

PHILIPPINE NATIONAL STANDARD

PNS/BAFS 333:2022

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Onion – Product Standard – Grading



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Foreword

In 2017, the Philippines faced challenges in complying with trade requirements for onion, particularly on the Good Agricultural Practices (GAP) certification in the ASEAN region. As a response, the Bureau of Agriculture and Fisheries Standards (BAFS) conducted an internal consultation to determine whether the issue of GAP certification compliance was related with the relevant ASEAN standards. Further, a comparative assessment was done between the ASEAN Standards for Onion (ASEAN Stan 23:2011) and Shallots (ASEAN 14:2009) and Philippine National Standard (PNS) for Common Onion and Shallots (PNS/BAFPS 14:2004). Based on the results of the assessment, the experts agreed to amend the PNS considering the recommended specifications indicated in the ASEAN standard. Thus, the amendment of the PNS aimed to address concerns on quality and trade requirements for onion and harmonize it with the existing ASEAN standards.

The Technical Working Group (TWG), composed of representatives from the relevant government agencies, academe, Civil Society Organizations (CSOs), and private sector, was created to amend the PNS through the following Special Orders (SOs):

- a) SO No. 1092, series of 2018 (Creation of Technical Committees and Its TWGs for the Development of PNS for Agriculture and Fisheries Products, Machinery, Tools, and Equipment);
- b) SO No. 322, series of 2019 (Addendum to Special Order No. 1092 for the Creation of Technical Committees and its TWGs for the Development of PNS for Agriculture and Fisheries Products, Machinery, Tools, and Equipment);
- c) SO No. 442, series of 2020 (Creation of Technical Committees and its TWGs for the Development of PNS for Agriculture and Fisheries Products, Machinery, and Structures);
- d) SO No. 81, series of 2021 (Creation of TWG for the Development of PNS for Agriculture and Fishery Products and Machinery, Tools, and Equipment); and
- e) SO No. 103, series of 2022 (Creation of TWG for the Development of PNS for Agriculture and Fishery Products, Machineries, and Infrastructures).

The draft PNS underwent a series of TWG meetings and stakeholder consultations from 2018 to 2022 conducted physically and via online platforms before its endorsement to the DA Secretary for approval.

This Standard includes the following significant changes compared to its previous version:

- a) Commercial varieties of onions covered in the scope;
- b) Deletion of terms that has not been used in the standard;
- c) Adoption of minimum requirements from the ASEAN Standard for Onion (ASEAN Stan 23:2011);
- d) Size classification for yellow and red onions; and
- e) Adoption of provisions for grading, tolerances, methods of analysis and sampling, packaging, and contaminants from the ASEAN Standard for Onion (ASEAN Stan 23:2011).

This Standard cancel and replaces PNS/BAFPS 14:2004 which has been technically amended. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2.

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1 Scope

This standard applies to commercial varieties of yellow and red onions (*Allium cepa* L.) of the Amaryllidaceae family to be supplied fresh¹ to consumers. Onions for industrial processing are excluded.

2 Normative References

The following documents are referred to in the text in such a way that some or all their contents constitute the requirements of this document. The latest edition of the referenced documents (including any amendments) applies.

Association of Southeast Asian Nations (ASEAN). (2009). ASEAN standard for onion (ASEAN Stan 13:2009).

<https://atr.asean.org/standards/detail/227/asean-standard-for-onion>

ASEAN. (2014). ASEAN principles for food import and export inspection and certification. <https://atr.asean.org/standards/detail/298/asean-principles-for-food-import-and-export-inspection-and-certification2014>.

