 56:2007 aims to provide common understanding on the scope, definitions, varieties/cultivars, minimum requirements, classification, size classification, tolerances, sampling, packaging, marking and labeling, contaminants and hygiene.

Fresh fruits – Watermelon – Grading and classification

1 Scope

This standard establishes a system of grading and classifying commercial watermelon scientifically known as *Citrullus vulgaris* of the Gourd family, produced in the Philippines.

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**clean**

the watermelon is free from stains, dirt and other foreign material

3.2**damage**

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

3.3**mature (or physiologically mature)**

the watermelon has reasonably sweet flavor, the flesh has a typical color characteristics of the variety, if crisp, not tough or rubbery

3.4**overripe**

the watermelon is not firm, has an unpleasant flavor, mushy, dark and watersoaked or is excessively mealy

3.5**scar**

mark(s) on the watermelon produced due to improper handling or adverse condition during growth which affects its appearance, shape and color

3.6**similar varietal characteristic**

the watermelon in any lot are of same general shape, color, flesh characteristics and thickness of rind

3.7

sunburn/sunscald

mark(s) on the watermelon produced due to adverse condition during growth which affects its appearance, shape and color

3.8

well-formed

the watermelon has the typical shape of the variety

4 Varieties/Cultivars

The recommended cultivars and their characteristics are summarized in Table 1 (J. R. Deanon, Jr. and G. G. Villegas., 1984., Annex A).

Some commercial seedless watermelon grown in the Philippines (Table 2, Annex B).

5 Minimum requirements

In all classes, subject to the special provisions for each class and the tolerances allowed, the watermelon must be mature; not overripe; whole; firm; well-formed; free of cracks; sound; clean, free of any visible foreign matter; practically free of pests affecting the general appearance of the produce; practically free of damage caused by pests; free of abnormal external moisture, excluding condensation following the removal from cold storage; free of any foreign smell and/or taste; fresh in appearance; have similar varietal characteristics in shape, colour and taste and free of pronounced blemishes. The peduncle, if present, should not exceed 5 cm.

The development and condition of the watermelon must be such as to enable them to: (a) withstand transport and handling; and (b) arrive in satisfactory condition at the place of destination.

6 Classification

Watermelons are classified in three classes as defined below:

6.1 Extra class – Watermelons must be of superior quality. They must be the characteristic of the variety and/or commercial type and well-formed. They must be free of defects, with the exception of very slight superficial defects, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package.

6.2 Class 1 – Watermelons must be of good quality. They must be the characteristic of the variety and/or commercial type. The following 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) slight defects in shape; and (b) slight defects such as bruising, scratches or other mechanical damage. The total area affected shall not exceed 10 % of the total surface. The defects must not, in any case, affect the pulp of the fruit.

6.3 Class II – Watermelon which do not qualify for inclusion in the higher classes, but satisfy the minimum requirements specified in Clause 5. The following may be allowed, provided the watermelon retain their essential characteristics as regards the quality, the keeping quality and presentation in the package: (a) defects in shape; (b) defects such as bruising, scratches or other mechanical damage. The total area affected shall not exceed 15% of the total surface. The defects must not, in any case, affect the pulp of the fruit.

7 Size classification

Watermelons shall be classified according to size and weight.

Size	Weight/fruit (kg)
Small	< 3.0
Medium	3.1 - 4.0
Large	4.1 - 7.0
Extra large	> 7.0

8 Tolerances

8.1 Quality tolerances

8.1.1 Extra class – Five percent by number or weight of watermelons not satisfying the requirements of the class, but meeting those of Class I or, exceptionally, coming within the tolerances of that class.

8.1.2 Class 1 – Ten percent by number or weight of watermelons 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.

8.1.3 Class II – Ten percent by number or weight of watermelons satisfying neither the requirements of the class nor the minimum requirements and without rotten fruit.

8.2 Size tolerances

For all classes, 10 % by number or weight of watermelons not satisfying the requirements as regards sizing, but failing within the size immediately above or below those indicated in Clause 7.