Bureau of Agriculture and Fisheries Product Standards (BAFPS) - Department of Agriculture (DA). (2011). Fresh fruits and vegetables – Sampling (PNS ISO 874:2011).

http://www.bps.dti.gov.ph/index.php/component/booklibrary/115/view_b/1165/fruits-vegetables-and-derived-products-in-general/8615/fresh-fruits-and-vegetables-sampling

Bureau of Agriculture and Fisheries Standards (BAFS) - DA. (2017). Code of Practice (COP) for packaging and transport of fresh fruits and vegetables (PNS/BAFS 198:2017).

http://www.bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNS.BAFS.198-2017.COP-Packaging-and-Transport-for-Fresh-Fruits-and-Vegetables.pdf

BAFS - DA. (2017). General Standard for Contaminants and Toxins in Food and Feed (GSCTFF) (PNS/BAFS 194:2017).

http://www.bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNS%20BAFS%20194%20-%202017%20-%20General%20Standard%20for%20Contaminants%20and%20Toxins%20in%20Food%20and%20Feed.pdf

BAFS - DA. (2020). Principles and guidelines for national food control system (PNS/BAFS 293:2020).

[http://www.bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNS%20293%20National%20Food%20Control%20System%20\(1\).pdf](http://www.bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNS%20293%20National%20Food%20Control%20System%20(1).pdf)

¹ Onions for fresh consumption means produce in which the pseudo stem and the outer skin of the bulb is completely dry.

BAFS – DA. (2020). Principles for the establishment and application of microbiological criteria for foods (PNS/BAFS 307:2020).
http://bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNSBAFS%20307-2020%20Establishment%20and%20Application%20of%20Microbiological%20Criteria%20related%20to%20Food.pdf

Codex Alimentarius Commission (CAC). (1999). Codex recommended methods of analysis and sampling (CXS 234-1999).
https://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXS%2B234-1999%252FCXS_234e.pdf

CAC. (2003). Codex guidelines for food import control systems (CXG 47-2003). <https://www.fao.org/3/y6396e/Y6396E02.htm>

CAC. (2020). COP – General principles of food hygiene (CAC/RCP 1 – 1969, Rev. 4 – 2020). https://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXC%2B1-1969%252FCXC_001e.pdf

3 Terms and Definitions

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

3.1

bulb

modified underground structure consisting of a short stem surrounded by fleshy scale leaves or thickened leaf bases (BAFS - DA, 2021, *modified*)

3.2

curing

rapid closing of the neck and drying out of outer layers under favorable conditions (Bautista & Esguerra, 2007)

3.3

damage/defect

any injury which materially affects the appearance and transport and eating qualities of the individual bulb (BAFS - DA, 2021, *modified*)

3.4

diameter

greatest horizontal dimension of the bulb expressed in metric units (cm) (BAFS - DA, 2021, *modified*)

3.5 grading

process of classifying the produce into groups according to a set of criteria of quality and size recognized or accepted by the industry. Each group bears an accepted name and size grouping. Grades are the names of the groups under which the produce are classified e.g. Extra Class, Class I, and Class II (BAFS - DA, 2021)

4 Minimum Requirements

In all classes, subject to the special provisions for each and the tolerances allowed, onions shall have/be:

- a) whole bulb with dry pseudo stem at least 2 cm from the neck of the bulb;
- b) shape, color, and taste characteristic of the variety;
- c) free of sprouts and roots;
- d) clean, practically free of any visible foreign matter;
- e) practically free from pests and their damage;
- f) practically free from mechanical and/or physiological damages;
- g) free from foreign smell and taste; and
- h) sound; free from rotting and deterioration such as to make it fit for consumption.

4.1 Minimum Maturity Requirements

Onions shall be harvested and have reached an appropriate degree of development and maturity in accordance with criteria proper to the variety and area in which they are grown. Onion bulbs should be cured immediately after harvest.

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

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

5 Grading

Onions are graded into three classes as defined below:

- 5.1 **Extra Class** – Onions in this class shall be of superior quality. They shall be practically free of damage/defects provided these do not affect the general appearance, the quality, the keeping quality, and presentation in the package.
- 5.2 **Class I** – This class includes onions, which do not qualify for inclusion in the Extra Class, but satisfy the minimum requirements specified in Section 4. Onions in this class shall be of good quality. Slight defects in shape, color, firmness, and damage in the outer skin of the bulb may be allowed provided

these do not affect the general appearance, the quality, the keeping quality, and presentation in the package.

- 5.3 Class II** – This class includes onions which do not qualify for inclusion in either of the two previous higher classes, but satisfy the minimum requirements specified in Section 4. Onions in this class shall be of good quality. Defects of shape, color, firmness, and damage in the outer skin of the bulb may be allowed provided these do not affect the general appearance, the quality, the keeping quality, and presentation in the package.

6 Size Classification

Bulb size is determined by the equatorial diameter of each bulb or a diameter range per package. Table 1 is a guide to be used on an optional basis.

Table 1. Size Classification of Common Onion

Size code	Equatorial Diameter (cm)	
	Red onion	Yellow onion
1 (Extra large ¹)	> 7.0	> 8.5
2 (Large)	> 5.0 – 7.0	> 6.5 – 8.5
3 (Medium)	> 3.0 – 5.0	> 4.5 – 6.5
4 (Small)	1.5 – 3.0	2.5 – 4.5
¹ Locally known as “jumbo” or “oversized”		

7 Tolerances

7.1 Quality Tolerances

- 7.1.1** At all marketing stages, tolerances with respect to quality and size shall be allowed in each lot for produce not satisfying the requirements of the class indicated. Conformity assessment for the produce should be conducted in accordance with the relevant provisions in the PNS/BAFS 293:2020 (Principles and guidelines for national food control system), ASEAN Principles for Food Import and Export Inspection and Certification (CAC/GL 20-1995 - Principles for food import and export inspection and certification, MOD), and/or the CXG 47-2003 (Codex guidelines for food import control systems).

- 7.1.2 Extra class** – Five percent (5%) by number of onions not satisfying the requirements of the Extra class, but meeting those of Class I or, exceptionally, coming within the tolerances of Class I.

- 7.1.3 Class I** – Ten percent (10%) by number of onions not satisfying the requirements of Class I, but meeting those of Class II or, exceptionally, coming within the tolerances of Class II.

7.1.4 Class II – Ten percent (10%) by number of onions not satisfying the requirements of Class II or the minimum requirements (Section 4.0), with the exception of produce affected by rotting or any other deterioration rendering it unfit for consumption.

7.2 Size Tolerances

For all classes, 10% by number of onions not satisfying the requirements as regards sizing, but falling within the size immediately above or below those indicated in Section 5.

8 Methods of Analysis and Sampling

Analytical and sampling methods to be used for ascertaining conformance to the requirements of this specification shall be in accordance with relevant text in PNS ISO 874:2011 (Fresh fruits and vegetables – Sampling) and CXS 234-1999 (Codex recommended methods of analysis and sampling) or their latest issuances.

9 Packaging

Onions shall be packed in such a way as to protect the produce properly. The materials used inside the package shall be of food-grade quality, clean, and of a 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 labelling has been done with non-toxic ink or glue.

Onions shall be packed in each container in compliance with the PNS/BAFS 198:2017 (COP for packaging and transport of fresh fruits and vegetables).

9.1 Description of containers

Food-grade containers (net bags and plastic/wooden crates) shall meet quality requirements, hygienic standards, ventilation requirements, and durability to ensure suitable and proper handling, shipping, and preserving the quality of onion bulb. Packages (or lot for produce presented in bulk) shall be practically free of foreign matter and off-odors.

10 Marking or Labeling

Each container shall be legibly labeled with the following information:

- a) Name of the product;
- b) Grade, variety name, and size classification;
- c) Net weight in kilograms (kg);
- d) Date of harvest;

- e) Farm location;
- f) Name and address/contact details of the producer;
- g) Brand name (optional);
- h) Traceability (bar) code (optional);
- i) The words “Product of the Philippines”; and
- j) Treatments applied, if any.

11 Contaminants

- 11.1** Onions product shall be compliant with the maximum residue limit (MRL) requirements for pesticides as established by the ASEAN Harmonized MRLs of Pesticides and/or Codex Alimentarius Commission. In cases where the MRLs of pesticides are not included in the databases of ASEAN and Codex Alimentarius Commission, the commodity shall conform with the established MRL of the national competent authority.
- 11.2** Onions shall comply with the maximum levels (MLs) of PNS/BAFS 194:2017 (GSCTFF).