9 Sampling

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

10 Packaging

Watermelons of the same class shall be packed in plastic crates weighing not more than 30 kg net or similarly use protective containers to avoid hazards due to handling and transport. The materials used inside the package must be clean and of good 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 labeling has been done with non-toxic ink or glue.

11 Marking and labeling

Each crate shall be labeled properly with the following information:

- 11.1** Name of product, variety or commercial type;
- 11.2** Class and size;
- 11.3** Net weight (kg);
- 11.4** Name and address of producer, trader and exporter;
- 11.5** Province where grown; and
- 11.6** Product of the Philippines.

12 Contaminants

12.1 Heavy metals

Watermelons 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

Watermelons shall comply with those maximum residue limits established by the Codex Alimentarius Commission and/or authority for this commodity.

13 Hygiene

13.1 It is recommended that the produce 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. 4 – 2003), and other relevant Codex texts such as Code of Hygienic Practice and Code of Practice.

13.2 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).

Annex A

Table 1 – Recommended watermelon cultivars in the Philippines

Character	‘Sugar baby’	‘Crimson sweet’	‘Charleston gray’
Maturity (d)	75 - 96	85 - 90	80 - 95
Fruit dia./size (cm)	20.3	27.9 x 48.7	(large, long, about 10 kg each)
Shape	almost round	blocky, oval round	oblong
Rind	hard dark green that withstand handling and shipping damage	handsomely striped with dark green	mottled light green
Flesh	solid, crisp, fine-textured dark red	deep-red, firm and crisp	bright red
Seed	small, brown	small, dark brown	small, dark brown
Yield (ton/ha)	20 - 25	15 - 20	40 - 50
Growth habit	semi-viny	semi-viny	semi-viny
Sex expression	monoecious	monoecious	monoecious
Cracking	resistant	moderately resistant	–
Adaptability	low elevation	low elevation/dry season	low elevation
Reaction to diseases	resistant to most foliage diseases	tolerant to anthracnose and fusarium wilt	resistant to anthracnose and fusarium wilt

Source: Deanon, J.R. Jr. and G.G. Villegas. 1984. Watermelon. Philippine Science Encyclopedia. Vol. 6. Agriculture. pp. 173 – 178.

Annex B

Table 2 – Some commercial seedless watermelon grown in Philippines.

Variety	Size (kg)	Shape	Flesh	Rind	Disease Tolerance
126 Quality	7.5	Round	Red	Blue green, dark green stripes-durable	Yes
158 Prosperity	6.0	Oval	Bright Red	Dark green	Yes
Black Pearl	4.0	Oval	Red	Black	Yes
Orchid Sweet	4.0	Globe	Bright Yellow	Light Green, Dark Green Stripes	No
Red Export	5.0	Globe	Red	Light Green, Green Stripes	Yes
Sky Bell	1.5	Short Oblong	Bright Red	Green, Light Green Veins	No

Other varieties of watermelon grown in the country are: Klondyke, Stripped Klondyke, Charleston Gray and Dixie Queen.

Hybrids from Japan and US varieties are also commercially grown such as Tender sweet, Honey Cream and Mallorca. They are sweet varieties.

References

PNS/BAFPS 56:2007

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.

Administrative Order No. 78, series 1970. Standardization of Philippine Watermelon. (Philippine Trade Standard No. 051 – 12.00; 1970). Bureau of Standards, Manila.

Deanon, J.R. Jr. and G. G. Villegas. 1984. Watermelon. Philippine Science Encyclopedia. Volume VI Agriculture. Pp.173 - 178.

Watermelon. Postharvest Handling and Market Preparation. New Guayana Marketing Corporation (NGMC) and the National Agricultural Research Institute (NARI).

Standard for Watermelons. Commission Regulation (EC) No. 1862/2004. Official Journal of the European Union. October 26, 2004.

http://www.hort.purdue.edu/prod_quality/commodities/watermelon.html

<http://www.region10.dost.gov.ph>

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