12 Hygiene

- 12.1** It is recommended that the produce covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of CAC/RCP 1 – 1969, Rev. 4 – 2020 (Recommended international COP– General principles of food hygiene) and other relevant Codex texts such as Codes of Hygiene Practice and COP.
- 12.2** The produce should comply with any microbiological criteria established in accordance with the PNS/BAFS 307:2020 (Principles for the establishment and application of microbiological criteria for foods).

Bibliography

Association of Southeast Asian Nations (ASEAN). (2011). ASEAN standard for onion (ASEAN Stan 23:2011). <https://atr.asean.org/standards/detail/227/asean-standard-for-onion>

Association of Southeast Asian Nations (ASEAN). (2014). ASEAN principles for food import and export inspection and certification. <https://atr.asean.org/standards/detail/298/asean-principles-for-food-import-and-export-inspection-and-certification2014>.

Bautista, O. K., Esguerra, E.B. (2007). Postharvest Technology for Southeast Asian Perishable Crops (2nd ed.). University of the Philippines Los Baños (UPLB) & Bureau of Agricultural Research (BAR) - Department of Agriculture (DA). <http://www.nast.dost.gov.ph/images/pdf%20files/Publications/OutstandingAwardees%20BOOKS/2008/Postharvest%20Technology%20for%20Southeast%20Asia.pdf>

Bureau of Agriculture and Fisheries Product Standards (BAFPS) - Department of Agriculture (DA). (2011). Fresh fruits and vegetables – Sampling (PNS ISO 874:2011). http://www.bps.dti.gov.ph/index.php/component/booklibrary/115/view_bl/165/fruits-vegetables-and-derived-products-in-general/8615/fresh-fruits-and-vegetables-sampling

Bureau of Agriculture and Fisheries Standards (BAFS) - Department of Agriculture (DA). (2017). General Standard for Contaminants and Toxins in Food and Feed (GSCTFF) (PNS/BAFS 194:2017). http://www.bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNS%20BAFS%20194%20-%202017%20-%20General%20Standard%20for%20Contaminants%20and%20Toxins%20in%20Food%20and%20Feed.pdf

Bureau of Agriculture and Fisheries Standards (BAFS) - Department of Agriculture (DA). (2017). Code of practice for packaging and transport of fresh fruits and vegetables (PNS/BAFS 198:2017). http://www.bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNS.BAFS.198-2017.COP-Packaging-and-Transport-for-Fresh-Fruits-and-Vegetables.pdf

Bureau of Agriculture and Fisheries Standards (BAFS) - Department of Agriculture (DA). (2020). Principles and guidelines for national food control system (PNS/BAFS 293:2020). [http://www.bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNS%20293%20National%20Food%20Control%20System%20\(1\).pdf](http://www.bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNS%20293%20National%20Food%20Control%20System%20(1).pdf)

Bureau of Agriculture and Fisheries Standards (BAFS) - Department of Agriculture (DA). (2020). Principles for the establishment and application of microbiological criteria for foods (PNS/BAFS 307:2020). http://bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNSBAFS%20307-

2020%20Establishment%20and%20Application%20of%20Microbiological%20Criteria%20related%20to%20Food.pdf

Bureau of Agriculture and Fisheries Standards (BAFS) - Department of Agriculture (DA). (2021). Philippine National Standard (PNS) on fresh vegetables – Garlic – Grading.

http://www.bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNS%20BAFS%2051_Fresh%20vegetables%20%E2%80%93%20Garlic%20%E2%80%93%20Grading.pdf

Codex Alimentarius Commission (CAC). (1999). Codex recommended methods of analysis and sampling (CXS 234-1999). https://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXS%2B234-1999%252FCXS_234e.pdf

Codex Alimentarius Commission (CAC). (2003). Codex guidelines for food import control systems (CXG 47-2003). <https://www.fao.org/3/y6396e/Y6396E02.htm>

Codex Alimentarius Commission (CAC). (2020). Code of Practice (COP) – General principles of food hygiene (CAC/RCP 1 – 1969, Rev. 4 – 2020). https://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXC%2B1-1969%252FCXC_001e.pdf

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